



With
you
every day,
everywhere

ANNUAL
REPORT
2019

It's all about **the chemistry™**

 **SONGWON**



*Maurizio Butti receiving
the 2016 New Product
Innovation Award from
Frost & Sullivan.*

In memory of our beloved,
highly respected CEO and friend,

Maurizio Butti

(†07.09.2019)

When I think of myself and SONGWON, the lyrics of an old song come to my mind:

*“They say the things we’ve planned
are only foolish dreams
But we don’t need to prove a thing
To anyone, for we have just begun
And the best part of our lives is now.”*



Remember

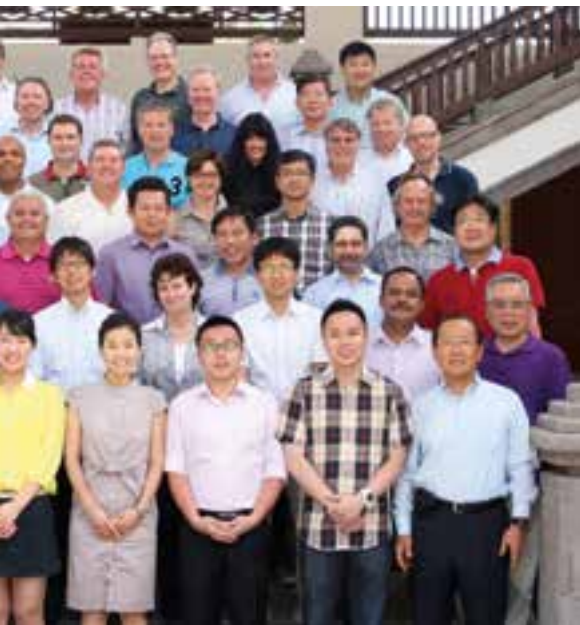


Maurizio Butti with SONGWON's founder Kyoung-jae (KJ) Park.

SONGWON's journey began in 1965 with its founder, the late Kyoung-jae (KJ) Park at the helm. Although the only producer of plastics additives in Korea at the time, KJ Park's vision for SONGWON was to go global. 40 years later in 2005, he met with Maurizio Butti, another industry veteran who he had known as a business friend for a long time and shared his thoughts on SONGWON's potential and innovative strength. This led Maurizio Butti to join the organization in 2006 and with the addition of his entrepreneurial ambition, SONGWON achieved a global co-leadership position in polymer stabilizers in the industry within less than a decade.

In 2019, with great sadness, SONGWON lost Maurizio Butti, our long-serving CEO who passed away unexpectedly in September.

ing our former CEO



Mirroring the founder's vision, Maurizio Butti retained the values, family-feeling and pioneering spirit of the company. With a deep commitment to integrity and hard work, he applied his tactical experience, industry insight and dynamic, hands-on approach to cultivate an environment of collaboration, innovation and the pursuit of excellence.

As SONGWON's CEO, supported by a strong management team, he drove SONGWON's ongoing success for 13 years and ensured that SONGWON remained in pole position. Maurizio Butti was not only well-respected across our organization, but also

throughout the industry by customers, shareholders and market leaders.

Maurizio Butti had true respect for SONGWON's history as well as a deep appreciation and understanding of the company's culture. Leading by example, he helped to create a vibrant and highly successful SONGWON family dedicated to finding solutions to challenges and seizing the opportunities within our reach. He is deeply missed by us all at SONGWON, but we continue to serve the plastics industry and further grow as a leading company to honor his contribution to SONGWON.

We
stand for





Passion

We are a committed team driven and dedicated to advancing our customers' interests and the industry as a whole.

Entrepreneurship

Each of us truly lives SONGWON's pioneering spirit. We transform innovative ideas, take risks, learn from them and continually move forward to set new trends.

Accessibility

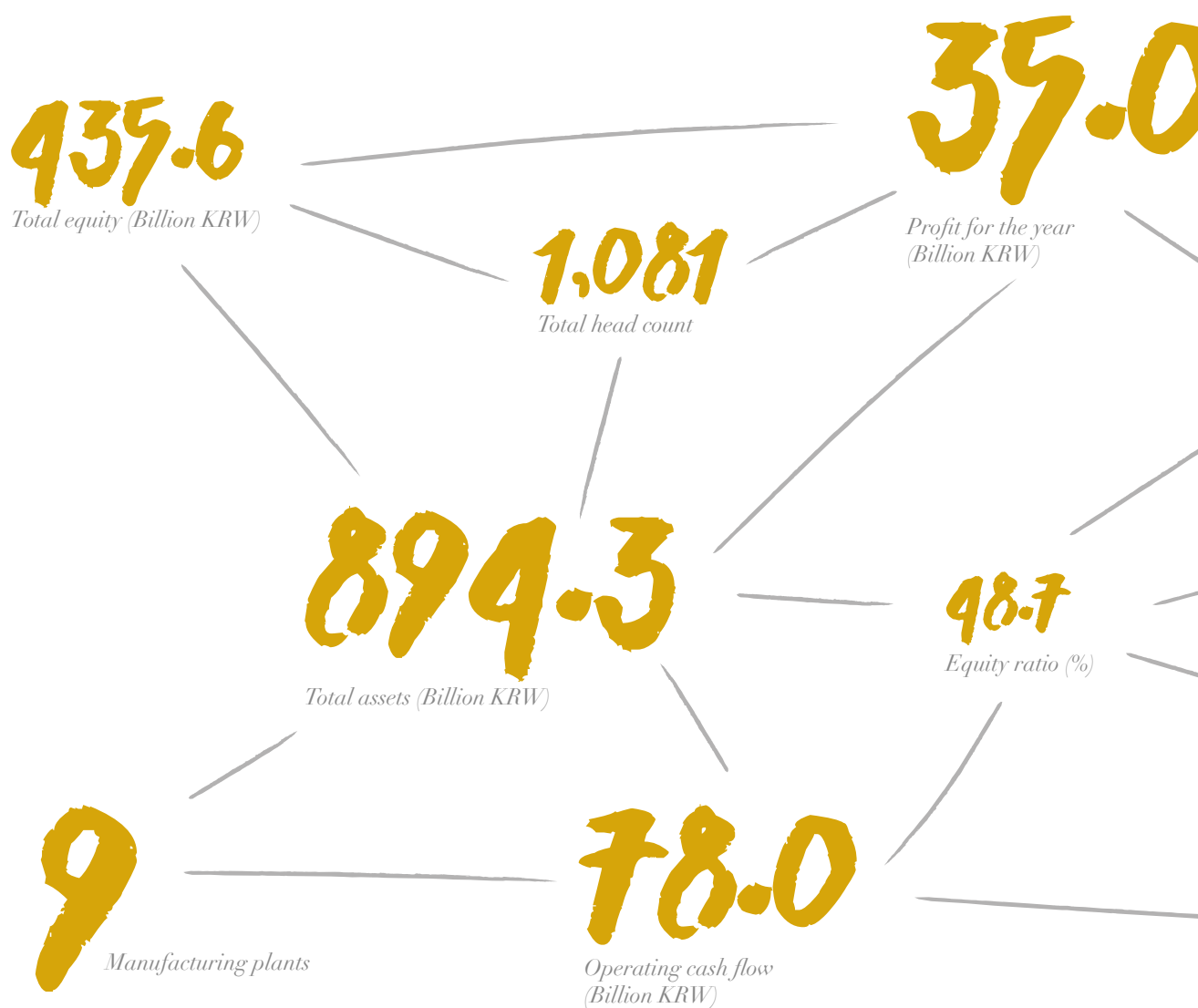
We see ourselves as an extended team that is always within reach with our support, expertise and value-adding solutions wherever and whenever our customers need us.

Credibility

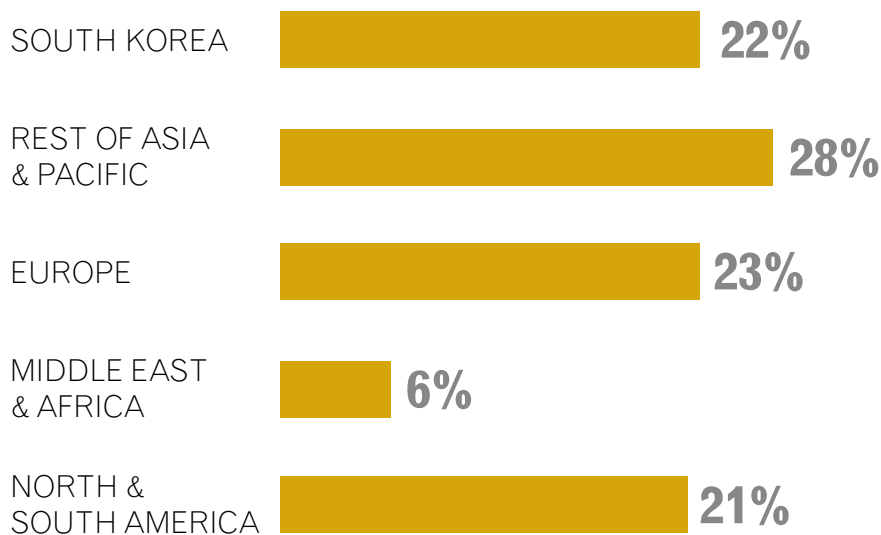
All of our people, products, processes and past bear the hallmark of SONGWON's reliability, trust and confidence in the future.

Expertise

Our highly-qualified, talented global team, leverages its extensive experience and profound innovative strength to focus on industry needs and provide customers with long-term sustainable value.

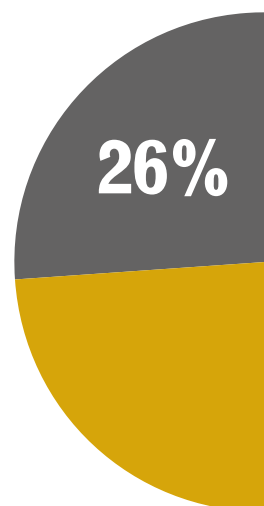


Sales by region in 2019



Sales by reporting

Performance Chemicals
("Tin Intermediates", "PVC Stabilizers and Polymers"
& "Specialty Chemicals")



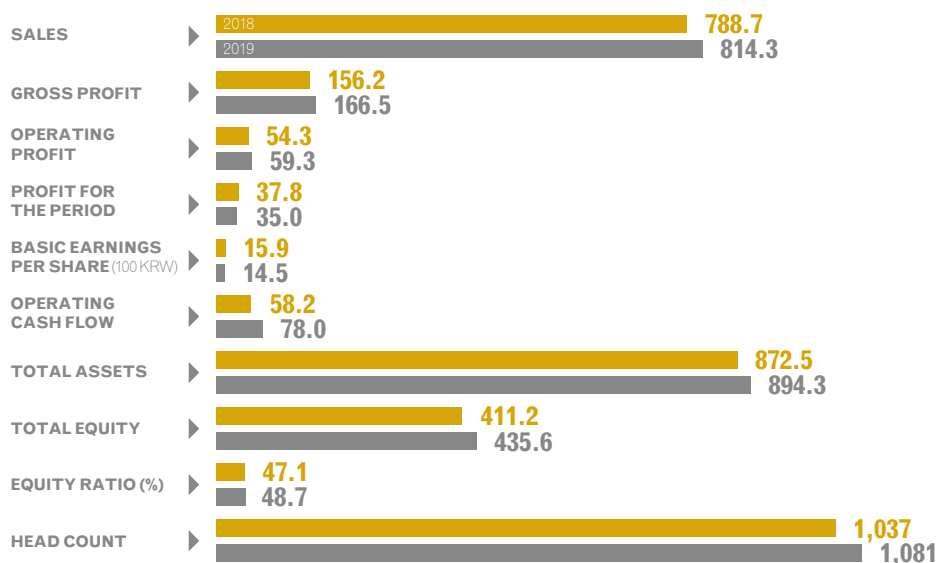


segment in 2019

Industrial Chemicals
("Polymer Stabilizers" &
"Fuel & Lubricant Additives")

74%

Key financial data



How we create value

Our inputs

Financial



Total assets
894.3 Billion KRW

Innovation



Technology
Innovation Center

Dedicated application
labs

66 products reviewed &
developed

50+ years of industry
experience

Manufacturing



9 world-class
facilities

Fully back integrated

Leading-edge
technologies

Workforce



1,081 employees

31 nationalities

100% commitment

Our business

360° sustaina

2 main rep

Best-in-cl
customer

8 Technica

Sustainab

Full comp
support

Reliable c

Strong glo
network

Culture o

Customer

ainable solutions

upporting segments

lass, comprehensive
support

al Service Centers

ole supply chain

liance & regulatory

on-time supply

lobal distributor

f innovation

s in over 60 countries

Our 2019 outputs

Financial



Total revenues
814.3 Billion KRW

Net incomes
35.0 Billion KRW

Innovation



Almost 40 new products
launched in the past 5 years

8 new products this year

Pre-registered 600+
chemical substances
for K-REACH

Manufacturing



LCAs (Life Cycle
Assessments)
implemented

Reduced GHG emissions

Switched to renewable
energy

Safety trainings & safety
working environment

TRCR 0.14 – lowest value
since 2008

Workforce



Added almost 100 new
talents to the global team

Strengthened synergy
across the business

International employee
assignments

1965

SONGWON Industrial Co., Ltd. founded in South Korea with a Head Office and plant in Busan

1965

1973

SONGWON is granted Trader's License by the South Korean Ministry of Commerce and Industry

1986

SONGWON's Ulsan plant comes on stream (South Korea)

1979

SONGWON Moolsan Co., Ltd. (holding company) is founded in Seoul (South Korea)

1988

SONGWON moves Head Office and plant from Busan to Ulsan (South Korea)

2002

SONGWON opens office in Maeam (South Korea)

1991

SONGWON awarded ISO-9002 certification

1983

SONGWON establishes 1st R&D Center in Ulsan with Ministry of Science and Technology approval (South Korea)

1992

Company moves to new SONGWON building in Seoul (South Korea)

1987

SONGWON opens office in Tokyo (Japan)

1977

SONGWON opens office in Seoul (South Korea)

1968

SONGWON starts up 2nd production site in Suwon (South Korea)
SONGWON Industrial Co., Ltd. becomes a publicly traded company (South Korea)

2001

SONGWON Japan K.K. established in Tokyo (Japan)

2005

SONGWON Brilliant Chemicals Co., Ltd. established in Shanghai (China)

Maeam plant for main Antioxidants comes on stream (South Korea)

SONGWON's Ulsan plant receives ISO 14001 Environment Management System Certification (South Korea)



2007

ChemService Asia Co., Ltd. established in Seoul (South Korea)

SONGWON China Ltd. established in Hong Kong (China SAR)

SONGWON International-India Pvt. Ltd. established in Mumbai (India)

SONGWON Trading Shanghai Ltd. established in Shanghai (China)



2010



2012

SONGWON Baifu Chemicals (Tangshan) Co., Ltd. established in Tangshan (China)

SONGWON Additive Technologies-Americas, Inc. for production of one pack systems (OPS) established in Houston (USA)

SONGWON opens new OPS plant in Abu Dhabi (UAE)

SONGWON OPS plant in Qingdao starts up in China



2016

SONGWON makes green field investment for OPS plant in Abu Dhabi (UAE)

SONGWON Industrial Group acquires Sequent Specialty Chemicals, Ltd. in Panoli (India)



2014



2018

New branches opened in Taiwan, Singapore and Malaysia

Increased interest in Qingdao Long Fortune SONGWON Chemical Co., Ltd. in Qingdao (China)

Extended product range with several new products (SONGNOX® 1330, SONGNOX® 5057, SONGNOX® L570, SONGSORB® CS 400)

Expanded functional monomers production line in Ulsan (South Korea)



2006

SONGWON International AG established in Frauenfeld (Switzerland)

SONGWON International – Americas, Inc. established in Friendswood (USA)



2009

IBL plant starts up in Maeam (South Korea)

SONGWON's Maeam plant awarded ISO 14001 Environment Management System Certification (South Korea)



2011

SONGWON Holdings AG ex Mantenere Holding AG acquired in Frauenfeld (Switzerland)

New AO 1076 production line starts up in the Maeam plant (South Korea)

SONGWON Chemicals Co., Ltd. established in Shanghai (China)

SONGWON Additive Technologies AG established in Frauenfeld (Switzerland)

SONGWON acquires ATG Additive Technology Greiz GmbH in Greiz (Germany)



2013

SONGWON Additive Technologies – Middle East FZE established in Dubai and Polysys Additive Technologies – Middle East LLC in Abu Dhabi (UAE)



2017

SONGWON establishes Qingdao Long Fortune SONGWON Chemical Co., Ltd. JV in Qingdao (China)



2017

SONGWON's new Technology Innovation Center officially opened in Maeam (South Korea)

New world-scale aminic AOX plant for lube applications starts up in Ulsan (South Korea)



2019

New application lab for Coating Additives starts up in Maeam (South Korea)

Launched SONGFLAME® Flame Retardant Synergists at K2019 in Dusseldorf (Germany)

2019

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for our Shareholders

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holders



Dear Shareholders,

Jongho Park
Chairman of the Board & interim CEO

Overall, 2019 was another solid year for SONGWON Industrial Group. Despite the many challenges related to the financial market volatility, ongoing trade tensions, fierce competition and the general slowdown in global trade, SONGWON achieved its highest sales result since the company began.

SONGWON generated consolidated revenues of 814.3 Billion KRW with a 3.2% increase year-over-year, and a consolidated net profit of 35.0 Billion KRW over a net profit in 2018 of 37.8 Billion KRW. The Group's operating profit reached 59.3 Billion KRW in comparison to 54.3 Billion KRW in 2018, while EBITDA performance was around 11.7 % of sales.

SONGWON achieved its highest sales result since the company began

* GAIL the largest state-owned natural gas processing and distribution company in India

The fundamental pillars of SONGWON's business are steadfast and strong. Over the years, we have developed the flexibility and agility needed to compete in today's demanding markets and respond swiftly and effectively to fluctuations in demand. In 2019, we continued to invest in technology leadership and our pipeline of new products and further expanded our comprehensive expertise and service strength to bring added value to our stakeholders.

SONGWON named top vendor by GAIL

Throughout the year, the positive feedback we received across the business indicates that our strategy to become a preferred supplier to our customers is materializing. We were also honored to have been named a top vendor by GAIL* India Ltd. and for receiving an Export Award from KITA (Korea International Trade Association) for achieving USD 400 million in exports (July 2018 – June 2019).

The new CRM (Customer Relationship Management, Microsoft Dynamics 365 Sales) system launched in March enhanced our ability to nurture customer relationships and provided us with a unified approach to customer information while streamlining our processes.

Our businesses in 2019

The Group's approach to managing its business was changed in 2019 and is now organized into 2 main reporting segments "Industrial Chemicals" and "Performance Chemicals". Both segments have been defined based on SONGWON's product portfolio and its respective product families. Industrial Chemicals comprises the product lines Polymer Stabilizers (PS) and Fuel and Lubricant Additives (F&L) and Performance Chemicals comprises the product lines Tin Intermediates, PVC Stabilizers and Polymers (TPP) and Specialty Chemicals (SC).

The Group's division structure split into 2 reportable segments

Strategic collaboration

At SONGWON, we understand the power of collaboration and cooperating with other industry players has always been part of our strategy. In 2019, we reached another milestone in our long-term collaboration with Sabo SpA. Sabo launched the light stabilizer system, SABO®STAB UV 216 for tough agricultural applications which SONGWON's Technical Service, Global Application Community and highly experienced sales team will promote.

Strategic and successful collaborations achieve valuable results

To meet the 'ever-increasing need' for polyvinyl chloride (PVC) stabilizers, we also began strategically cooperating with JiangSu Uniwel Chemistry Co., Ltd. to develop and manufacture stabilizers for sale under the companies' respective brand names. SONGWON's PVC-stabilizer production will remain in South Korea.

Our approach of listening and working closely with customers enables us to gain insight into their challenges so that we can transform their specific needs into solutions that add value to their businesses. To help to address the current challenges of fire protection for wood materials in the building industry, we welcomed the opportunity to partner with Nordtreat AS, Europe's leading manufacturer of non-toxic FRs for wood and successfully launched our new SONGFLAME® FR synergist technology at K2019.

Collaboration has also enabled SONGWON to lead the way in sustainable packaging and label printing by partnering with the German innovative packaging specialists, Berry bpi group. We are proud of the fact that we are one of the 1st chemical companies in the world to package its products in heavy-duty PE-bags, made of recycled materials originating from different waste streams. In addition, SONGWON is one of the 1st companies in the industry using fiber laser marking technology for full label printing where all the required de-inking solvents for the packaging are continually recycled in a closed loop process.

1st company to package products in 20 kg PE bags made with recycled materials

Sustainability

Today, it is not possible to separate strategic business priorities from sustainability. It is, however, possible to grow profitably while contributing to society by producing innovative, more resource-efficient and sustainably manufactured products. Worldwide, sustainability and the circular economy, are hot topics for customers, consumers, regulators and policymakers, who demand that manufacturers develop sustainable solutions.

EcoVadis awards SONGWON a gold medal for the 3rd consecutive year

We are honored and very proud that for the 3rd consecutive year, SONGWON was awarded an EcoVadis gold medal for our sustainability efforts. Although sustainability is already at the core of all of SONGWON's activities and greatly influences the way we do business, in 2019, the management realized that we needed to raise our commitment to the next level. Our first step in 2019, was appointing SONGWON's 1st Chief Sustainability Officer to drive sustainability across the organization and to help us to achieve SONGWON's aim to be seen as an "enabler" supporting the industry's efforts towards a circular economy. We also invested resources, to facilitate the "design for circularity", which addresses the need to seek different stabilization solutions to allow multiple cycles of recycling.

1st Chief Sustainability Officer appointed

To make SONGWON's products more sustainable, we work closely with our carefully selected suppliers and make certain that they are aware of SONGWON's sustainable sourcing policy. We also ensure that sustainability is as relevant and important to them as it is to us.

By controlling and seeking to reduce energy and water consumption, as well as increasing the use of renewable raw materials whenever possible, we continue to steadily reduce the environmental impact of our business. In 2019, we also focused on ensuring that SONGWON's business conduct continues to be irreproachable and that our products and activities fully comply with international standards.

Operational Excellence

Operational excellence is key to achieving a competitive edge in our industry and responding to global challenges, flexibly adapting to changing market demands and reducing our environmental impact is essential to success.

Installed full automation system in our new SONGNOX[®] 1010 plant

At SONGWON, we strive for operational excellence by leveraging our global scale advantages, supporting innovation, optimizing production and becoming more resource efficient. This year we had a number of improvement initiatives such as the installation of a full automation system in our SONGNOX[®] 1010 plant. Our aim is to establish more effective ways of working that incorporate digital manufacturing, smart automation, modularization, sustainability, and standardization. To achieve this we must minimize complexity, make our work practices simpler and deliver superior quality products and services with high supply reliability. Throughout the year, raw material levels remained stable with some exceptions. The multiple sources policy we have adopted serves to protect SONGWON from any major impacts to supply.

Corporate Governance

Our steadfast commitment to creating sustainable long-term value for our shareholders depends on being recognized as a trusted and reliable business partner with consistently competitive and sustainable operations worldwide. We fully understand that this is only achievable with strong, sound governance practices firmly in place and by conducting our business with the highest level of integrity. Establishing and engaging in open dialogue with our shareholders is also essential.

New leadership expertise added

SONGWON's leadership believes that one of the most important aspects of running a sustainable business is having a comprehensive governance framework with a diverse and accountable Board of Directors and Executive Committee. In 2019, we welcomed a new member to SONGWON's Board, Markus Oppliger, who brings a unique mix of international corporate governance, leadership and finance expertise with him. We also added 2 experts to our Executive Committee who have been with us since 2011. Over the years, Elena Scaltritti has played a major role in advancing SONGWON's position as a PS industry leader worldwide. Olivier Keiser, who was also appointed Chief Sustainability Officer, has demonstrated his leadership abilities in managing various critical functions since joining SONGWON.

In September, we were deeply saddened to lose our CEO, Maurizio Butti who drove SONGWON's globalization progress and success, together with the management team since 2006. In order to ensure the best level continuity while the management and myself, carefully and systematically work on succession planning, I have assumed the role as interim CEO in addition to my responsibilities as Chairman of the Board.

Successfully completed 1st phase of ICFR

Remaining compliant at all times and ensuring we deliver reliable financial statements to our investors is a high priority for us. In 2017, Korea's National Assembly passed significant revisions to the 'Act on External Audit of Stock Companies', effective November, 2018 which is the most far-reaching reform to Korea's accounting and auditing practices since the original bill was enacted in 1981. 'Internal Control over Financial Reporting' (ICFR) aims to safeguard investor's interests. These recent changes mean higher standards for companies, auditors and financial regulators. Songwon Industrial Co., Ltd. must fully comply with these rules from 2020 and the entire Group as of 2023. In Q3/2019, SONGWON's operations in Korea successfully completed ICFR implementation and the model created by them is our template for launching ICFR across all the global entities.

People & Organization

The confidence and trust of customers earned over time is a core strength. Our ability to nurture long-term customer relationships lies with our 1,081 dedicated employees around the world who work tirelessly to exceed the expectations of our diverse range of customers.

31 different nationalities work at SONGWON

For this reason, we place great importance on creating and maintaining an open, positive and rewarding working environment and most importantly a safe one. We want our people to have long, fulfilling careers

at SONGWON, be comfortable in their surroundings and feel free to express their ideas. We respect and value diverse cultures, backgrounds, and perspectives, and understand that only connected and empowered employees can consistently achieve maximum performance.

In 2019, we added key competencies to strengthen our business. Our Talent Management System continues to help us identify key resources within SONGWON and enables us to make sure that employees can deliver to their full potential. We reward our key resources and high potentials and provide them with further development chances. In this way, we retain the best talents and support SONGWON's success.

Looking ahead

The positive results of our drive and determination over the past several years, to establish SONGWON's presence in new markets, businesses and applications will significantly contribute to growth in the coming years.

Going forward, we will continue to strengthen SONGWON's leading position by leveraging our ability to innovate, delivering on our operational excellence and making sustainability a key driver of our strategy. We confidently believe that SONGWON has the financial strength as well as the right products and technologies to effectively achieve our growth plans in 2020 and beyond.

We are also proud that we have solid management teams in place across the organization and a highly dedicated team who understand our mission and are fully committed to delivering exceptional results. SONGWON will continue to forge ahead into the next decade, excited about our opportunities and confident in a vibrant future for our company.

On behalf of the Board of Directors, the Executive Committee and SONGWON's global team, we thank you for your trust, confidence and continued support.



Jongho Park
Chairman of the Board & interim CEO

The SONGWON Industrial Group

Board of Directors

Hans-Peter Wüest

Executive Board Member



Jongho Park

Chairman of the Board & interim CEO



Markus Oppliger

Non-Executive Board Member

Up until 09/2019 when the CEO Maurizio Butti passed away, there were 7 BOD members

Choung-Sik Kim

Executive Board Member



Gerhard Schlosser

Non-Executive Board Member



Dieter Morath

Non-Executive Board Member

The SONGWON Industrial Group

Executive Committee



Jongho Park

Chairman of the Board & interim CEO



Giacomo Sasselli

Leader Strategic Investments



Doug Excell

Leader QA, Regulatory & Best Practices



Elena Scaltritti

Leader of Industrial Chemicals



Byungsoo Boo

Leader Operations



Hans-Peter Wüest

Chief Financial Officer



Olivier Keiser

Chief Sustainability Officer, Leader Procurement & International Supply



Philippe Schläpfer

Leader Performance Chemicals

Share Price Development

Volatile year ends with stability

In 2019, SONGWON ended the year on December 31st with a market cap of 373 Billion KRW which marked an 18.4% decrease in comparison to the market cap level achieved year-end 2018. During FY2019, the Korea Composite Stock Price Index (KOSPI) gained 7.7%. In July 2019, SONGWON's stock price peaked at 24,200 KRW. Based on the stock analysis from May to July, investors were especially optimistic towards SONGWON, despite the generally negative feelings towards the chemical sectors. After the company's preliminary results were communicated at the end of July, SONGWON's share price dropped slightly. In the middle of Q4/2019, SONGWON's share price dropped to its lowest level for the year at 14,900 KRW in November.

Throughout an overall challenging 12 months for the industry, the organization's weak share price performance was driven by poor sentiments in general in the chemical stocks sector which dropped by 5.8%. Furthermore, many of SONGWON's domestic investors reduced their positions in the chemical sector and the company's stakes held by domestic institutional investors also saw a reduction of 5% (of 1,217,544 shares). Taking a closer look at the first half of the year, SONGWON's share price was trading in the range of 17,000 KRW to 23,000 KRW.

Despite the sluggish earnings trend in the 4th quarter of 2018 and in the 1st quarter of 2019, the company's share price continued to trade above price-to-book ratio (PBR) 1X on the back of investors' expectations that demand for SONGWON's products would begin to pick up starting in the 2nd quarter of 2019. Investors were estimating and anticipating a margin expansion to occur in Q2/2019 after SONGWON's sales volume recovered from its downturn. Although in the 2nd quarter of the year, SONGWON's earnings did somewhat match the expectations of the market, it was not sufficient enough to move the existing trading range upwards.

When SONGWON's results came in lower than anticipated in the 2nd half of 2019, the market reacted disappointedly and subsequently SONGWON's share price dropped to trading below PBR 1X. The company's decreased earnings resulted in giving the market reason to erase the valuation premium which SONGWON had previously benefitted from.

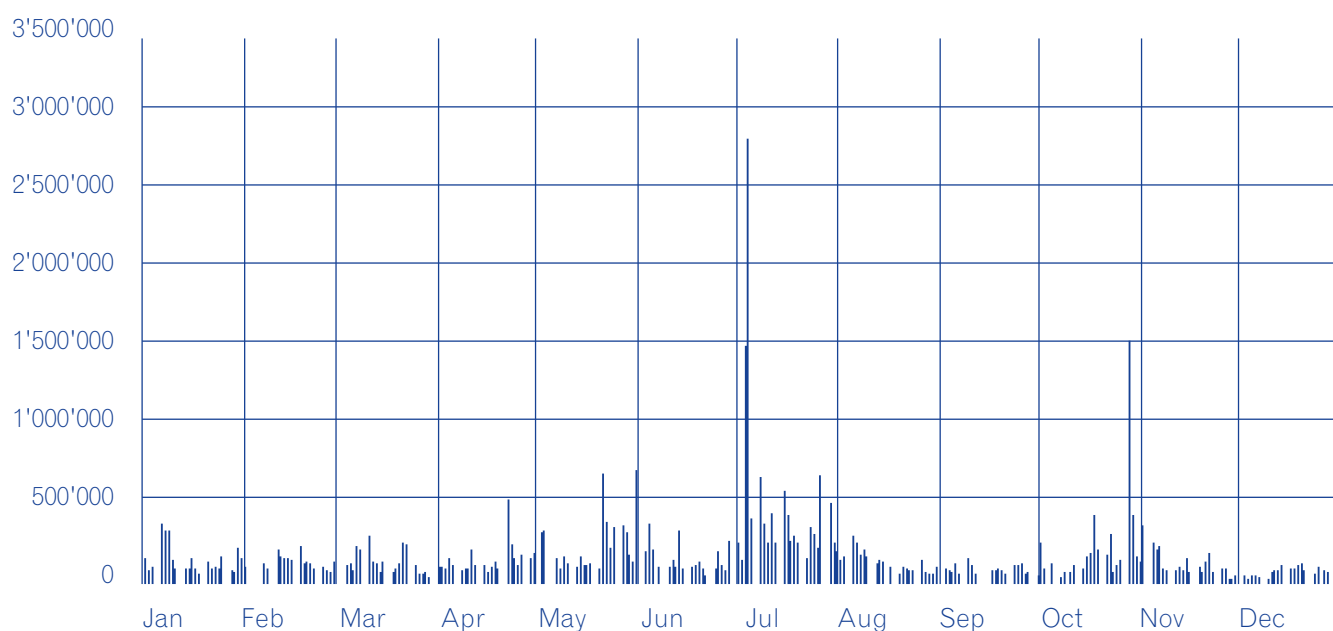
Although SONGWON felt the impact of the challenges affecting markets and its sector throughout the year, such as the mainly bad economic outlook in Korea due to ongoing global trade tensions, the share price stabilized at 15,000 KRW after the drop recorded in November. Supported by foreign investors accumulating shares in the final 2 months of the year, SONGWON's stock price stabilized and closed at the end of December at 15,550 KRW.

Despite the slowdown of its share price in the 2nd half of 2019, SONGWON is confident that the price will trend upwards in the near future, reflecting its good business outlook and strong earnings prospects on the back of demand increases for its core business due to substantial facility expansion by global petrochemical companies in the USA and Asia. Going forward, the organization also believes that the solid foundation that it has built over the years has well-placed it to continue delivering solid performance for both its customers and investors.

SONGWON share price 2019



SONGWON share volume 2019



Ticker:	KOSE: A004430
Stock exchange:	Korea
Listed since:	1977
Shares outstanding:	24 million
Market capitalization: (Million KRW)	373,200

Share price (31.12.2019):	15,550 KRW
52-week high:	24,200 KRW
52-week low:	14,900 KRW
Free float:	64.45%
Dividend per share (2019): (32% of nominal share value)	160 KRW



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Technical Service	61
Research & Development (R&D)	64
Manufacturing	66
Quality Assurance (QA)	70
Regulatory Affairs & REACH	75
People	79

Group structure

as of December 31, 2019

Global reach, local insight

SONGWON is a global leader in the development, manufacture and supply of specialty chemicals. Founded in 1965 and headquartered in Ulsan, South Korea, SONGWON is the 2nd largest producer of polymer stabilizers in the world. In addition to having group companies operating all over the world, SONGWON offers the added beneficial global advantage of its readily accessible local operations and valuable local insight. With a diverse team of dedicated industry experts, SONGWON closely collaborates with customers and industry experts to develop tailor-made, application-specific sustainable solutions.

Through proprietary technologies and excellent economics, SONGWON is successfully strengthening its global foothold particularly in emerging markets. The organization is well-positioned to continue its steady course of international expansion on the back of its combination of wholly or partly owned subsidiaries and 1 joint venture. The joint venture is facilitated by holding companies which enable SONGWON to manage risk and also provide further market access, shared risks and economies of scale, where appropriate.

- Manufacturing
- Holding
- Sales & Distribution
- Management Services
- Branch / Regional Office

Asia

Songwon International – Japan K.K.
(Tokyo, Japan)
SWSA-JP

100%

Qingdao Long Fortune Songwon Chemical Co., Ltd.
(Qingdao, China)
SWDM-CN

72%

Songwon Baifu Chemicals (Tangshan) Co., Ltd.
(Tangshan, PRC)
SBDM-CN

30%

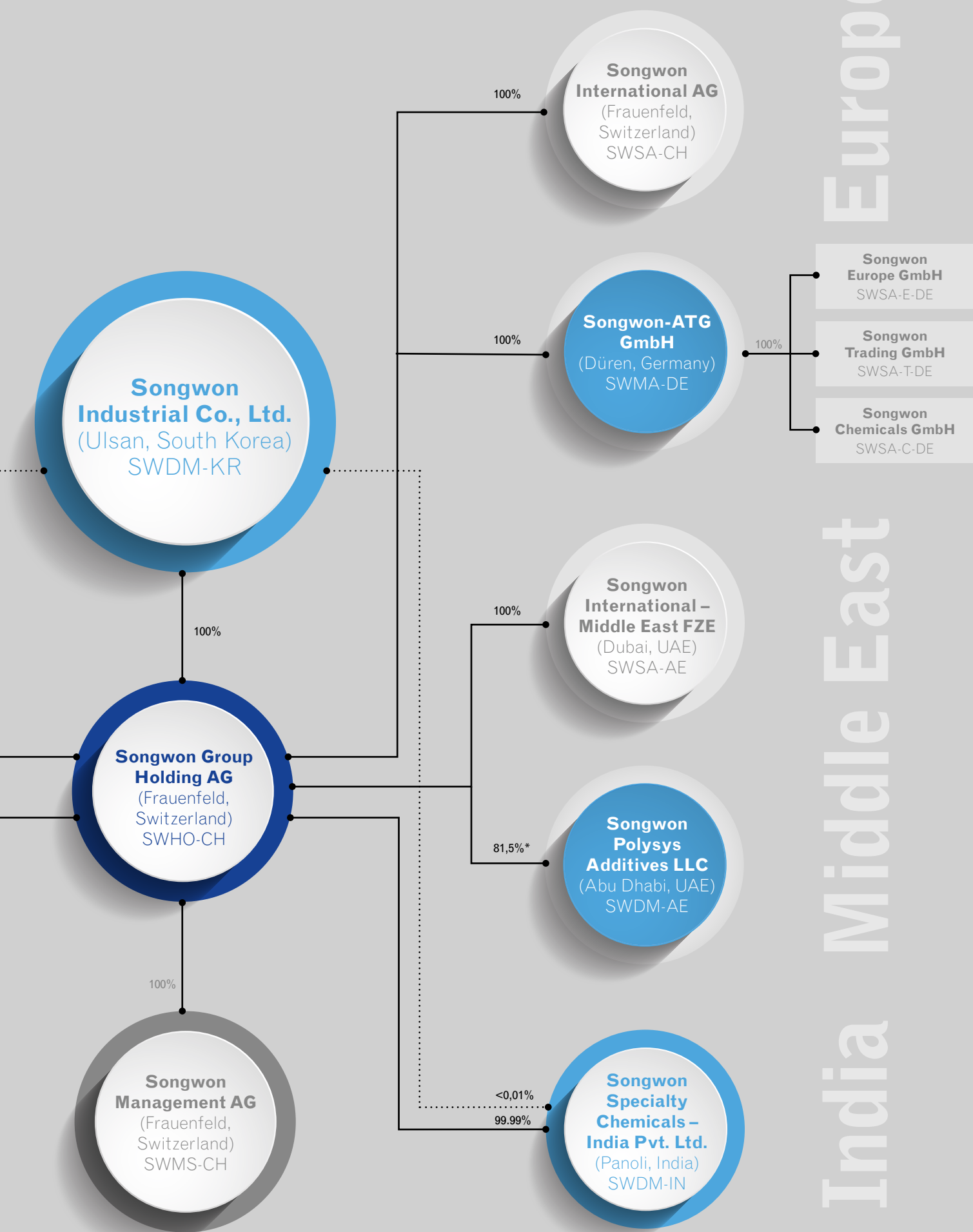
Songwon Industrial Co. Ltd.
Taiwan Branch / SWDM-KR-B-TW

Songwon Industrial Co. Ltd.
Singapore Branch / SWDM-KR-B-SG

Americas

Songwon International – Americas Inc.
(Houston, USA)
SWDM-US

100%



* 36.75% share holding plus 44.75% economical interest } in total 81.5%

Europe

India Middle East



Houston

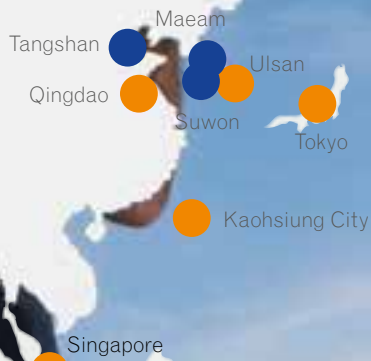
Greiz

Frauenfeld

Dubai

Abu Dhabi

Global Locations



-  Headquarters in Ulsan, Korea
-  Group companies, including 1 joint venture and 2 representative offices, located in 10 different countries on 3 continents
-  9 manufacturing facilities, 3 of which are located in Korea, and the others in Germany, USA, India, UAE, China as well as an additional manufacturing JV plant in China
-  A worldwide network of sales offices, distributors, customer service and logistic hubs and warehouses

	Headquarters & Affiliates	Manufacturing	Applications (GAC)	Technical Service	R&D
Germany, Greiz		●	●	●	
India, Mumbai				●	
India, Panoli	●	●			●
Japan, Tokyo	●			●	
PR China, Qingdao	●	●		●	
PR China, Tangshan		●			
Republic of Singapore, Singapore	●				
South Korea, Maeam		●	●	●	●
South Korea, Suwon		●		●	
South Korea, Ulsan	●	●		●	
Switzerland, Frauenfeld	●			●	
Taiwan, Kaohsiung City	●				
UAE, Abu Dhabi	●	●			
UAE, Dubai	●			●	
USA, Houston	●	●		●	

SONGWON Product Groups

Customer-focused sustainable solutions

SONGWON's industry expertise, leading edge technologies and market-oriented approach have been key to the development of our broad range of high-performance solutions. Our aim has always been to identify trends as early as possible and work closely with our customers to ensure that we are always well-prepared to meet their most demanding application criteria, as well as create value and enable them to achieve a competitive advantage.

As an industry leader, we also place great priority on reducing the environmental impact of the solutions we develop by using resources more efficiently and keeping sustainability in mind. Applying our many years of experience, we strive to make the products we deliver to our customers more efficient in terms of how they are manufactured and how they perform. To support this, we look at each of our products from their inception through to production, particularly at the materials and energy used, and also consider their lifecycle in relation to reuse, refurbishment or recycling.

SONGWON's management has made it a priority to make sure that we are well-positioned to provide the best and most sustainable products to our customers. Fully understanding that every market has its own unique, rapidly changing requirements and conditions, especially in relation to sustainability, SONGWON's management encourages, supports and facilitates the close collaboration with customers. It is this approach which enables us to meet and exceed customer expectations while fully taking advantage of the opportunities available in our target markets to increase our foothold worldwide.

SONGWON's products have been organized into 4 main groups to best meet the very diverse needs of our customers:

1. Polymer Stabilizers
2. Fuel & Lubricant Additives
3. PVC Additives, Tin Intermediates & Specialty Polymers
4. Specialty Chemicals

POLYMER STABILIZERS – ensuring plastics are protected during manufacture and use

To prevent degradation when exposed to heat, cold and light, it is essential to stabilize plastics. SONGWON's stabilizers are specially developed to provide the best protection for polymers during processing and also to prolong the life of plastic end products by making sure that they retain their physical properties.

SONGWON's comprehensive range of processing, heat and light stabilizers include antioxidants, hindered amine light stabilizers, UV absorbers and one pack systems. Available in a variety of blends and physical forms, they facilitate handling and application use.

FUEL & LUBRICANT ADDITIVES – increasing the performance and extending the life of lubricating oils and greases

SONGWON's extensive portfolio of aminic, phenolic, phosphite and thioester antioxidants have been especially developed for lubricants used in automotive and industrial applications as well as for fuels (including biofuels). By reacting with and stabilizing free radicals or decomposing hydroperoxides, antioxidants retard oil oxidation which extends the life of the oil and enhances both its efficiency and performance.

Over time, rising machinery operating costs and more stringent regulations for vehicle emissions as well as those for drain intervals have subsequently led to an increased demand for new lubricant and fuel additives that protect engine oils, reduce maintenance and running costs and improve environmental acceptability.

PVC ADDITIVES, TIN INTERMEDIATES & SPECIALTY POLYMERS – supporting an increase in sustainable value in numerous applications

PVC additives are stabilizers and plasticizers that ensure excellent protection against heat and provide PVC plastic end products with anti-weathering properties, transparency, flexibility and durability.

Tin intermediates are high-quality alkyl tin oxides used in plastics that act as catalysts in electrodeposition coating and esterification reactions.

Specialty polymers used in a wide range of demanding applications such as wire & cables, films, printing inks, packaging and hygiene articles make outstanding performance achievable. SONGWON's specialty

polymers include thermoplastic polyurethanes, urethane ink binders, laminating adhesives, and polyester diols.

SPECIALTY CHEMICALS – making it possible to use diverse materials in numerous fast-moving industries

Specialty chemical products such as light stabilizers, photoinitiators, functional monomers and others are designed for use in a majority of electronics and coatings applications. SONGWON identifies new opportunities for electrical and electronic applications in this dynamic sector by focusing strongly on research to develop solutions that enable customers to gain competitive edge.

Coatings provide color, texture, enhance appearance and extend useful life. Working continuously to optimize process efficiency, improve durability, reduce VOC emissions, SONGWON also develops waterborne technologies to meet the highly demanding and increasingly stringent regulatory and environmental directives.

SONGWON's durable adhesives and sealants provide long-lasting protection against degradation caused by light and heat, thereby extending the life of adhesively bonded goods. Crucial to UV curing, SONGWON's photoinitiators help customers achieve numerous different formulations, for applications ranging from non-pigmented clear coats to highly pigmented systems. All of these high-performance products support sustainable product development in a circular economy.

Functional monomers significantly improve processing performance and/or add extra effects to polymers. SONGWON's experience in producing laboratory-scale to bulk volumes combined with its expertise in raw materials, enables us to work with customers to develop new products and open up additional application fields.

SONGWON's new flame retardant (FR) family of products provide high performance and competitive advantages in a broad range of applications and fuel the growth of halogen-free solutions for a wide variety of materials, ranging from foams to various polymers such as polyolefins, acrylonitrile butadiene styrene (ABS) and polyurethane (TPU).

SONGWON offers one of the industry's broadest portfolios for a wide range of applications:



adhesives & sealants



agriculture



automotive



building & construction



coatings



durable & consumer goods



electrical & electronics



fuel & lubricants



packaging



textile & fibers



wire & cables



...

Market, Risks & Opportunities

Avoiding risks & capturing opportunities

As an internationally operating organization, SONGWON is exposed to numerous risks that are intrinsically linked with all of our business activities. The inherent unpredictability of political, socio-economic, market environments and the fast pace of technology trends are often far beyond the scope of our control and carry with them the potential to negatively affect our organization. However, we recognize that they also carry potential opportunities.

In the past, companies have been badly affected by risks because they have failed to see the challenges on the horizon and been ill-prepared. By predicting possible risks and monitoring their development, we ensure that we are optimally positioned to manage potential impacts, mitigate negative damage to our business and turn opportunities into advantages for SONGWON.

While it is important to minimize any negative impacts and seize arising opportunities, a business cannot be managed successfully by only reacting to the uncertainties and instability it faces. It is also vital for SONGWON to continue to keep the medium and long-term success factors in mind and to carry on working in this direction. To achieve growth and meet our investors' expectations, we must remain vigilant in relation to risk and look beyond what others are doing to what we can offer or do that our competitors cannot. At SONGWON, we are aware of how quickly risks related to economic volatility and political instability can potentially lead to a lack of growth and subsequently have a dramatic effect on demand. Although we have no power to prevent this from happening, we want to be certain that SONGWON is well-placed to defend our industry position.

The global backdrop

This year, we saw global economic growth sink to levels not seen since the world financial crisis in 2008-2009¹, with a downward trend in almost all of the world's major economies and a slowdown in all geographies with the exception of Africa. Although the global growth estimate for 2019 was set as high as 3.9% in mid-2018², the IMF (International Monetary Fund) was forced to make multiple cuts to its 2019 global growth forecast, stating in October that the world economy

would only grow "3% this year, down from 3.2% seen in July"¹. The reason given for the extensive deceleration spreading across the world's largest economies was a multitude of global growth inhibitors ranging from the heightened trade tensions between the U.S. and China, the decline in the manufacturing and automotive sectors in Germany and the uncertainty surrounding Brexit. It later further downgraded its economic growth forecast, stating that global growth was expected to be 2.9% in both 2019 and 2020².

The OECD (Organization for Economic Co-operation and Development) reported that the "serious headwinds and slow growth" facing the global economy seem to have become entrenched and that the economic future was being jeopardized by the uncertainty. In addition, the lengthy and continuing global trade tensions have negatively impacted business confidence and resulted in a drop in investment growth from 4% in 2017 to 1% in 2019³. The OECD also emphasized that this weakening was affecting both advanced and emerging economies and warned that governmental policy action was needed to avoid the global growth remaining stuck at low levels². Looking forward to 2020, the World Bank projects global growth to be at 2.5%.

The chemical industry in 2019

The chemical industry has never encountered such a dynamic, turbulent and disruptive trade climate as there is today. In 2019, chemical demand was impacted by a drop in business confidence caused by the weakening economy and ongoing global trade tensions. The trade disputes between the U.S. and China, which had already impacted international business right throughout 2018, continued to rattle the industry and took their toll in 2019⁴. The tariffs imposed on Chinese imports by the U.S. and China's subsequent retaliation on imported U.S. products has greatly affected the trade in both chemicals and plastics. Protectionism is also rising in developed economies.

In addition, the negative effects of the bitter trade war between South Korea and Japan as well as the volatility and political instability in the Middle East region, particularly from the sanctions being imposed by the U.S. on Iran were also felt by SONGWON and throughout the industry. The ongoing uncertainty over the UK's exit from the EU and the lack of clarity on the actual after-effects also most certainly contributed to the general sense of apprehension in 2019⁵.



In 2019, the chemical industry was severely affected by the weakening automotive markets. Whereas the automotive industry has been a driver of China's economic growth for years, for the 2nd consecutive year, it saw a drop in sales of 8.2%¹¹. The German Chemical Industry Association (VCI) described it as "a dire year for the industry as German car production fell to its lowest level in almost a quarter of a century¹² with expectations indicating global car sales dropping by 4%. Also, this year, the automobile industry in the UK saw the worst period of decline since 2001⁶, recording its production down 14% over 2018.

Amid the concern for the volatile economic environment and political tensions, sustainability became the hottest topic of the year for 2019 right across the chemical industry. According to PricewaterhouseCoopers' (PwC) chemicals trend report⁷, chemical players directed their attention to the impact of resource and materials substitution, de-carbonization, renewable energy and waste elimination. PwC points out that it will be the way organizations respond to these and other related concerns that will ultimately influence their status in the market, their license to operate, the relationships they build with customers and their growth ability in the years to come.

The need for strategic choices

The chemical industry is constantly being impacted by a wide spectrum of diverse issues and events ranging from geopolitical risks and economic volatility to fluctuating customer demand, stricter regional policies and rapidly changing regulations. The current uncertain landscape and global volatility point towards an increased competitive environment. This situation makes it essential for companies to strive harder to achieve profitable growth in markets that have significant deficiencies and that provide little or no support.

The key to creating an advantage and maintaining one's market position in the coming year's means making sure to get it right, and ensuring the best strategic choices will be critical to the future of each organization. For many of the industry's established players, it will be the next few years that will determine their share of the market. In order to stay ahead in the industry, chemical companies will have to set clear priorities and become even more focused their actions. Most importantly they also need to identify and develop new approaches to how they operate and innovate.

Key megatrends in the Chemical industry

Over the years, the chemical industry has become accustomed to setbacks, challenges and change. In the current landscape, it must respond to 4 major trends:

Mergers & Acquisitions (M&A)⁸

Competitors from China and Persian Gulf countries are putting pressure on industrial chemical companies by moving into Europe and causing structural changes to occur. In addition, M&A activity in the U.S is growing rapidly.

Digitalization

In every major industry, digitalization (industry 4.0, Internet of Things etc.) is leading innovation, and recognizing the value, the chemical industry is rapidly catching up by embracing the power of digitalization and capitalizing on its innovation as well as viewing digital development as a business strategy.

Deglobalization⁹

An ongoing strong resistance to globalization, involving economic nationalism and trade protectionism, continues to place strain on open borders and trade worldwide. For the chemical industry, seeking to take advantage of the benefits of globalization, the increasing deglobalization trend could be detrimental.

Sustainability⁹

Sustainability has shifted to become a major challenge across all industries. It is now a main issue in the chemical industry, along with the circular economy. Both customers and investors have made it a major criterion, and joined the general public in expressing strong concerns for the preservation of resources.

Sources:

1 www.bloomberg.com/news/articles/2019-10-15/trade-woes-push-imf-global-growth-outlook-to-decade-low-of-3 2 www.oecd.org/economic-outlook/ 3 www.cnbc.com/2019/09/19/reuters-america-oecd-cuts-growth-outlook-to-post-crisis-low.html 4 www.chemistryworld.com/news/chemicals-industry-roundup-2019/4010801.article 5 www.chemistryworld.com/news/brexit-uncertainty-leaves-science-under-threat-as-general-election-looms/4010712.article 6 www.strategyand.pwc.com/gx/en/insights/industry-trends/2019-chemicals.html 7 www.newstatesman.com/politics/brexit/2020/01/brexit-isn-t-done-what-next-uk-s-car-industry 8 www2.deloitte.com/us/en/pages/energy-and-resources/articles/global-chemical-mergers-acquisition-outlook.html 9 www.simon-kucher.com 10 www.chemicalqualityexchange.com/en/news/3-major-trends-that-impact-the-chemical-industry.html 11 <https://www.reuters.com/article/us-china-autos-sales/china-vehicle-sales-fall-8-2-in-2019-industry-association-idUSKBN1ZC0CS> 12 <https://europe.autonews.com/automakers/german-car-production-drops-23-year-low-weak-exports>

SONGWON's approach to the key trends

SONGWON continues to implement its strategy and we work to increase competitiveness, our market offering and innovation while focusing on profitable growth and on a well-balanced portfolio. All emerging key trends have the potential to be highly disruptive and we know that if we fail to identify, analyze and respond to them swiftly, we could jeopardize the future of the company.

Whether M&A, digitalization, deglobalization or sustainability including plastics and the circular economy, we first set out to identify the impacts of such trends on the industry and on society as a whole. To do this, we make a point of continually engaging with SONGWON's stakeholders: suppliers and customers, industry associations, governing bodies, etc.

Our response to M&A

We recognize that as a result of the existing trend in M&A, opportunities may arise to accelerate our growth and strategy implementation as well as for us to generate a more balanced portfolio. For this reason, we are keeping a close eye on these developments to enable us to identify such opportunities should they arise.

Digitalization

Each year, we increase our drive for digitalization and fully recognize the importance of full automation and the benefits of using artificial intelligence, predictive maintenance, etc. In response, we are implementing changes in our plants and processes. Although, we have not yet identified opportunities to digitalize our products and to modify or completely modify our business models, we still continue to remain on the lookout for opportunities.

Deglobalization

SONGWON monitors the development of nationalism and trade protectionism very carefully. Until now, we have been relatively unaffected by these but we are fully aware of the negative, disruptive impact it could potentially have on our business operations. For this reason, we always look at establishing alternative plans (e.g. multiple sourcing strategy) in case situation deteriorates.

Sustainability

Although we have already made sustainability an integral part of SONGWON's everyday business practices, we continue to focus on making it a key driver of our strategic development. To support this, we appointed our 1st Chief Sustainability Officer in 2019, and are a step closer to positioning SONGWON as a contributor to the circular economy.

SONGWON conscientiously adheres to the Precautionary Principle and we take a proactive approach to ensuring the health and safety of people and the environment, while also designing more sustainable and innovative products.

Risk

Uncertainty and volatility in the global economy cannot be underestimated or disregarded. In light of this, we are constantly taking actions to improve performances and reduce risks, while pursuing SONGWON's ambition to be the supplier of choice in all of our market segments. This involves developing a more balanced and extended business portfolio, diversifying our offering and continuing to seek to enter new areas of business and markets.

Although confronted with such a turbulent global economic and political landscape in 2019, SONGWON continued to be supported by the opportunities in the segments where we operate that have healthy, long term demand growth forecasts. We sincerely believe that although often difficult to predict, the best way of minimizing the risks and the "negatives" is for us all to continue to work to improve the essential basics. In doing that, we are confident that SONGWON can profit from the "positives".

We sincerely believe that the strong strategy we are implementing as well as SONGWON's experience of, and insight into, the chemical industry combined with our solid overview of world developments, puts us in the best position to identify and minimize key risks. It also enables us to capture opportunities. This is what our stakeholders expect from us, and this is how we can ensure that SONGWON continues delivering the most optimal results to meet our shareholders' expectations.



SONGWON focuses on



Meeting our customers' current & future needs

Listening closely to and understanding our customers' concerns and needs is our key to reliably providing them with new products and solutions for high-end applications that enhance processing efficiencies and offer them solid ROI.



Expanding & developing our diverse portfolio

Even though we already have one of the broadest, most comprehensive and value-adding product portfolios on the market, we still constantly seek to expand our 360° offering by developing the highest quality, high-performance and most sustainable solutions for new markets and applications.



Providing best-in-class & personalized customer support

Taking good care of our customers and making sure that they are satisfied is important to us. We provide our support in all areas, from customer service to logistics and from technical service to regulatory support.



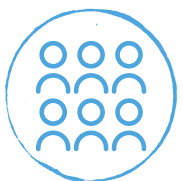
Creating value & remaining competitive

By creating sustainable value and achieving economic advantages through proprietary technology, economies of scale and backward integration, we help our customers gain a competitive edge while successfully retaining our own.



Offering global coverage with local operations

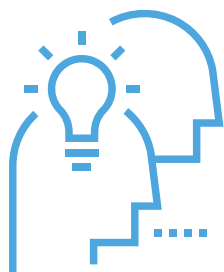
As an industry leader, making sure we are close to our customers is essential to our success. We have state-of-the-art manufacturing facilities in all major regions across the globe and strong local operations. In this way, we minimize the level of risks to our organization such as economic downturns or negative currency developments and can take full advantage of any existing growth opportunities at the same time.



Building our diverse team of professionals

SONGWON's success lies in the hands of a strong talented group of committed, highly competent experts. We make a point of ensuring that each member of our global team at every level knows that they are SONGWON's true assets and that we aim to provide them with best and healthiest working conditions. Continually adding new key talents each year not only strengthens our organization but also improves our already outstanding EH&S performance.

2019 Highlights



innovation

New application lab for Coating Additives

Environmentally friendly halogen-free SONGFLAME® FR technology

Technical "Design for Circularity" concept for polyolefins



sustainable energy

Panoli plant installs agro-waste fired steam boiler

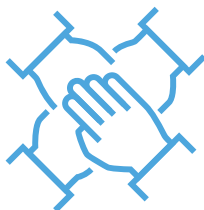
SONGWON joins DHL Go Green initiative



compliance

Reduced the number of customer complaints by 2.5%

Pre-registered ca. 600+ substances for K-REACH



partnership

SONGWON entered a partnership with Nordtreat AS for halogen-free flame retardants for the production

Strategic alliance entered with JiangSu Uniwel Chemistry Co., Ltd. for PVC stabilizers



production

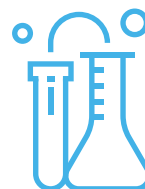
Successful start-up of SONGNOX® 1010 plant & full automation system installed



EH&S

SONGWON awarded EcoVadis gold recognition level for CSR for 3rd consecutive year

2019 TRCR was 0.14 - lowest value since 2008



R&D

8 products from lab process development to production

3 new patents filed



HR

Increased team and diversity to 1.081 employees representing 31 different nationalities

1st female Executive Committee Member & 1st Chief Sustainability Officer appointed

Sales Strategy

Relationship-oriented & value adding

In today's competitive markets where multiple suppliers are pursuing the same customers and the challenges facing those customers are now more demanding than ever, having a sustainable sales strategy and a well-structured sales organization is more important than ever. We know that success in sales means more than just selling products or promoting our services. It requires a thorough understanding of customers' needs and the ability to match these to a specific solution that adds real value.

At SONGWON, we have centered our sales strategy around expanding SONGWON's global presence in the industry through a competent team of highly experienced sales professionals. Our aim is to grow with our customers and nurturing long-term relationships with them is deeply ingrained in our strategy. Whether through direct or indirect sales channels, every member of our sales organization works in their specific area to strengthen the company's position worldwide as a leading specialty chemicals company.

As an industry leader, SONGWON provides customers with:

- vast industry experience & a focus on sustainability
- high-quality solutions & reliable, long-term supply
- modern technologies to meet unique, specific challenges
- top technical service & expert application support
- comprehensive regulatory support

SONGWON's management provides the necessary working environment as well as the resources to help the company to become the supplier of choice across the complete specialty chemicals value chain and strengthen our leading industry position. It also fully supports the marketing synergy and knowledge sharing between SONGWON's businesses and ensures that all of our activities are guided by the best global and local practices. In line with this, global market campaigns are run each year to enable the sales teams to understand specific target markets both for existing and new products.

In this way, Management ensures:

- that SONGWON can meet customers' needs
- our customers receive a smooth and reliable supply of products
- close customer cooperation to ensure needs are accurately understood
- continuous development and expansion of SONGWON's portfolio
- world-class manufacturing capability and expertise
- continual improvement of SONGWON's sourcing and production footprint
- an attractive supply position through economies of scale and strategic sourcing
- the fulfillment of customers' key service requirements through segmentation

A professional & customer-focused approach

SONGWON's sales organization is strategically placed worldwide to ensure both local and international customers receive the best sales support possible. Our locally based sales teams are also essential to our success. With their closeness to the customers and market insight, they can identify trends in the respective regions and quickly understand the challenges our customer base faces. We are completely aware that every customer always has a choice when it comes to suppliers and this makes the in-depth knowledge acquired by the sales organization so important. It serves to guide us to focus on where SONGWON can provide the most value.

By consistently benchmarking our sales approach against key players in the industry, we continually work on improving our weaknesses and building on our strengths. One of SONGWON's key principles is transparency which is a common thread running through the organization at every level. It also forms the basis of our sales teams' interactions with both internal, as well as external stakeholders. Transparency enables us to earn customers' confidence and establish an open dialogue with them. Making sure that clear communication between our sales team and internal stakeholders is maintained also contributes to improving our responsiveness and adaptability to change, as well as ensuring that we remain agile, competitive, relevant and able to react to market trends quickly.

In 2019, we...

expanded our network

Our distribution network grew with the addition of new partners in key regions. Selecting SONGWON's distributors is done by ensuring they have the right expertise, strategic local and regional market knowledge, the ability to reliably service our customers all at the level expected from SONGWON and above all based on their approach to sustainability and their performance.

supported collaboration

SONGWON has an organizational structure that supports synergies and the sharing of knowledge and experience between the sales organization and our technical and business teams. Strong collaboration with all of our stakeholders is essential in order for sales to successfully take advantage of fresh opportunities particularly in new market segments. We also place importance on trainings for both customers and distributors.

increased our expertise

We strengthened our sales organization with new highly experienced experts to further develop SONGWON's business worldwide, especially in emerging markets. Furthermore, we improved our sales teams' overall competence with market-specific trainings and essential skill-building.

communicated clearly

With regard to communications, transparency is also essential. Internally, we provide clear information about our corporate goals, approach to sustainability and our business activities. By exchanging information with internal stakeholders, the sales organization contributes to improving SONGWON's overall responsiveness and adaptability to change, as well as ensuring the company remains nimble, able to react to market changes and stay relevant and competitive. Communicating, such things as our approach to sustainability, or providing updates on our latest innovations to external stakeholders through e.g. our company newsletter or LinkedIn supports relationship-building, nurtures trust and serves to strengthen SONGWON's overall reputation.

Product strategy & sustainable development

Business activity overview in 2019

As environmental concerns are increasing rapidly worldwide, the call for organizations to act responsibly and to shift to more sustainable practices in their sourcing, manufacturing, packaging and distribution is intensifying. At SONGWON, making sure that we integrate sustainability aspects into product development has long been one of the organization's strategic priorities. For us, it is important to take responsibility and support the industry's shift to a circular economy by collaborating closely with customers and partners, developing innovative solutions that meet both today's stringent ecological standards and contribute to achieving a more sustainable tomorrow.

Although the global economic uncertainty made 2019 a challenging year, the company was still able to benefit from its personalized sales approach. On the back of SONGWON's solid reputation in the industry, we continued to successfully pursue our expansion strategy, strengthen relationships with customers and reliably meet their needs with innovative solutions while also positioning SONGWON as sustainability-driven contributor to the circular economy.

Showcasing SONGWON's strength

During the year, the sales organization took advantage of the good platforms and opportunities offered by key trade shows and conferences. At the K fair, the world's largest show for Plastics and Rubber, sustainability and circular economy were the hot topics and SONGWON didn't miss taking full advantage of the opportunity. We highlighted our approach to sustainability and reinforced its importance to both SONGWON and the industry while sharing our ideas on supporting the industry's shift to a circular economy.

Over the 8 days of the fair, we successfully showcased how SONGWON's portfolio of high-performance sustainable solutions has steadily expanded well beyond our standard polymer stabilizers to lubricant additives, coatings stabilizers, electronic chemicals, new PU grades and functional monomers. The main highlight was the launch of our newest halogen-free flame-retardant (FR) technology and visitors to SONGWON's stand were able to see the FR products "live" on the booth's wood paneling. Customers also reacted very positively to SONGWON's approach and

to initiatives such as our 20kg PE bags made with 50% recycled PE sourced from a variety of different waste streams, including pre-used industrial printed bags.

Benefiting from synergies within SONGWON business

In harmony with the Management's strategy to keep on top of trends, optimize processes and increase efficiency across SONGWON to better serve customers, we take advantage of available synergies within the organization, share competencies and information. By doing this, we facilitate the effective and successful penetration into new markets and territories. For example, by:

- looking at joint vs separate distribution channels to achieve cost savings & increased efficiency
- co-sharing and volume optimization of production assets and raw material sourcing to achieve economies of scale/cost advantages
- sharing SONGWON's customer base & capitalizing on existing relationships
- building on SONGWON's long-standing leadership reputation in polymer stabilizers as an advantage in new business areas
- promoting products from different BUs together into the same applications
- providing valuable information on successful leads to develop new businesses
- sharing best practices with other functions such as customer service exchange programs

In addition to this, cross-business and functional discussions are conducted regularly to understand and ascertain the most optimum methodologies for processes and procedures that support the acceleration and facilitation of both internal and external growth opportunities for the business. BU business meetings held throughout the year offer an excellent opportunity for the teams to meet one another personally and share information including with extended team members which promotes commercial, functional and team-building discussions. In particular, there is a stage & gate process in place where all innovation ideas, which are received from either inside SONGWON or come from external requests, are investigated, evaluated and discussed.

Polymer Stabilizers (PS) highlights

In contrast to the previous year which was dominated by strong market demand and product shortages, 2019 saw weaker demand and market contraction in some segments e.g. automotive. In this environment, while keeping a careful balance between increasing volumes and protecting price/profitability in a market with a longer supply vs demand balance, the PS sales team continued its strategy to increase its market penetration globally, and focused on sales of the specialty antioxidants recently added to our portfolio. With the in-house produced SONGNOX® 1330, the team grew SONGWON's position in the market, and with the SONGNOX® 5057 (launched Q4 2018) they made important approvals progress at key customers. Despite the weak market environment, BU PS was able to achieve its market performance and profitability targets.

Following the industry's focus on plastics waste, the team successfully promoted SONGWON's solutions such as SONGXTEND® 2721 which contribute to making plastic recycling possible. Furthermore, SONGWON continued to invest in OPS capacity and technology. The completed expansion of the Abu Dhabi plant in Q4 has positioned the organization for further growth in the region. Upholding our reputation as a reliable supplier, major capacity expansions in our other plants were completed to ensure our customers' growth is supported by our capacity increase plan.

To boost not only coordination worldwide but to help reinforce key account management in order to ensure seamless service to global customers, SONGWON appointed a new Global Sales Director Polymer Stabilizers in 2019. PS also continued the rollout of the customer segmentation process to support our ability to understand customers' key requirements and to ensure that the company can match them with the highest levels of consistency and provide the best levels of service. Throughout the year, the PS sales team focused on further developing market penetration globally and across its product portfolio and bringing SONGWON's increased capacity as well as the newly launched products to the market. Changes were also made to our direct and indirect sales channels in 2019 to ensure constant improvement in the team's approach to key markets.

Fuel & Lubricant Additives (F&L) highlights

In 2019, SONGWON's Fuel & Lubricant Additives business continued to grow its customer base and noted an increase in sales. Progressing well in accordance with the dynamics of the industry, BU F&L further executed its strategy, which was specifically developed to meet the industry's current and future needs. The team especially focused on initiatives in the areas of market penetration and development



“Our continued success in sales has been possible due to SONGWON’s clear, coherently implemented and well-communicated strategy. The great alignment between SONGWON’s teams and functions combined with our drive to build strong relationships with customers and deliver innovative solutions to them is the reason we have been able to effectively “walk the talk” and grow the organization in the past 10 years.”

Elena Scaltritti,
Leader Division Industrial Chemicals

including new product development, while evaluating further strategic initiatives such as requirements for electric vehicles at the same time. Furthermore, BU F&L was successful at making approvals and sales in 2019 of the antioxidant SONGNOX® L570 which was introduced in the previous year. Further approvals will be secured in 2020.

At all levels of the business, BU F&L proactively seeks out and listens to the voice of the customer to understand and develop value adding product solutions to match the demands of the industry. To further solidify SONGWON's position in the market as a partner of choice in the F&L industry, BU F&L is an active member of the main globally recognized industry associations:

US

- The Society of Tribology and Lubrication Engineers (STLE)
- Independent Lubricant Manufacturers Association (ILMA)

Europe

- Additive Technical Council (ATC)

Asia

- Asian Lubricant Manufacturers Union (ALMU) – Asia based.

These memberships provide BU F&L with an opportunity to better understand, engage with and in some respects contribute to the planned changes in the markets it serves. In addition to association memberships, the sales and business development representatives attended various global conferences and events. By continually engaging with its main customer base, the BU F&L team acquires valuable information on the customers' needs and challenges as well as the latest information on the industry's current direction.

The BU F&L team was further strengthened this year with the appointment of a Sales and Business Development Manager (S&BD) for the Asia region and added a new distributor to the business to strengthen the global channel to market in the ASEAN region. The team is also evaluating distributors for other regions with a view to further enhancing the business' global reach.



“BU F&L’s successful progress is due to the strong relationships the team members have cultivated across the levels and functions within SONGWON and with our customers’ organizations combined with its truly global approach to meeting all aspects of our customers’ global requirements through superb working practices.”

Gerard Mulqueen,
Leader Business Unit Fuel & Lubricant Additives

In 2019, SONGWON's management supported the continuation of its technology strategy. Its further investment in equipment and the appointment of a focused chemist for BU F&L for the GAC (Global Application Community) lab, completed this year, have enhanced both the development and service of new solutions for our customers and the industry.

“The TPP team combines its insight and expertise in customers’ applications with flexibility to meet their requirements, not only through developing innovative products based on over 50 years of development know-how in PVC additives, but also by the level of best-in-class business service they provide.”

Kyuyeol Lee,
Leader Business Unit TPP



Tin Intermediates, PVC Stabilizers & Polymers (TPP) highlights

In 2019, SONGWON's TPP business felt the impact of the generally weak economic global landscape and lower demand particularly in the automotive and electronic industry. In response, the sales teams directed their efforts towards gaining new business in South East Asia (SEA), South Asia and the US by taking advantage of SONGWON's already existing strong, global sales network and its strategically placed global distributors, for example in China and the US. BU TPP also completed and adapted its product portfolio to meet local requirements particularly those of its Asian customers and also provided customers with comprehensive technical support.

In addition, the team concentrated on seeking new opportunities to achieve additional sales to compensate for the drop in volumes via:

- specific sales territory expansion to promote products outside of Korea focusing on SPU for Asia and SPU* and TPU** for America and Europe
- increased sales promotion for volume driven sales to secure a major volume share in the markets
- dedicated distribution network set up for PVC additives in SEA and China
- strengthened internal Technical Marketing resources in Europe for TPU
- effective Product Management Organization established for PVC, Tin and Urethane

Building on SONGWON's excellent reputation in antioxidants and UV absorbers, TPP continued to pursue its strategy this year to position the business as a regional/global player in new regions and customer segments. Leveraging the benefits of collaborating with SONGWON's other businesses, TPP promoted its products together with other BUs into the same applications such as plastics with antioxidants and UVA, coatings with UVA, etc. For example, TPP cooperated in the coatings market of tin catalysts with our antioxidants/UV coatings portfolio. The team also reinforced their strategy to focus on urethane business of SPU with ink binders and PU adhesives and for TPU, film and wire/cable.

Several new applications were developed in 2019, which included POM/TPU compounding, solvent free PU adhesives and alcohol-based ink binders. The sales team also took advantage of participating in key shows and presented at technical conferences such as AllPrint, IWCS, Polymer in Cable, NAPIM, etc. This enabled them to engage with customers and competitors and to learn about the industry's latest trends. TPP also set up Market Center (MC) meetings with cross-functional teams to improve the operational approach.

* "Solution" Polyurethanes

** Thermoplastic Polyurethanes

Specialty Chemicals (SC) highlights

In 2019, SC progressed with its strategy to differentiate SONGWON in the market by offering a range of solutions that reflect the specialty chemicals needs of customers. Leveraging SONGWON's 50+ years of industry experience, strong focus on innovation, reliable supply and best-in-class service, BU SC has successfully progressed with expanding SONGWON's foothold, particularly in Europe and the US. Furthermore, the SC team's investment in building relationships has enabled it to identify new opportunities to help our customers in numerous sectors gain a competitive edge and grow their businesses. Engaging closely with customers, the team highlights SONGWON's capability to develop innovations and custom-fit solutions as well as our strong research and development strength.

The SC portfolio has been steadily expanding with new products for the Electronics, Coatings and Flame Retardants industries to meet current demands. At the European Coatings Show (ECS) this year, the SC team announced that SONGWON had expanded its Bisphenol (BP) functional monomers and Dicyclopentadiene (DCPD) phenol resins and producing high-purity BP-Z crystalline Bisphenol and Tetramethyl (modified) bisphenol (TMBP) on an industrial scale.

With the start-up of its Technical Service Coating Lab in Korea, SONGWON has underlined its commitment to the coatings industry and now has all the necessary devices, tools and stations for both powder and liquid coating applications as well as supporting customers to develop and find solutions to formulation issues

relating to UV and temperature stabilization, as well as UV curing. In 2019, SONGWON also offered customers high-performance products such as SONGNOX® CS antioxidants, SONGSORB® CS UV absorbers and SONGCURE® CS photoinitiators. These products enable formulators to create durable adhesives and sealants, which extend the service life of adhesively bonded goods.

The strategic long-term partnership made in 2018 with Disheng Technology Co., Ltd for some of SONGWON's UV Absorbers range for plastics and coatings applications also further supported the growth of the business in 2019 and continued to ensure supply reliability thanks to the reserved production capacities.

In 2019, understanding that the global market for flame retardants (FRs) is partly driven by the automotive and construction industries' demand to meet stringent fire safety standards and understanding the value of strategic collaboration, SONGWON entered a partnership with Nordtreat AS, Europe's leading manufacturer of non-toxic FRs for wood. SONGWON successfully launched the new synergist technology SONGFLAME® FR at K2019.

The new technology offers customers high-performance and competitive advantages for an extensive range of applications including thermosets, wood, coatings and adhesives. SONGFLAME® FR was also designed to fuel the growth of halogen-free solutions for a wide variety of materials, ranging from foams to various polymers such as polyolefins, acrylonitrile butadiene styrene (ABS) and thermoplastic polyurethane (TPU). Knowing how important sustainability is to its customers, the SC team is working together with its partners both internal and external to add further sustainable solutions to its portfolio going forward.



“A great deal can be achieved together when cooperation works well and there is a collective drive for more sustainable solutions. SC aims to continue pursuing its strategy to maximize value for customers in the industry and contribute to supporting them to overcome their challenges and achieve their goals.”

Rolf Drewes,
Leader Business Unit Specialty Chemicals

Customer Service (CS)

Creating value for customers

At SONGWON, we place the highest importance on strong, long-lasting customer relationships, because we know that only when our customers are satisfied can we secure long-term success. This is why delivering superior customer service (CS) that focuses on offering competitive, value-adding and sustainable products supported by strong technical know-how and experience is the cornerstone of SONGWON's business strategy. Most importantly, by operating in a way that fosters trust and mutual respect, we strive to be the partner of choice in all of our business relationships.

It is the CS team's goal to provide much more than just SONGWON's high performance products. With their in-depth knowledge of customers' needs as well as their application areas, our highly-qualified CS experts go that "extra mile" to make sure that each and every one of SONGWON's customers receives the highest levels of personalized care. Furthermore, they are driven to ensure that they also get the products they need – whether they were previously forecasted or not. They understand that delivering best-in-class service is only possible through taking time to listen, as well as nurturing one-on-one relationships with customers. Furthermore, investing time in these relationships also provides SONGWON with important insights into other business possibilities. Engaging with customers often leads CS to uncover new ways of meeting current industry demands and highlights opportunities for SONGWON to expand the customer segments we cater for.

SONGWON's experienced specialists provide high-quality customer service to our customers in more than 60 countries from our 8 CS centers located across the globe. It is their ability to deliver the most comprehensive service before, during and after customers purchase our products that is a key contributor to their ongoing market success and also what sets SONGWON apart.

Managing more than just business transactions

SONGWON's management knows that in our dynamic, increasingly complex industry, staying ahead of the competition and keeping a lookout for trends and developments is also essential to success. It makes a point of ensuring that every member of the CS team can continually improve through trainings and skill-building as well as kept up-to-date on the newest developments. In 2019, for example, CS reps visited key customers in South East Asia (SEA) which enabled them to get a close-up view of our customers' operations as well as the local market. They also took advantage of the opportunity to promote the benefits of the synergy within SONGWON by introducing ISL team members. Together with them, they discussed the customers' current logistics issues and how to best manage them. In addition, apart from making customers feel valued, the meetings are highly motivating for the team because they get to hear face-to-face from customers how satisfied they are with SONGWON's high level of fast service. Carrying out these visits also served to valuably support SONGWON's strategy to further expand in SEA and capitalize on the opportunities the region offers. In October, CS team members attended the K fair in Germany and supported the Sales team throughout the show. This key industry event was another opportunity for them to meet customers one-on-one while gaining insight into the latest industry trends, as well as the developments being made by other industry players. At SONGWON, we see every interaction as an opportunity to exceed expectations and express the value we place on our relationships with customers. CS is committed to providing professional, responsive and accessible customer service that exemplifies SONGWON's values. In the past, closing a sale usually marked the end of a business transaction. However, today our customers want longer term engagement and expect us to not only resolve any issues arising during the transaction itself, but also stay by their side throughout their business relationship with SONGWON.

“At SONGWON, we always have the customers’ best interests in mind in whatever we do. We focus on creating the most value for them and the world around us and our Customer Service team makes a substantial contribution to this aim.”

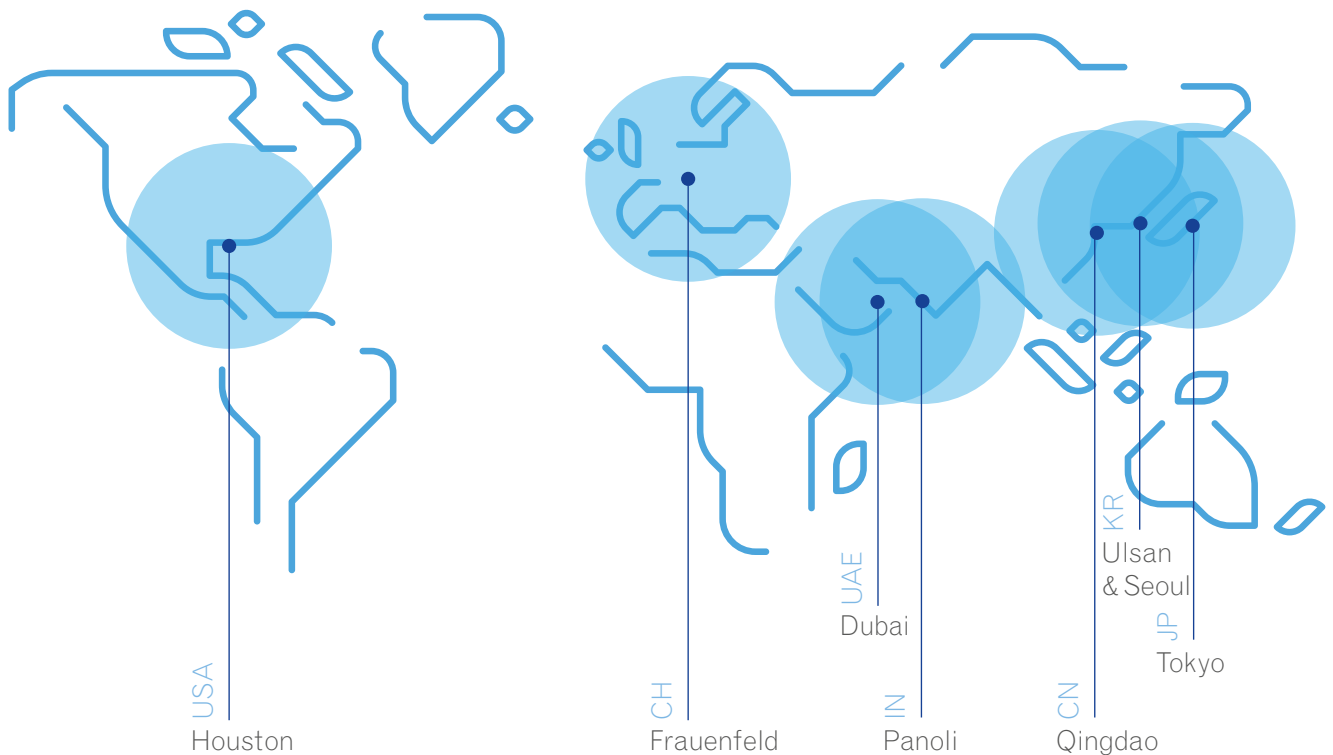


Staying a step ahead

Our management has always endorsed good communication across the business and our SONGWON is structured to facilitate the open, beneficial flow of information. The positive synergies that exist between different business units and functions positively impact our day-to-day activities but ultimately benefit the customer. The culture of teamwork and of collaboration which runs through the entire organization helps us to stay at the forefront of what's happening in our industry. This is particularly crucial for CS. The team benefits from the strong channels of communication in place at SONGWON, and learns immediately about delays or any unexpected issues so that they can keep the customer well-informed and report on progress. Ensuring customers

well-informed also allows them time to consider how best to proceed or whether an alternative solution must be found. Furthermore, having the latest information enables CS to anticipate potential difficulties and proactively take action to resolve them as well in advance and as quickly as possible.

**In order to effectively meet local needs,
SONGWON applies global and regional best practices
from its Customer Service Centers in:**



Collaborating for the best results

At SONGWON, we always have the customers' best interests in mind and are focused on creating the most value for them and the world around us. CS makes a substantial contribution to this aim. By gathering feedback from both internal and external stakeholders, the team is able to measure how it's doing and identify areas where both CS and SONGWON can make improvements. CS shares this important information with SONGWON's management as well as the relevant departments in order for the necessary steps to be taken to improve specific areas or processes to ensure SONGWON can continue to deliver what customers want and need.

In 2019, the 1st Global Customer Service Workshop took place in Ulsan, Korea. CS members from 3 different regions (Europe, America & Korea) met with the International Supply & Logistics team and other key departments to discuss potential process, communication and documentation improvements. In addition, topics such as harmonization, standardization and best practices within the local Customer Service Organization were also covered during the meeting and global harmonization will continue to be an ongoing process for CS in the next few years.



Procurement

Supporting expansion & adding value

As SONGWON has grown over the years and become an industry leader, Procurement's role has shifted well beyond just the traditional procuring materials, equipment, supplies, and services. Closely aligned with SONGWON's global strategy, Procurement focuses on the delivery of the organization's goals but also ensures that SONGWON continues to meet both the purchasing criteria needed for expanding the business as well as our corporate responsibilities.

Most importantly our strong, experienced Procurement team contributes to SONGWON's competitiveness and adds value by continually striving to establish a lasting competitive advantage with respect to costs, quality and service. The management team ensures that all SONGWON's procurement practices reflect our vision, values and aims and that our highly competent experts receive the clearest guidance and support needed to ensure they are able to deliver the best value.

Apart from making sure that SONGWON's manufacturing facilities across the globe continually have the supply of raw materials they require – at all times, our Procurement team also directs its efforts into making our supply chain stronger, reliable and more efficient while fostering sustainability at every stage. Connecting both internal and external customer needs with the best supplier solutions possible is one of Procurement's main priorities. The team does so, by applying its in-depth knowledge of the markets as well as procurement best practices combined with raw material continuity plans and the ability to alter supply lines at short notice.

The team's effective and close collaboration with both our businesses and suppliers enables us to achieve the best value possible by securing the most optimal balance between supply quality, price (Total Cost of Ownership) and effective risk management (thanks to our sustainable and resilient supply chain). In keeping with this, Procurement continued building strong relationships with consultants worldwide to research and identify suitable new suppliers and remain well-informed about the markets and other developments in the regions. In addition to being active in the strategic-planning process, by identifying opportunities, as well as threats within SONGWON's supply environment and monitoring continuous improvements, the team also adds value by securing partnerships and strategic alliances with suppliers.

“Procurement is truly a strategic partner to the business and thanks to our dedicated, experienced procurement professionals working closely with our competent, strategic suppliers SONGWON can continue to achieve sustainable growth amid today’s volatile environment.”

Kyungho Noh,
Procurement Manager Korea

Working with the best

In such highly unpredictable and economically volatile times, securing the supply of raw materials for manufacturing is essential to maintaining our supply chain of incoming raw materials and outgoing finished products. It is also the only way we can manage the frequently changing up and down changes in forecasted material quantities on very short notice. Therefore, having the best, most reliable partners is an absolute must.

Over the years, we have built an exceptional global network of sustainably responsible partners and suppliers, who ensure that SONGWON can offer customers optimal service and a competitive price/value ratio. Our key suppliers are strategic partners and by collaborating closely with them, Procurement benefits from the information they share relating to their local knowledge and expertise, business trends, new regulations and levels of demand in the various regions.

When choosing new suppliers or continuing our relationships with existing ones, we do not simply select our suppliers solely on the basis of economic indicators. SONGWON requires good sustainability performance. We regularly check our suppliers' performance and competitiveness by assessing them according to aspects such as flexibility, reliable on-time delivery and quality. We also evaluate our suppliers' sustainability performance based on key factors such as labor, EH&S, business ethics etc.

As a rule, the Procurement team performs an audit on key suppliers every 2 years and strategic suppliers every 1-2 years. Furthermore, the team also continued performing quarterly supplier checks of our suppliers in China to ensure that all were in full compliance of the local EHS standards and the Chinese government's EP rules. We always ensure that SONGWON's expectations and the value we place on integrity in all of our business dealings are clearly and transparently communicated. In this way, we can be sure that we work with the best in the business worldwide and create an even healthier, controlled, more transparent, and ecologically sound supply chain.

In 2019, Procurement's focus was to secure excellent delivery performance with our suppliers. The team further pursued SONGWON's strategy throughout the year, to move from single sourcing to multiple raw materials sourcing and this approach continued to benefit both our organization and our customers. Despite the high volatility in some regions and specifically for some raw materials as well as the shutdown of some manufacturers in China relating to the Chinese government's enforcement of the EP (Environmental Protection) regulation, our experts ensured that there SONGWON experienced no raw material shortages and that we could continue to produce to our customers' satisfaction.

Effectively managing today's uncertainties

Having essential information at hand acquired through our close communication with our supply partners, makes it possible for our Procurement team to make sound decisions in challenging, uncertain market conditions. It also means that we can keep on top of which supplier can supply what quantities within what lead times and successfully navigate difficult sourcing environments.

For example, in 2019, the team was confronted with such things as the explosion at the Jiangsu Tianjiayi Chemical plant in the eastern Chinese province of Jiangsu in March and the strong restrictions imposed on the export of certain items to Korea by Japan. In response, Procurement increased its multiple source project efforts to locate new suppliers and set up an alternative supply chain outside of China while establishing contingency plans to avoid as well as reduce future risks. The Procurement team also continued to keep internal stakeholders regularly informed about supplier' situations and of the progress of its contingency plans.

Throughout 2019, the ICFR (Internal Control over Financial Reporting) which was introduced to Procurement in 2018 continued to ensure the utmost effectiveness and efficiency of operations, financial reporting reliability and compliance with applicable laws and regulations under COSO (Committee on Sponsoring Organizations) framework. Looking ahead, SONGWON's Procurement is well-prepared to confront any future supply/demand issues. With our solid Business Continuity Plan (BCP) in place, we can successfully anticipate events which carry the potential to seriously disrupt the smooth running of our supply chain process and set up a strategy to limit the overall impact or even avoid it altogether.

In 2019

THE PROCUREMENT TEAM SUCCESSFULLY MITIGATED:

- issues relating to raw materials which are produced by very few manufacturers and in geographically limited areas
- the volatile local currency exchange market
- anti-dumping and high import and export taxes
- the ongoing trade war between the USA and China
- political issues with South Korea's neighboring countries
- the impact of the chemical plant explosion in China

*highly experienced
procurement experts*

Linking together our strong Procurement team, procurement best practices, collaboration with internal stakeholders and long-term partnerships with suppliers enables SONGWON to add value.

*best practices &
risk management*

*internal collaboration
with stakeholders*

*external collaboration
with stakeholders*

Supply Chain

Robust & reliable

In our position as an industry leader with customers, suppliers and operations across the globe, supply chain reliability is essential to SONGWON's success. As the world's markets become ever more complex and standards increasingly more stringent, the needs of our customers are also becoming more dynamic and demanding. Customers depend on our ability to supply them with high-performance and sustainable solutions when and where they need them. This is especially true for our customers whose manufacturing operations and success depend heavily on the reliability of supplies and on-time deliveries, regardless of their demand volatility or external challenges such as low water levels in the Panama Canal. Most importantly, customers today must be sure that their sustainability aims, as well as their safety and cost requirements are met. In response to this, SONGWON continues driving sustainability throughout the organization and sustainability is a main part of our integrated supply chain strategy.

Meticulous planning and effective process optimization backed by modern IT systems, have made it possible for SONGWON to create an integrated supply chain which covers sales forecasting, raw material purchases, production planning, and finished product distribution. Most importantly, we have built a supply chain that can successfully fulfill our customers' requirements. The world today is a connected one and creating a digitalized supply chain is crucial if we want to continue promptly meeting the personalized, highly specific requirements of our customers. Apart from focusing on more digitalization in 2019, we continued to build upon our deep-rooted relationships with suppliers, logistics service providers and strategic customers in order to proactively identify opportunities to collaborate to achieve more sustainability.

In 2019

THE INTERNATIONAL SUPPLY & LOGISTICS (ISL) TEAM:

- digitalized the external warehouse operation at our Ulsan facilities in Korea which included transport management among storage locations.
- secured financial control by implementing & screening the credit limit policy online.
- diversified external storage capacity in order to optimize the supply chain portfolio.
- enhanced the CRM (customer relationship management) program to better support and communicate with customers.
- streamlined the organization & workload with compacted resources for more efficiency.
- prepared for the impact of IMO 2020, the regulation which requires all shipping companies to reduce their sulfur emissions by 85% from January 1st, 2020.
- focused on growing SONGWON's supply chain sustainability.
- utilized an external logistic capability efficiently on demand to eliminate idle, costly storage and expenditure.
- sought a cutting-edge digitalization program and solution by being part of international fair and forum specialized in block chain, IoT, and 5G applications.
- monitored logistic landscape changes such as water level drops (e.g. Panama Canal & the Rhine).
- tracked down and opened up new routes like North Sea Route and made progress in the Belt and Road initiative etc.

Ensuring sustainable sourcing

At SONGWON, we are committed to continually improving our integrated and efficient supply chain so that we can reliably provide competitive solutions to our customers in relation to cost, quality and delivery. Confronted with the ongoing volatility and unpredictability of the global environment, we know how crucial it is to ensure that our organization is well-prepared to adapt quickly to these unpredictable circumstances as well as respond to the constantly changing demands of our customers. SONGWON's dedicated ISL team consists of highly-competent and experienced individuals who fully understand the complexities of an end-to-end supply chain.

Each one strives to maximize value and make sure that SONGWON is in a position to deliver a robust and highly effective supply chain process which is calculable, secures stability and delivers our wide-ranging customer base with excellence in quality, timing, cost and delivery. Compared to the previous year, SONGWON's on-time delivery performance improved by 7.4% and the organization also received an Export Award from KITA (Korea International Trade Association) for successfully achieving USD 400million in exports. In addition, in 2020 again there were zero accidents in SONGWON's supply chain.

By ensuring ISL has the necessary resources, SONGWON's management fully supports the team's contribution to the organization's universal aim of meeting customers' demands. Furthermore, they make sure that ISL is well-placed to respond to stakeholder concerns and expectations while fulfilling SONGWON's responsibility to remain compliant at all times. SONGWON's products are always sourced with the utmost integrity. The management ensures that the people who grow, manufacture, service and provide them are also treated fairly and that the environment is respected. For our management, this is not just the right way for SONGWON to do things, it is the only way and it is what our customers expect from us.

Year-over-year
on-time delivery
performance improved
by



“0” delivery
complaints in 2020

Top vendor 2019

This year, SONGWON was named as one of GAIL's* top 3 vendors after being selected from more than 50 companies in the area of “Chemicals & Catalysts” based on the following criteria:

- vendor's responsiveness to organize smooth supply chain activity
- clean presentation of tender documents & timely submission of tenders
- reliable & prompt TS support during various product development stages
- standing by the commitment to supply & updated information (including CEPA**)
- supporting GAIL with surrender B/L and clean documents enabling expeditious consignment clearance

* formerly known as Gas Authority of India Limited and is India's biggest gas marketing and trading firm

** The Closer Economic Partnership Arrangement (CEPA) between Hong Kong free trade agreement signed in June, 2003

Over the years, customers have come to know that they can confidently depend on SONGWON to deliver quality and value. Now more than ever, they are also looking to us to support their sustainability goals, and have grown to trust that the products they purchase from SONGWON are compliant and have been sourced sustainably and ethically. Continuing to earn our customers' trust is not only important to us but something we take very seriously. In relation to this, the ISL team actively manages and strives to constantly maintain a KPI driven, responsible supply chain. In addition, they seek to achieve more sustainability for SONGWON, for customers and for the benefit of the planet by continuing to incorporate social, ethical and environmental considerations into sourcing decisions.

Effectively managing risks

SONGWON's business and supply chain span many legal systems, industries, markets and cultures and therefore, we naturally face various risks. This is why it is essential for us to stay on top of developments and upgrade our technologies while streamlining SONGWON's supply chain processes. In addition, ensuring transparency is vital to anticipating and managing risks. Having a clear picture of the extended supply chain places the ISL team in a strong position to manage any potential risks which might affect SONGWON's business. Furthermore, the team exchanges ideas and information with almost all of SONGWON's entities and business units which helps to strengthen their ability to react in the most timely and suitable manner. SONGWON also sees it as a key responsibility to support customers who demand higher levels of transparency and clearer reporting in their own supply chains.

SONGWON's ability to reliably supply materials is a key contributor to customers' overall success. Also in this respect, our ability to reliably supply customers depends on our suppliers' ability to reliably deliver the materials and services we require to produce the high-quality solutions our customers expect from us. To support this, ISL endeavors to build relationships with suppliers based on the principles of social responsibility. We expect all of our business partners to comply with the highest social, ethical and environmental performance and safety standards as SONGWON. The ISL team clearly communicates SONGWON's sustainability targets to suppliers and ensures that they are all aware of, share and uphold our principles for encouraging sustainable standards for business. With the current economic uncertainty, strong relationships with suppliers and customers are more important than ever to achieving SONGWON's sustainability goals and supporting the company's growth today and in future.

ISL enables SONGWON to:

- ensure that materials are efficiently supplied to every country and port in the world
- adapt global logistic capacities to directly match order trends
- develop better solutions through close-knit teamwork and effective communication with internal stakeholders, suppliers and logistic agents
- respond swiftly and professionally to new policies, updates, regulations and structures

“Going forward, we will further pursue our digitalization strategy and operational excellence across SONGWON’s entire supply chain to ensure that we can continue to remain a resilient and trusted sourcing partner to our customers.”

Daekeun Lim,
ISL Manager Korea

Global Application Community (GAC)

Innovative strength & strategic collaboration

Strategically functioning like a bridge, SONGWON's Global Application Community (GAC) plays a pivotal role in supporting the Business Units and connecting the needs of our global customers with our highly specialized application development process. Applying SONGWON's long-standing industry experience and collaborating with customers and key internal teams, GAC concentrates on meeting the demands of the industry and staying a step ahead of trends with high performance sustainable solutions.

Realizing the organization's innovation strategy, GAC leverages SONGWON's decades of development expertise to create new ideas that match current demands. Working closely and capitalizing on the internal exchange with Technical Service (TS) and Sales, the GAC experts select the most promising opportunities for new solutions from the valuable information acquired from the market and customers. After establishing the most suitable technological platform, they begin the commercialization process for new innovative products.

Based in SONGWON's Technology Innovation Center, GAC benefits from the close proximity and synergy with R&D and Technical Service and makes it possible for the team to stay a step ahead of the ever-increasing speed of today's markets combined with challenging safety, sustainability and performance requirements demanded by customers.

Sustainable innovation

At SONGWON, innovation and sustainability go hand-in-hand. In the industry today, customers seek customized, high-quality solutions that offer better performance but most importantly, they want products that support them to meet their own sustainability goals. GAC helps to ensure that all innovation at SONGWON is purposefully planned and carefully executed with sustainability in mind.

In 2019

IN 2019, GAC CONTRIBUTED TO THE DEVELOPMENT OF:

- a technical "Design for Circularity" concept for polyolefins that significantly adds to the recycling know-how of main plastic packaging waste streams.
- the top-up, quality enhancing stabilization system, SONGXTEND® 2721 for more sustainable PP recycled resins.
- two new stabilizers, SONGXTEND® 2151 and SONGXTEND® 2152 for improving the performance of PP-R pipes in contact with extractive media*.
- the new blend, SONGXTEND® 1105, based on a phenolic antioxidant and a high-performance phosphite which addresses the requirements of resin producers in Cr-HDPE blow-molding resin stabilization.
- the new SONGFLAME® flame retardant (FR) family of products was designed to provide high performance and competitive advantages in a broad range of applications, as well as fuel the growth of halogen-free solutions for a wide variety of materials, ranging from foams to various polymers such as polyolefins, acrylonitrile butadiene styrene (ABS) and thermoplastic polyurethane (TPU).
- a new stabilizer package for protecting of PES powder coating (currently being rolled-out to selected customers) created in the new Coating Application Lab (est. Q3/2019) in SONGWON's Technology Innovation Center in South Korea.

In 2019, aligned with SONGWON's overall strategy and ongoing efforts to reduce and avoid negative impacts on the environment, GAC is continuing to focus on solutions to support the circular economy and going forward it is directing its efforts towards specific projects that exploit the beneficial role that polymer stabilizers and polymer additives can play in recycling.

* in cooperation with SONGWON's partner, Norner – a global market leader of Industrial R&D services in polymers.

Technical Service

Identifying opportunities & providing expertise

At SONGWON, Technical Service (TS) contributes significantly to the generation of new business. Their value for the organization amounts to much more than simply responding to customers' technical questions, providing advice and support and helping them to optimize application performance. Our TS experts are business enablers and function as key facilitators between SONGWON's customers, our sales teams and our internal organization – Business Management, Manufacturing, R&D and Global Application Community (GAC). Apart from offering the best level of technical support to customers, they identify potential market segments, pinpoint the areas where SONGWON's existing products can be improved and share this information with the other functions.

To support the efforts TS makes to build strong, long-lasting relationships with customers, the management ensures that the necessary resources are made available. The management wants to ensure that TS can continue to maintain its valuable overview of the market while supplying the high-quality products and services that meet customers' needs and provide them with maximum value. Every year, TS also receives the support of SONGWON's management to increase its

level of technical know-how through various trainings and to further build on the synergies between all the teams working together in the Technical Innovation Center and across the global business.

Close-to-the-customer expertise

SONGWON has always aimed to be close to customers and right at hand to offer the best level of expert technical support wherever they are in the world and whenever they need it. For this reason, over the years we have ensured that SONGWON's TS experts are strategically placed across the globe.

It is the team's skillful relationship-building that also makes it possible for TS to effectively engage with players throughout the industry, acquire information on the most current market trends and learn first-hand from customers about the challenges they face. To increase the level of support and facilitate the engagement between our TS experts and customers, our "Ask the Expert" tool and a highly effective and interactive Product Finder, which we further improved this year, are available on SONGWON's website.

SONGWON has 9 dedicated support centers worldwide:



China, Qingdao



Germany, Greiz



India, Panoli



Japan, Tokyo



UAE, Dubai



Korea, Ulsan & Sunwon



Switzerland, Frauenfeld



USA, Houston

“As SONGWON’s business has grown, so has our reputation for providing customers superior application development and exceptional technical service. It is our unmatched experience, combined with our customer-oriented and application-specific approach which will ensure that SONGWON continues to maintain its leading position in the industry in the years to come.”

Thomas Schmutz,
Leader Global Technical Service & Application Development



By using these tools we have made it possible for customers to reach the right expert or find the products they are looking for and promptly receive the help and information they need.

Supporting more sustainability

As the industry shifts towards a circular economy and our customers demand more product sustainability, the role of TS is becoming more important. Our TS experts are committed to working together with customers and with other parts of the business to provide better overall solutions and services. In 2019, the support and effort from TS enabled SONGWON to introduce and advance the development of new design concepts for circularity.

For example, TS supported SONGWON's strategic partner Sabo S.p.A to develop SABO®STAB UV 216. An active light stabilizer blend, it offers outstanding thermal and UV protection, provides greenhouse films with proven resistance to agrochemicals even when higher concentrations of sulfur are present.

TS was also involved in bringing the SONGXTEND® 2721 stabilizer to the market which improves the long-term thermal stability (LTTS) of recycled polypropylene compounds. By meeting the stringent European automotive OEMs' LTTS requirements for interior or under-the-hood applications, the new stabilizer helps manufacturers in the automotive industry meet their application challenges and sustainability goals. Going forward, TS intends to continue seeking ways to achieve more sustainability for the industry, our customers and for SONGWON.



Research & Development (R&D)

Developing solutions for a more sustainable tomorrow

Right from SONGWON's very foundation up to the present day, we have been a leader in innovation. Maintaining excellence in R&D has been embedded in our company's DNA from day one and it has been the driving force behind our success and our ability to offer one of the broadest portfolios of high-performance solutions in the industry today. We have always understood that to hold a leadership position means to continually offer our customers and the market a wide range of value-adding products that are perfectly matched to meet both current and future needs. Over the years, this solution-oriented approach combined with the deep commitment of our R&D team of experts has helped us to fulfill our goal of becoming a partner of choice for our customers.

Ensuring that we have strong R&D at the core of the company allows us to stay on top of the constantly changing market environment. At SONGWON, we make it our aim to always be one step ahead so that when a customer approaches us with a problem, we can hopefully already have a solution for them. This aim also keeps us on the lookout for new developments and trends and drives us to constantly seek the next challenge and discover new ways to meet our customers' needs.

This year, to ensure that we are in a position to continue to respond and manage customers' requests with agility, R&D expanded the scope of its project management system and sought various other ways to improve. SONGWON's R&D was reorganized to accelerate technology development and maximize internal flexibility as well as to prevent work duplication and to secure expertise by function and no longer by a team operation system.

Over the course of the year, R&D continued developing new products for each business division and provided its comprehensive expertise to expand SONGWON's offering and support the sustainable growth of the organization. In 2019, a total of 66 products were reviewed and developed, and 8 were transferred from lab process development to production and scale-up testing. Most of the new products are in SONGWON's specialty chemicals business, with 10% of them innovative new products, not just for SONGWON but for the world. In addition, 3 existing products: A, the raw material for SONGNOX® 1010 & 1076, SONGNOX® 1330, and TMBP have been streamlined, taking into account quality, process and competitiveness, and

were also successfully transferred to production. All of these additions to SONGWON's portfolio will serve to further enhance competitiveness and support sustainable growth. In 2019, many more ideas emerged which are currently in the research and development stages or the scale-up phase. When implemented, all of these products are expected to lead to real business in 2020 and beyond.

In 2019

8 NEW PRODUCTS FROM R&D TO PRODUCTION AFTER LABORATORY DEVELOPMENT AND SCALE-UP TESTING:

- 6 in the electronic materials sector
- 1 in coatings
- 1 in functional monomers

Customer-focused innovation

Today, our customers are constantly developing new technologies in line with the latest trends. Their development cycles have become so rapid that they demand a fast response to their requirements and communication on a daily basis. In addition to this, their demand for reliable technology, development systems and environmentally sound solutions is also increasing. Through close collaboration and prompt feedback, SONGWON's R&D proactively responds quickly to the customers' need for value creation and helps them to lead market trends faster than their competitors.

SONGWON's management knows that our success as an organization depends on our ability to adapt to our customers' evolving needs and that investing in R&D is vital. As one of their top priorities, SONGWON's management ensures that R&D always has the necessary resources and ideal conditions to enable it to successfully pursue innovation and new technologies as well as provide essential strategic support across the entire business. Aligned with this approach, SONGWON has successfully secured fundamental industrial technology for R&D which has enabled the expansion of our product ranges and includes scale-up technology to support the process from

idea to production. Among these is a polymerization technology based on PHS (polyhydroxy styrene) which has been very well-received by customers. R&D has successfully used it to realize various combinations of polymer and molecular weight control technologies.

Ongoing optimization

Throughout SONGWON, we are driven to seek ways of optimizing our processes and we foster a culture of continual improvement. The ongoing research processes we have in place provide a backdrop of systematic research and development procedures which establish our research experts as leaders of projects and not just as participants. In this way, they are able to acquire technical know-how through all stages from idea collection to production. Encouraging our experts to think and access various functional aspects leads to improved communication, customer-focused development and tasks based on future-oriented R&D capabilities.

Today's biggest R&D challenge is to improve the capabilities of our researchers. In order to develop the high value-added products required by various industries, information must be quickly acquired and understood. For this reason, we ensure that our experts are up-to-date on the most advanced technologies via our established systematic R&D training. This supports our aim to provide more than just products. We want to deliver better solutions that exceed customers' expectations and lead to increasing SONGWON's core value. By promoting the value of each researcher through workshops and continuous training, we are supporting maximum levels of cooperation, open thinking and the sharing of communication not only among the R&D team but with the rest of the business divisions. Attaining optimal levels of synergy is also key to accelerating innovation and successfully meeting the demands of the market.

Beyond improving the expertise of our R&D team, efforts to improve laboratory safety and the working environment as well as safety equipment were also ongoing in 2019. This year in particular, modern

“Rather than settling on simply improving existing products, SONGWON is focusing on opening new fields and application areas through endlessly innovative R&D. This will lead to a future with technology platforms that can accumulate and share know-how and facilitate a reduction of the environmental load.”

Dongkyung Park,
Leader Research & Development

equipment was installed to evaluate product quality and performance in Coating Additives, Lube & Fuel Additives, and Electronic Chemicals.

In terms of technology, equipment for evaluating product performance and physical properties was also installed. One of R&D's top priorities is to ensure that it abides by all the relevant laws and regulations worldwide. In close collaboration with customers, R&D develops products that fully comply with the latest standards and regulations in the countries or regions in which our customers' products will be sold. The environmental aspects of the chemical business must always remain top priority and it is very clear that non-compliance with the applicable laws would seriously damage SONGWON's strong reputation as a responsible organization and lead to economic adversity.

R&D & Sustainability

This year, apart from continuing to focus on improving quality and profitability through implementing more efficient processes, R&D also places the aspects of environment and sustainability at the forefront of everything it does. In 2019, R&D took a leap forward to drive innovation in new technology development, as well as in existing business management to provide sustainable expansion across all SONGWON's business segments. To maintain this momentum, the R&D team will continue to cooperate with each business unit and brainstorm with customers to achieve more sustainability through improved processes and new improved solutions that avoid, for example, the production of solid waste and minimize the generation of liquid waste. R&D's first consideration is always to aim to reduce any adverse impact on the environment by reducing carbon dioxide emissions, improving process yields, minimizing the use of raw materials and supporting recycling.

In 2019

- **3 PATENT APPLICATIONS WERE FILED**
- **19 PATENTS WERE MAINTAINED**
- **85 PATENTS IN TOTAL HAVE BEEN FILED TO DATE**

Manufacturing

Committed to excellence and responsible production

In the 50+ years since our business began, SONGWON's reputation for innovation and excellence in manufacturing has solidified our position as a leader in the industry. From the very first day of our operations, our manufacturing focus and strength has been central to our success and to our ability to offer the high-quality, first-rate products our customers have come to expect. For us, manufacturing excellence goes hand-in-hand with our commitment to continuous improvement and our dedication to sustainable manufacturing practices.

As legislation tightens globally and industry demands become increasingly more challenging, ensuring efficient and responsible manufacturing is essential to our economic and environmental performance. In 2019, we continued to drive efficiency improvements, optimize our operations and focus on enhancing sustainability by increasing our efforts to minimize our use of resources, to reduce waste, lower emissions and become more energy efficient.

SONGWON's management understands the importance of ensuring that the organization sustains its excellence in manufacturing in order to continue to reliably deliver the best, high-quality solutions and secure our position as the supplier of choice for our customers. In line with this, the management encourages and fully supports SONGWON's ongoing improvement culture by investing in and implementing initiatives and technologies that reinforce optimization and beneficial change. Each year, the management focuses on strengthening SONGWON's ability to manufacture efficiently and responsibly as well as ensuring operational excellence is achievable. In this way, SONGWON's management contributes to reducing complexity and optimizing the cost of operations while maximizing transparency, shortening lead times and making it possible for SONGWON to meet both the product and sustainability needs of our customers as well as the highest standards of environmental, health and safety performance.

SONGWON's manufacturing strategy is focused on:

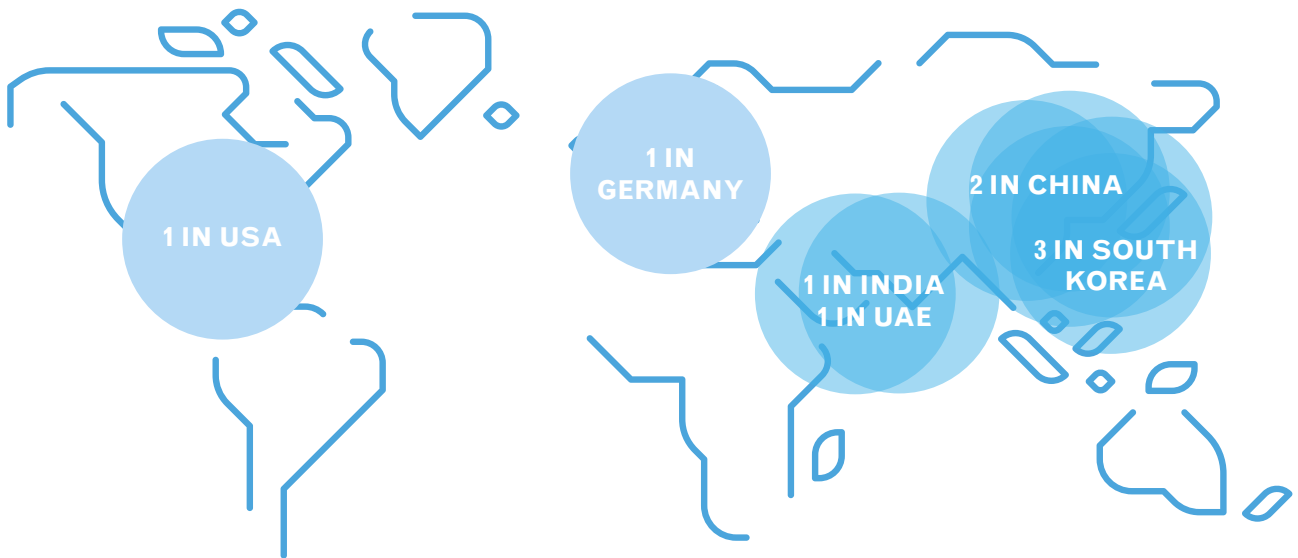
- offering reliability of supply to customers
- delivering the highest product quality that matches customers' needs
- achieving operational excellence through continuous improvement and efficiency
- leveraging SONGWON's manufacturing know-how and optimally utilizing assets to produce economies of scale
- seeking to become more environmentally responsible and producing more sustainable solutions
- ensuring a clean and safe manufacturing environment is maintained at all times
- managing increasing volumes by implementing automated systems that provide more efficiency

Manufactured to meet demand

The foundation of our manufacturing excellence is built on leading edge technology, lean and efficient production processes and a dedication to achieving total customer satisfaction. SONGWON's customers rely on the quality of our products to support their own manufacturing processes with precision, stability and consistent performance. Having close contact with customers is important for us because it allows us to understand the challenges they face as well as quickly identify trends both in the market and in demand. Driven by our commitment to improve and fulfill our customers' requests through more agility and responsiveness, SONGWON's management continually invests in new technologies and process improvements to expand our capabilities, increase capacities and delivery reliability as well as enhance our readiness for the future. In today's highly competitive environment, our worldwide manufacturing operations and our advanced production capabilities are important competitive advantages. Our ability to provide global capacity assurance and operational flexibility are key contributors to SONGWON's success and to our long-term reputation for excellence in manufacturing.

Furthermore, our ever-increasing production capacity highlights SONGWON's ongoing commitment to supporting our broad customer base and creating value for them from our position at the forefront of the latest developments in manufacturing.

SONGWON has 9 world-class manufacturing facilities:



In 2019

SONGWON:

- established a fully automated system for its SONGNOX® 1010 plant at the Maeam site in Korea, which is expected to bring further stable control of quality and competitiveness
- added a steel belt for the epoxy resin modifier (ERM) in the Ulsan facility in Korea
- introduced additional process improvements and upgrades in Ulsan and Maeam
- completed the specialty chemicals production line in Suwon, Korea and successfully trialed production
- improved the process for SONGNOX® 1076 and greatly increased its overall capacity
- strengthened its in-house isobutylene (IBL) production in Maeam
- installed a t-Butanol (TBA) tank at its Maeam plant in to reduce potential supply and demand risks
- installed a new zero-liquid discharge (ZLD) boiler system at the Panoli plant in India which has led to energy cost optimization and reduced GHG emissions
- increased OPS capacity in the Abu Dhabi plant by installing a co-rotation extruder

Across the globe, SONGWON has a total of 9, strategically placed, world-class manufacturing facilities which are fully equipped with the latest technologies to make sure that we can offer the same high levels of production quality to our customers all over the world. Our ongoing investments in leading-edge technology also secures our technological competitiveness in the growth markets we serve and ensures that we are always in a position to increase our manufacturing capacities in line with our customers' demand and delivery requirements. Providing our customers with global capacity assurance and operational flexibility are key elements to SONGWON's long-term success. Furthermore, our ever-increasing production capacity highlights our ongoing commitment to supporting SONGWON's broad customer base and our drive to create value for them from our position at the forefront of the latest developments in manufacturing. SONGWON's production process expertise, proprietary technology and backward integration are core strengths that fully support the organization's growth ambitions and provide us with a solid foundation for maintaining SONGWON's leadership position in the industry.



Ensuring the highest safety standards

For SONGWON, safety is paramount and goes hand-in-hand with state-of-the-art manufacturing. Just as we are dedicated to producing the best quality, high performance, products, we are deeply committed to maintaining and ensuring a safe production environment at all of our facilities. We have made eliminating risks every day and continually improving our safety performance an absolute priority across our organization. We know that it is only possible for us to produce high-performance, fully compliant products while meeting our social and environmental responsibilities when we place EH&S at the center of all our activities and adhere to world-class operating standards.

We aim to make our manufacturing sites as safe as possible for our employees but also for any contractors or visitors who spend time at our facilities stay safe. For this reason, we apply every precaution and do everything we can to ensure risks are eliminated and accidents avoided. We have a set of very stringent EH&S guidelines in place which our employees and anyone entering one of SONGWON's sites must abide by. It is our people who make manufacturing excellence with optimal safety standards possible. Taking care of our people is important to us and we make sure they are continually trained and supported to develop more skills. In 2019, we continued our program to improve the management and leadership of our foremen and expanded the manufacturing teams with new talent.

After the internal audit carried out by our risk management leader in 2018 of each of SONGWON's sites, the teams dedicated their efforts in 2019 to optimizing the areas identified as requiring improvement. The audit of the sites was also done in 2019 and the recommendations will be followed up in 2020.

Sustainability-focused manufacturing

In manufacturing today, the challenges we at SONGWON face are increasing especially related to meeting regulatory requirements such as the CCA (Chemical Control Act) and IEC (Integrated Environment Control). In response, we are focusing our efforts on lowering our environmental impact by striving to improve and manufacture more sustainably. For example, we are placing emphasis on plant automation and process improvements, replacing equipment like the gas-fired boiler at our Panoli plant with one which uses agro-waste and we are seeking to reduce energy and waste as well as making use of more renewable and recycled materials. Furthermore, by implementing LCA (Life Cycle Assessment), we are better able to identify factors which negatively impact the environment. Also, to maximize SONGWON's profitability, we continue to apply measures for reducing our utilities' consumption wherever possible but also direct our efforts towards cost reduction by improving our chemical yields and implementing more automation.



“We anticipate seeing an increase in customer demand for faster production, more customization and maximum transparency. In response, we will continue to make sure that SONGWON is ready to meet these demands as well as support the drive for more sustainability by continuing to invest in new, cleaner technologies, integrating processes and focusing on optimization.”

Byungsoo Boo,
Leader Operations

Quality Assurance (QA)

Maintaining the highest standards

As a leader in the industry and supplier of choice to our customers, we are proud of the reputation we have built over the years for reliable, high quality. For us, quality means meeting the expectations, and wishes of our customers, and surpassing them whenever possible. It is about having effective systems in place, intensive attention to detail and the continual alignment of process improvements with sustainable best practices. With our strategically placed state-of-the-art facilities, years of technical know-how and extensive industry experience, SONGWON is able to comprehensively support the QA efforts of our customers in all aspects of their operations by providing safe, high-quality products that can win not only theirs but also their customers' trust.

QA is a serious obligation for everyone at SONGWON. Committed to fulfilling this obligation, SONGWON's QA team is responsible for ensuring that SONGWON can both maintain and offer the highest level of quality assurance. The role they play is crucial to the overall direction and success of the organization. To support SONGWON's QA efforts and help to ensure that the quality targets set are achievable, QA is supervised at the highest level of our company.

Collectively committed to quality

By establishing the necessary environment and encouraging synergy across the organization, SONGWON's management supports the company's continual drive to improve products, services and processes. The management also makes it very clear that assuring quality is not exclusively the responsibility of SONGWON's QA experts. For our management, the highest standards of quality rely on the dedication and performance of every member of our global team. Quality is a part of daily life at SONGWON and it is at the very forefront of all of our activities.

In this respect, we take complaints very seriously and make sure that they are addressed immediately and traced in a Non-Conformance Report with appropriate corrective actions. The QA complaint task force team also collects all internal, supplier and customer complaints and seeks ways of eradicating the root causes and resolving them as quickly as possible.

Furthermore, the major KPIs for the QA team support the continuous reduction in the number of customer complaints. We want to ensure that we can respond to our customers with an accurate root cause analysis and share our effective corrective actions with them in due time. In order to achieve best results in this process, a close and effective cooperation between QA and the Operations and Business teams has been established. Through regular calls, meetings and reviews, we monitor the progress and the actions that have been initiated to ensure that we deliver the high quality we are committed to.

In 2019, the QA team achieved a 2.5% decrease in customer complaints which underpins the positive decline trend in customer complaints since 2016. Throughout the year, QA also stepped up its efforts to reduce the response time for customer complaints through further improvements to standard processes and responsibilities which will continue on through 2020.



Ensuring consistent quality

ISO certification demonstrates SONGWON's uncompromising commitment to quality and improving our operations so that we consistently continue meeting the increasing expectations and changing needs of our customers. ISO sets out the criteria for a quality management systems (QMS) based on several quality management principles which include: strong customer focus, processes, and continuous improvement.



In 2019, the team responsible for ISO Standards at SONGWON was integrated into the QA organization. This new organizational structure allows QA to align their focus to the area of scope targeted to ensure we can attain further improvements in quality and standards. We began the preparations for ISO 14001 Certification for the Suwon Plant in South Korea in 2019 with the aim of achieving certification by the middle of 2020. Having already been granted ISO 14001 Certification for the Ulsan and Maeam plants in South Korea and SONGWON's Panoli in India, the plant teams are sharing their experience, documentation and requirements with Suwon. With this optimal guidance, the Suwon plant team can ensure it establishes all the ISO required processes, controls and documentation. Also, to make sure SONGWON offers consistent quality, we continuously adapt our QMS to the new requirements created by the business or operations. Each year, the Business Units launch new products to new industries and customers. QA prepares the required documentation, supports the business with the product launch and implements the necessary changes in our QMS. Adapting processes and documentation and training employees accordingly is an ongoing activity at SONGWON.

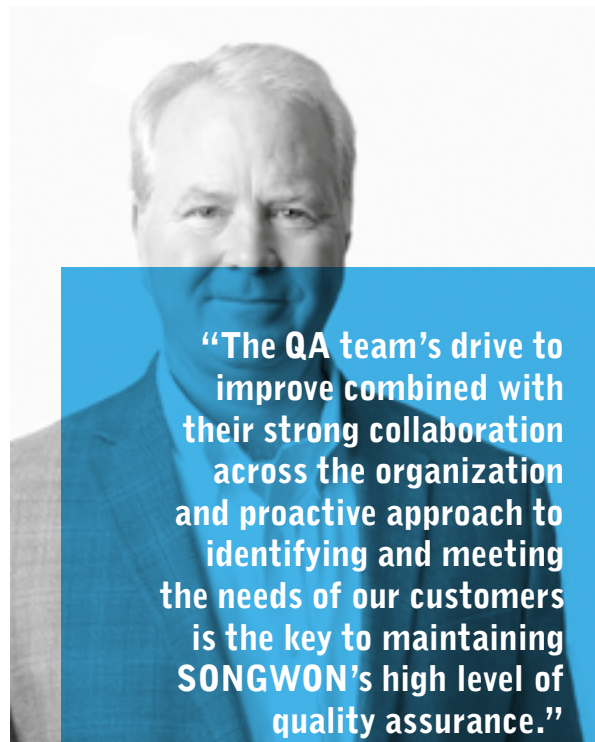
In 2019, QA also upgraded the global QMS software to a higher version and added additional QMS modules to achieve even better transparency on our data, processes and ISO requirements. The upgrade also facilitates and supports improvements in document handling, tracking, approvals and archiving which will continue to be a major and important goal for QA in 2020. The new QMS will also contribute to enhanced sustainability by helping the team to work in a more efficient and paperless manner as well as providing the information online to the relevant teams. SONGWON has already targeted the implementation of additional processes to also make them paperless or avoid emailing with attachments. The QA team has set it as a priority for the coming year to continuing to globally improve SONGWON's overall QMS in this way.

The Stage and Gate process – a well-established method for quality management in product development which was implemented across the entire Group in 2018 to support the Business Units successfully launch new products to their markets also supported success in 2019. In addition to ensure that our high standards are not only achieved but also maintained, all SONGWON's QA processes are documented and evaluated through regular internal and external audits.

Expecting quality from others

SONGWON's commitment to the highest levels of quality assurance also extends to our business partners. We make sure that our suppliers can deliver to the agreed requirements SONGWON sets and by performing supplier audits for the business, we confirm that our quality requirements are understood and executed according the agreed standards. In addition, at SONGWON we place value on building strong collaborative relationships with suppliers to ensure that our rigorous QA requirements are understood and met.

It is through partnering with our suppliers that we can reduce quality risks and assist them to improve their own quality levels. In addition, SONGWON strongly encourages all our suppliers to practice legal compliance and promote social responsibility toward such issues as the environment, human rights, and occupational safety. Our QA team also supports customer audits. Through these, the team gets the opportunity to exchange and share quality aspects with various customers and gain a better understanding of their expectations.



“The QA team’s drive to improve combined with their strong collaboration across the organization and proactive approach to identifying and meeting the needs of our customers is the key to maintaining SONGWON’s high level of quality assurance.”

Doug Excell,
Leader QA, Regulatory & Best Practices

SONGWON's memberships

- 1** AFPM
American Fuel and Petrochemical Manufacturers
www.afpm.org
- 2** ALMU
Asian Lubricant Manufacturers Union
<https://www.asianlubricantmanufacturers.org/>
- 3** ATC
Additive Technical Council
<https://www.atc-europe.org/>
- 4** CEFIC
The European Chemical Industry Council
www.cefic.org
- 5** CEPAD
The European Alkylphenols and Derivatives Association
<http://cepad.cefic.org/>
- 6** ELISANA
European Light Stabilisers and Anti-Oxydants
<http://www.cefic.org>
- 7** EPCA
European Petrochemical Association
www.epca.eu
- 8** FCA
CEFIC Food Contact Additives Group
<http://fca.cefic.org/>
- 9** GPCA
Gulf Petrochemicals and Chemicals Association
www.gpca.org.ae
- 10** ILMA
Independent Lubricant Manufacturers Association
<https://www.ilma.org/>
- 11** JHOSPA
Japan Hygienic Olefin and Styrene Plastics Association
www.jhospa.gr.jp
- 12** JHPA
Japan Hygienic PVC Association
www.jhpa.jp
- 13** KCMA
Korea Chemicals Management Association
www.kcma.or.kr
- 14** KEEA
Korean Electric Engineers Association
www.keea.or.kr
- 15** KFSI
Korea Fire Safety Institute
www.kfsi.or.kr
- 16** KISA
Korea Industrial Safety Association
www.safety.or.kr
- 17** KITA
Korea International Trade Association
www.kita.net
- 18** KLCA
Korea Listed Companies Association
www.klca.or.kr
- 19** KMA
Korea Management Association
www.kma.or.kr
- 20** KOEEA
Korea Energy Engineers Association
www.koeea.or.kr
- 21** KSCIA
Korea Specialty Chemical Industry Association
www.kscia.or.kr
- 22** LiSAO – REACH Consortium
Light Stabilisers and Antioxidants
www.reachcentrum.eu
- 23** NAPIM
National Association of Printing Ink Manufacturers
<https://www.napim.org/>
- 24** OrganoTin REACH Consortium
www.reachcentrum.eu
- 25** STLE
The Society of Tribology and Lubrication Engineers
<https://www.stle.org/>



Regulatory Affairs & REACH

Committed to complete compliance

As a globally operating organization, SONGWON is required to abide by a multitude of international and local laws, regulations, policies, enforcement authorities and cultural differences. Regulatory compliance is essential not only for our business but for our business partners, customers and shareholders. Therefore, as an integral part of our day-to-day operations, we consistently monitor all of our actions and business activities to make sure that SONGWON is fully compliant and that all of our business operations are carried out in accordance with the highest ethical principles.

Over the years, we have established a strong compliance culture at SONGWON and each SONGWON employee takes the issue of compliance seriously. With a heightened awareness of their responsibility and contribution to ensuring that SONGWON's business activities adhere to the regulatory standards, laws and regulations in our industry, we are all driven to be good, ethical 'corporate citizens'.

The changing regulatory environment

Across the chemical industry, the scrutiny and general skepticism is increasing along with the widespread presumption that all chemicals are toxic, unsafe and pollute the environment. In addition to this, the widespread Media and NGO pressure on plastics is being applied in many new ways and issues such as plastics in the environment or exposure to "microplastics" have created an immense drive towards not only eliminating but banning single-use plastics. Politicians, regulators and policymakers are being forced to respond with effective and comprehensive action and the strong global awareness also means that it is no longer a "nice to have" but a necessity for industry players to assume responsibility and implement effective product stewardship strategies.

Throughout the marketplace, consumer product companies are also looking for suppliers who do more than just comply with minimum regulatory requirements. They want to do business with suppliers that not only meet the quality, price and delivery terms but with the ones who are making meaningful headway to improve the sustainability of their products and reduce their environmental footprint.

In 2019

REGULATORY EXPERTS:

- completed K-REACH (AREC's) pre-registration before the June 30, 2019 deadline and pre-registered over 600 chemical substances
- registered 11 new Flame Retardants, Coatings and Polymer Stabilizers in the EU
- submitted just under 100 registrations to the authorities for approval for our R&D and commercial development of products
- kicked-off the Dynamics 365* Regulatory Management project and after achieving the initial configuration of the basic requirements, advanced to the Dynamics 365 test environment
- upgraded SONGWON's product SDS management and access capabilities
- created a customer facing website which now links to a live single database of current SDSs
- increased efficiency by eliminating the manual updating of static documents on SONGWON's website and our intranet sites
- developed new tools and methods for assessing the sustainability of new and existing substances (chemicals) and introduced them
- carried out raw material sustainability assessments
- piloted a new approach to assessing potential flame retardants for toxicity
- introduced computer-based modeling to develop less toxic molecules enabling faster and cost-efficient screening while reducing the unnecessary use of animals

* Dynamics 365 is a Microsoft product

Market driven deselection of chemicals is moving faster than the regulatory processes making it more important than ever for SONGWON to remain as agile and up-to-date as possible.

To support both new and existing registrations, as well as certifications worldwide, it is also imperative that we ensure scientific integrity and compliance through all development phases. SONGWON's management is responding to the global demand for more sustainability by ensuring that the Regulatory Affairs team has the required resources in place to support the ongoing development and production of more efficient and safer chemical substances.

In 2019, new talent was added to the team to strengthen the regulatory support to our businesses and this support was also reorganized to directly align with the structure of our business units. Regulatory Affairs also continued to work closely with the Procurement and Sustainability teams to screen SONGWON's raw materials for future vulnerabilities related to human health or environmental issues, supply chain considerations and external pressures.

K-REACH (ARECs) update

SONGWON has always fully supported regulatory intervention as well as the development of new regulations. Key to our Korean operations and global businesses, the ARECs ("K-REACH") pre-registration of 600+ substances was a tremendous undertaking involving a substantial amount of cooperation among our partners in manufacturing, procurement and the businesses. The work has just begun but the Regulatory Affairs team is already making good progress. To manage the enormous number of substances and registration deadlines approaching, SONGWON's management will be investing in and making sure that the organization has the right level of resources over an extended period of time in order to ensure the uninterrupted supply of our products to customers in Korea and around the world.

Well-prepared in advance

One of our highest priorities is making sure that SONGWON's complete range of products continually meets our global customers' environmental, health and safety goals. The regulatory environment worldwide is constantly evolving and the pace of change is increasing rapidly. Today, global companies must prepare for REACH type regulations in new countries and regions such as Korea, Turkey, EAEU (Eurasian Economic Union) and Brazil. Customers are also now demanding more detailed information about the products they use (impurities, transformation products) while regulatory bodies are expecting more toxicology data, exposure and use data as well as other information to enable them to assess the potential risks to human health and the environment from chemicals entering their regions.

Sharing knowledge & expertise

In 2019, the team continued to take advantage of participating in industry groups, subscriptions to regulation reporting services and its close relationship with our businesses in order to prepare for and carry out our obligations as a responsible global supplier of chemicals. We want to ensure that every customer feels confident and knows that they can rely on the fact that each SONGWON product they use is of the highest quality and complies with the industry's regulations and quality standards. To keep ahead of regulatory developments, we make a point of proactively anticipating future regulatory changes by participating in relevant industry associations where we work together with competitors and industry experts.

This year, a recurring topic brought questions relating to antioxidant related transformation products ("NIAS" and "Arvin substances") formed in plastics during their downstream processing and conversion to food packaging or drinking water items. Working with ELISANA members, our team helped to develop an easily accessible communication tool which was made available on ELISANA's website. We also provide advice and support regarding the sustainability of our products through the introduction of new assessment tools.

In 2019

SONGWON:

- issued new SDSs for 325 new products
- updated SDSs for 612 existing products
- produced 10,000+ different SDS translations
- created 69 new RDSs
- updated a total of 58 RDSs

Supporting customers

In our industry, providing customers with comprehensive product information such as the specification (CoA), a technical data sheet (TDS) and a safety data sheet (SDS) is already general practice. At SONGWON, we go a step further and provide our customers with an additional regulatory data sheet (RDS) which offers a detailed overview of critical global product regulatory approval information.

We also make it easier for our global customers to comply with their local hazard communications requirements by offering our SDSs in such a broad spectrum of languages and easily accessible on our website.

Furthermore, our customers appreciate that they can find the answers to their most common regulatory questions in our RDSs and if anything specific for them is missing then our team of experts has extensive experience with global regulatory issues. Although, highly knowledgeable and able to supply the information or guidance our customers need, if they don't happen to know the answer themselves, our experts know where to find it quickly.

Sharing knowledge and offering expert support within our organization is also key to ensuring everyone at SONGWON is informed and well-prepared to face compliance regulations and changes. In view of this, the Regulatory Affairs team regularly contributes to SONGWON's internal newsletter, attends meetings with customers and provides communication tools for our sales force.

Facing the future

Looking ahead to 2020, the Regulatory Affairs team will be directing its compliance activities towards K-REACH (ARECs) registrations and fulfilling the requirements for Turkey REACH (KKDIK). We will also be working to further develop, improve and test the Dynamics 365 regulatory management functionality.



“As the emphasis on sustainability and product stewardship increases, SONGWON will be investing significant resources in developing new products while continuing to generate the comprehensive product information and supporting customers with our regulatory expertise.”

Bob Campbell,
Global Director of Regulatory Affairs

SONGWON's global team



People

Globally diverse & committed

Over our almost 55-year history, SONGWON has been built by highly talented professionals who mirror the values of the company's pioneer-minded founder Kyoung-jae (KJ) Park. Dedicated and driven to always go the "extra mile", it is the special people who work at SONGWON and live our core values every day that truly set us apart in the industry and enable us to maintain our leadership position.

Successfully working across the business and across borders, SONGWON's global team is united in their determination to collaborate, share their ideas and apply their skills and expertise in their areas to benefit the organization. Our global team is made up of individuals who place the highest expectations on themselves and are committed to giving 100% to whatever they do.

More than just the exemplary way they perform their daily tasks, they are always open to improving and challenging the status quo. It is our special team spirit and great sense of pride in being the best we all can be that makes us a world-class organization. The concerted effort of each and every employee provides us with a competitive advantage and contributes to the entrepreneurial spirit and inclusive, collaborative culture that has always existed within SONGWON.

Our employees work across a number of sites, countries, cultures and languages, but all of us share the same committed goal: to create value that makes the world a little more sustainable every day. Directly reflecting SONGWON's global customer base, our employees also come from diverse international backgrounds. We have a strong multi-cultural global team and with each passing year, it has continued to grow. SONGWON is proud to now have a total of 1,081 committed individuals on board who represent 31 different nationalities. Having such a broad mix of people at SONGWON brings us invaluable diverse perspectives which are helping us succeed in our increasingly complex international environment.

1,081 talented employees

The unique and familiar company atmosphere throughout SONGWON stems from a constructive blend of long-standing employees with years of experience and young, innovative new talent. Whether our people are new to the organization or have been with us a long time, each person is dedicated to fulfilling their role and contributing to our united world-class team. The combination of SONGWON's global reach, personalized approach, experience and local knowledge has made our organization what it is today.

187 Employees have been working at SONGWON for more than 20 years

In 2019, we made a significant progress in converting our HR Strategy into actions.

This year we:

- harmonized group-wide HR practices (e.g. training programs)
- developed a global digital Employee Information System
- introduced an electronic absence management platform
- advanced the development of our Performance Management Cycle
- worked with a strategic framework for SONGWON's future goals
- identified essential positions to sustain operations and advance SONGWON's growth
- used effective performance assessments to add to our internal talent pool
- coached business leaders in people management
- provided internal and external trainings for dedicated teams (e.g. Advanced Negotiation training for Sales)
- empowered people and helped them grow as a team (with language courses, sports events etc.)

Building capabilities

In line with our commitment to improving our workforce's professional skills as well as the quality of our leaders, the HR team focused on identifying and establishing various development initiatives. Once again in 2019, HR also applied its comprehensive approach to evaluating employee performance, potential and personal goals and the same consistent approach to succession planning.

At the beginning of 2019, to achieve leadership continuity, the management supported the HR team to carry out a number of internal promotions. Two long-term key employees from within the company, with vast industry expertise and a solid network of partners became members of the EC. This year, SONGWON also appointed its 1st female leader to the EC.

SONGWON's management is focused on driving the highest levels of performance. It provides the necessary support to the HR team to facilitate the development of the next generation of leaders. In addition to valuing the diversity of our people, our management ensures that entrepreneurial behavior is encouraged and rewarded. Over the years, it has established a strong, engaging and proactive culture at SONGWON where every individual and team is empowered to deliver the best outcomes possible.

SONGWON's Core Values combined with the Code of Conduct serve to emphasize the importance the organization's leaders place on issues such as equality, diversity, CSR and sustainability. SONGWON's management also endeavors to provide a safe workplace, listens to the different viewpoints and ideas and oversees all the company's activities to ensure that they are sustainable.

To make it possible for our employees to use their expertise to make valuable contributions to SONGWON's growth and expansion, the HR team aims to provide chances for continual learning, competence-building and sharing knowledge. HR's key to attracting, engaging and ultimately retaining the best talent in the industry, is to encourage professional growth and support the development of people's full potential within a supportive, family-like, environment.

Growing our people

Our HR team knows that an important aspect of achieving employee satisfaction and a rewarding sense of personal success is through individual development. Only by enabling employees to take pride in their work and establishing the most conducive environment for them to fully contribute to SONGWON's strategic aims, is it possible for us to build further success. With the entrepreneurial spirit and collaborative culture that exists at SONGWON, we ensure that our employees are fully engaged, driven by measurable results and able to 'live' their ideas.

One of the most important contributors to this is our well-established performance review system (PRS). At SONGWON, we motivate and develop our people by aligning the work to be done with organizational goals and then assessing performance against a clear set of leadership expectations, targets and measures. Fully aligned with this, SONGWON's HR philosophy is built around acknowledging the essential role each individual plays within our organization and the way in which they add value to everything SONGWON does.

Most importantly, it involves ensuring that whatever their function might be within the organization, our employees feel valued themselves. In order to support this, across SONGWON, a culture of open communication and flat hierarchies is promoted. In addition, the PRS process provides context and purpose for each employee's area of work and helps them to clearly understand the scope of their contribution to the SONGWON's global team. The overall aim of PRS is that the results and discussions deliver reciprocally beneficial feedback for managers and employees which is fair, accurate and motivating for both.

“Having an opportunity to come from one cultural background to live and work in another country truly helps to broaden your personal horizons and enables you to really see the wider picture.”

Quote from a SONGWON Global Business Manager who has worked for the organization for 24 years about his experience on an international assignment from Korea to the U.S.

Supporting our global team spirit

The opinions of our people are particularly important to us. Engaging in regular dialogue with employees, holding 2 Town Hall meetings per year and conducting employee surveys, enables SONGWON's management to gain important insight into the concerns of its global team while supporting the team feeling and getting good ideas from across SONGWON, on how to keep improving as an organization. Contributing to maintaining a sense of pride throughout the company, our quarterly employee newsletter, SONGINSIDE also highlights what's happening across the organization and enables us to celebrate our successes.

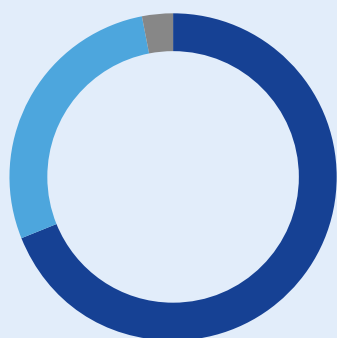
In keeping with its strategy, HR continued to invest this year in ongoing learning around structured, results-oriented training and development across the organization. Throughout 2019, employees also took part in SONGWON's international experience initiatives to support internationalization and further enhance the global team spirit.

To meet the rapidly changing demands of today's business world requires flexibility and the ability to adapt swiftly to changes. As SONGWON continues to expand into new areas of business and markets, maintaining a culture of continuous learning and increasing the efficiency of HR workflows, as well as harmonizing HR standards and procedures has become more important than ever.

Working at SONGWON:

- < 1 year – 92 employees
- 1-9 years – 578 employees
- 10-19 years – 224 employees
- 20-29 years – 148 employees
- > 30 years – 39 employees





1,081

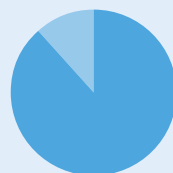
Employees



51

Americas

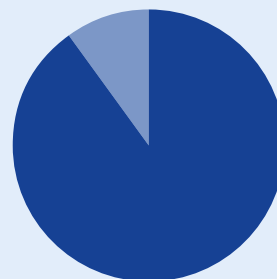
Women (13)
Men (38)



310

EMEA

Women (35)
Men (275)

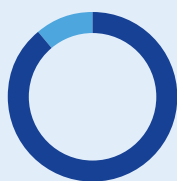


720

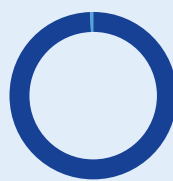
Asia

Women (77)
Men (643)

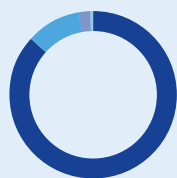
7 women took parental leave during 2019
and 1 of them has returned back to work.



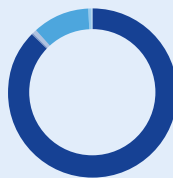
Women (125)
Men (956)



Permanent (1071)
Temporary (10)



Men, salaried (936)
Women, salaried (121)
Men, hourly (20)
Women, hourly (4)

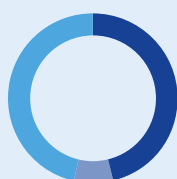


Men, full-time (945)
Men, part-time (2)
Men, temporary (9)
Women, full-time (117)
Women, part-time (7)
Women, temporary (1)

BOD* & Executive Committee



30-50 years old (2)
over 50 years old (12)



Executive Committee

Men (7)
Women (1)

BOD

Men (7)
Women (0)

Employees by gender

	Left	Hired
Total	55	97
Men	49	83
Women	6	14

Employees by age

	Left	Hired
Total	55	97
> 50 years	6	6
From 30 to 50 years	32	42
< 30 years	17	49

* after the CEO passed away in September 2019, there were only 6 BOD members

In 2019

- International assignment – 1 employee
- Employee Exchange Initiative – 1 employee

SONGWON's International Assignment Program

This program provides an opportunity for an employee to work alongside another SONGWON team in different country and culture. It supports both cultural understanding and provides more insight into other processes and methods. Furthermore, it allows the employee a unique chance to strengthen their language and international business skills. By familiarizing themselves with different approaches, the employee builds stronger ties with global team colleagues which later benefits their local colleagues when they return to their base location. Strengthening the communication between locations and promoting the sharing of best practices is valuable to SONGWON on many levels. Most importantly, the program helps us to cultivate a global mindset and build on our diversified culture.

SONGWON's Employee Exchange Initiative

Professional development and sharing experience are two important aspects which are embedded in SONGWON's HR strategy. Employee exchange assignments make it possible for our people to gain international experience through working at another SONGWON location and supports them to further expand their skill set. This initiative also serves to strengthen our global SONGWON team.

A range of opportunities

In addition to investing in and developing the talent already within SONGWON, HR continued to seek and hire new talent in 2019. SONGWON's HR strategy is built to attract and hire the best in the industry and provide them with an environment to grow and fulfill their potential. Delivering excellent development opportunities, where people are supported by experienced, inspiring managers in a global organization that cares deeply about the success of its people has positioned SONGWON as an attractive employer in the industry.

For HR, seeking out the "best in the business", means finding people with the required qualifications and experience, but also people who share SONGWON's key values, contribute to the rich diversity of our people and add value to our multi-cultural environment. Growing our global organization requires hard-working individuals who do more than just their job and strive to be better than yesterday. The comprehensive on-the-job training we provide combined with the hands-on experience allows our employees to further build their skills and increase the knowledge needed to achieve high performance.

In our business, we require multifaceted people that can meet the many challenges and who enjoy the chance to develop positive, mutually beneficial relationships with customers in different countries around the world. SONGWON's increasing focus on sustainability and the appointing of our 1st Chief Sustainability Officer is also sending a signal to potential new hires. Many of the best and brightest across the industry are interested in working for companies that put ethics over profit and are focused on doing their part to create a better world.

Successes at SONGWON are shared and celebrated. We tackle our collective challenges together and are linked by a common thread: passion, dedication to doing one's best, respect for each another and a deep commitment to customers and to being a part of shaping the future of SONGWON.

Fully compliant HR

At SONGWON, we do our best whenever it is possible to hire from within. HR always looks locally first to find a qualified candidate for mid- to lower-level positions and only if unable to find someone suitable, do they broaden the search until they find the “right” person for the position.

We know the value of leveraging a local managers' inherent understanding of the culture of both their employees and customers. This is why we apply a similar “looking local” approach to fulfilling senior management roles. HR's top priority is to fill a management position with the best person for the job and this individual may or may not come from one of the communities where we have a local presence.

Remaining compliant with regional and local laws and regulations is a priority for us and our success is founded on behaving in a responsible, ethical and law-abiding way. We make sure that every employee clearly understands that they must comply with all the principles provided in SONGWON's Code of Conduct, but also with external laws, rules and regulations.

Focusing on building and maintaining transparency, honesty and accountability, our independent Whistleblowing System, enables employees and external stakeholders to report suspected violations of law or business ethics.

SONGWON's culture of responsibility towards each other and to all our stakeholders highlights the commitment that everyone in the organization has to really living SONGWON's values. One of our deepest commitments is acting honestly, fairly and in good faith with SONGWON's customers, suppliers, competitors, the public, as well as with our employees. We are also highly committed to providing a corporate environment which enables and encourages people of all backgrounds and beliefs to work well together with tolerance.

As an equal opportunities employer, treating all of our employees with fairness and respect is an absolute must. A small number of SONGWON's employees in certain locations are represented by works councils or unions or subject to collective bargaining agreements. In 2019, the percentage of employees covered by such agreements was 4% and this is managed and monitored at a local level.

At SONGWON, we seek to maintain our inclusive culture where our people feel like part of a big global family. In complete accordance with this, HR ensures that the focus of our policies and practices (such as maternity or sick leave) foster diversity, respect for human rights, offer equal opportunities and support non-discrimination. We make a point of training all of our employees, especially those who have just joined our team to fully understand our values.

In 2019, there were no incidents to report, such as corruption that breached SONGWON's principles and we are also proud to report that there were no significant fines (of either monetary or non-monetary value) for non-compliance with laws and regulations.



“Although SONGWON has expanded around the world, our roots and company character have remained local and the entrepreneurial spirit of each of our employees has helped us achieve our leadership position in the industry.”

Beatrice Iuorno,
Director Global Human Resources

HOW SONGWON

VALUES & SUPPORTS EMPLOYEES AT ALL LEVELS



empower

Providing an environment for innovating, contributing & collaborating



support

Inspiring innovative creativity & entrepreneurial team spirit



encourage

Creating the "room" for expressing ideas and opinions



enable

Granting the "space" for taking responsibility & decision-making



value

Applauding diversity & unique perspectives



endorse

Establishing an open atmosphere for honest 2-way communication & trust-building



challenge

Stimulating individual development, learning & realizing full potential



acknowledge

Commending efforts, hard work & achievements



Sustainable

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Sustainability

Sustainability

Our Approach

Not long ago, sustainability used to be seen as just a competitive advantage in certain markets and value chains. However, in response to the continuing environmental degradation and the global shift in ecological awareness, local, national and international policies and regulations have become increasingly more demanding making sustainability imperative for the future. Today, it is not only a global issue but the driving force throughout our entire industry. Apart from being a leader in our markets, our customers, investors and employees expect us to show leadership in environmental stewardship and to care for our people and communities.

Now, more than ever, players in the chemical industry are expected to take responsibility for their ecological footprint and not only related to the manufacturing of their products alone but also for responsibly acquiring raw materials and considering the environmental impacts at every stage in the products' lifecycle. With the shift towards a circular economy, the environmental 3 Rs – reduce, reuse, recycle are now key considerations.

The 3 Rs of the environment



RECYCLE
REDUCE
REUSE

From our foundation in 1965, we have learned that we need to constantly be prepared for the future with all its changes and challenges. As our business expands around the world, so are our sustainability priorities and our ambitions. Beyond just seeing it as our duty, SONGWON's approach is a pragmatic one involving small but relevant, concrete steps over the time. At SONGWON, we aim to make sure that every business activity or development project we work on is as ecologically and economically sustainable as possible. We want to be part of creating things that last.

Strengthening our commitment

For SONGWON, sustainability is a business approach that enables the creation of long-term value through embracing the opportunities and managing risks derived from economic, environmental, social and technological developments. Over the past several years, we have been taking significant measures to ensure our commitment and responsibility toward health, safety and sustainability is embedded in every aspect of our business – from operations to innovations and strategic planning, through to realizing it in all of our daily activities. Although the organization has made good progress towards sustainability, there is a real eagerness at all levels of the company to do more to achieve our goals.

SONGWON strives to:

Avoid

cease producing waste where possible

Reduce

minimize the levels of waste we produce

Re-use

make multiple use of items as many times as possible

Recycle

recycle what we can after re-using

Dispose

discard what does remain in a responsible way

Discover

seek to find new and innovative solutions

*We
stand for*

SUSTAINING PEOPLE & THE ENVIRONMENT

Committing to deep, ongoing sustainability, social and ecological responsibility, while creating value through innovation represents the very core of what SONGWON has been all about since our foundation.

DOING THINGS RIGHT

Conducting our business and our affairs in full compliance with all relevant laws and regulations and in accordance with the highest ethical standards is one of our top priorities.

ACHIEVING WITH PRIDE

Receiving recognition and acknowledgement for the dedicated efforts of our people makes us proud and encourages us to forge ahead.

For the 3rd consecutive year we have been awarded the EcoVadis* gold recognition level for Corporate Social Responsibility which places SONGWON among the top 3% of all businesses assessed.

SENDING CLEAR SIGNALS

Demonstrating that we take our responsibilities and obligations seriously, and have always been committed to transparency is very important to us. Each year in our Sustainability Report, we communicate our impacts, strategies and contributions to sustainable development in accordance with the GRI Standards.

* EcoVadis is an independent rating agency specializing in sustainable development and performance monitoring.



To accelerate our efforts, SONGWON's management further strengthened our commitment to sustainability and our role as a contributor to the circular economy by appointing the company's 1st Chief Sustainability Officer (CSO). SONGWON's CSO is responsible for enhancing the level of sustainability across the organization, developing a comprehensive strategy that integrates all of our sustainability efforts and positioning SONGWON as an enabler of the circular economy.

Some of SONGWON's successful 2019 initiatives to achieve more sustainability in our plants:

- optimizing the use of steam during the distillation step
- recycling (partial) of washing solvents and mother liquors after the crystallization step
- reusing the steam condensate as boiler feeder water
- installing solar panels on the warehouse roof
- using an inverter to save electricity
- recovering solvents from the final product drying step
- direct recycling in crystallization of the recovered solvents
- improving process by eliminating the use of solvents
- reusing recovered products, intermediates and raw materials from tars and solid wastes



Our approach towards a circular economy

We recognize and embrace our responsibility towards the environment and society. At SONGWON, we want to lead by example. Through our commitment to supporting the United Nations' Sustainable Development Goals (SDGs), we want to encourage other players in the plastics value chain to shift from a linear to a circular economy and to seek sustainable solutions that consider the entire lifecycle of plastics.

Message from the CSO

"Sustainability is a group-wide challenge that involves our entire global team constantly striving to create better environmentally-sound solutions which are ethically sourced, generate less waste, using better materials, less packaging and delivering more value for our customers. For example, by developing additives which contribute to further improving the quality of plastics for recycling, we can contribute to making the overall process more ecological, faster and more efficient and support the transition from a linear to a

circular economy. However, only by coordinating and managing our approach across the organization, can we achieve SONGWON's sustainability goals.

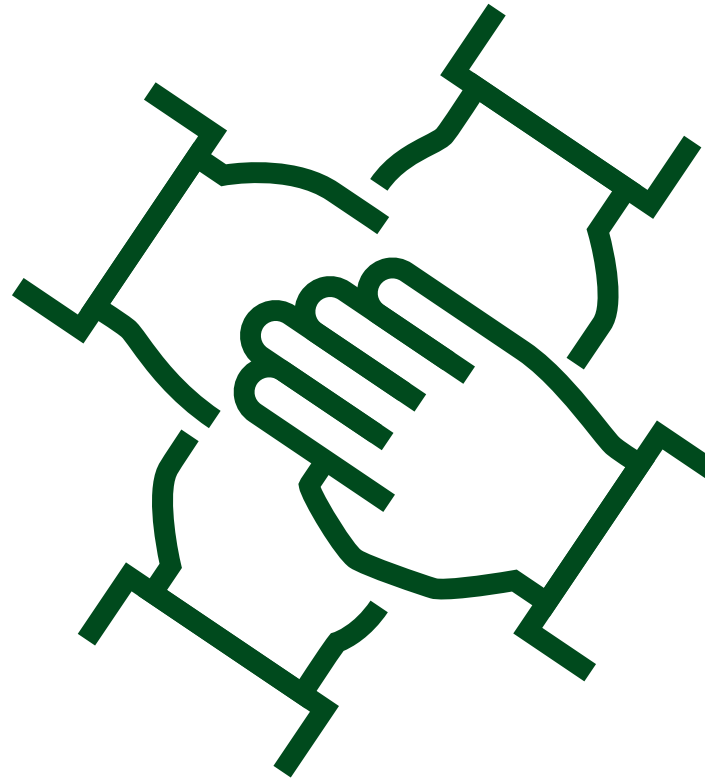
SONGWON's ambitions are clear; we want to be a shaper, collaborator and valuable player in the emerging circular economy and do what we can to make a positive impact on the world around us. Every journey starts with a first small step and the more steps we take the closer we get to our goal."

Sustainable Value

SONGWON's global team is committed to sharing the expertise it has, and working closely with customers to develop products, applications and solutions that meet both SONGWON's and our customers' sustainability needs. Our technological expertise and innovation make it possible for us to deliver sustainable products and solutions that can help our customers address a wide variety of issues relating to the design, performance, recycling and lifecycle of plastics. Furthermore, SONGWON's stabilizers enable product lifetime extension (durability), reduce the amount of plastic required and hence decrease the emission of CO₂ and the consumption of fossil resources. In addition, our Coatings solutions, which we supply in a variety of physical forms, can be either water- or solvent-based. We're intensely focusing our efforts to replace solvent- with waterborne coating technologies and to reduce generation of volatile organic compounds (VOCs).

By developing more applications that reduce the consumption of energy and resources, SONGWON is adding value - value for our customers, our people, our investors as well as value for society and for future generations. At SONGWON, we strive to integrate sustainability into every breakthrough we make and develop products that benefit both society and the environment. We also place importance on increasing performance while developing value-creating features that contribute to technological and sustainable advancements in a wide range of applications.

Furthermore, as a leading organization, we agree that all players in the plastics value chain need to contribute to developing a roadmap for a circular economy for plastics and find sustainable solutions that consider the entire lifecycle of plastics. In line with this, we perform LCAs (lifecycle assessments) which help us to understand where negative impacts occur upstream. It also improves our ability to support customers by providing the transparency they need to secure sustainability in their supply chains. In this way we actively help our customers to measure and reduce their environmental impacts.



Collaboration

We have been working for many years to become a more sustainable business and focused particularly on the specific challenges that we face in our industry and aligning our business targets with environmental and social requirements. SONGWON's business partners are included in this process and we make a point of actively engaging in dialogue with our stakeholders on sustainability issues.

Enabling change means seeking alternatives and to progress, we understand how imperative it is for us to engage with customers and/or suppliers or other relevant stakeholders. We also know that working together within SONGWON and with others is the best way to deal with and manage the major challenges facing both our industry, the communities we operate in and ultimately the world. With regards to this, finding sustainable solutions is only be possible if we engage and collaborate across the entire value chain which is why SONGWON actively works with suppliers, trade partners, regulators and organizations. We also seek every opportunity to join forces with other businesses, cooperate with partners and do our part to drive the industry's transition towards a more sustainable circular economy. For us, working together is the key.





“The key to this success has been our open discussions and innovative collaboration. Everyone involved in this partnership is motivated to find solutions to the challenges we face together as an industry and we are very pleased that SONGWON’s dedication and passion to doing what is possible to make the world a little better, matches our own.”

Andrew Green,
CEO | bpi group

Collaborating for the circular economy

Our drive to collaborate has enabled us to lead the way in sustainable packaging and label printing. Successfully partnering with the German innovative packaging specialists, Berry bpi group, SONGWON now uses specially developed heavy-duty PE-bags to package 20kg of product. The bags are made of recycled materials originating from different waste streams, including industrial printed bags that have already been used. Furthermore, all of the solvents that are required for de-inking are also recycled continuously in a closed loop process.

Both the SONGWON and Berry bpi group recognize that our obligation as plastics industry players is to manage our operations at the lowest environmental impact and to provide our customers with the solutions for dealing with our products at the end of their useful life. Working together with Berry bpi group puts SONGWON in an optimal position to better help and support our customers meet their own sustainability targets.

Responding to market demands

Over the years, we have always secured a competitive advantage and remained a step ahead by keeping a close eye on trends, especially relating to demand. In the past couple of years, we have noted that the global market for flame retardants (FRs) has been growing steadily in part due to the increasing demands from the automotive and construction industries to meet stringent fire safety standards.

To take advantage of the trend and capitalize on the opportunity, SONGWON teamed up with Europe's leading manufacturer of non-toxic FRs for wood, Nordreat AS. Working together with them led to the launch of our new synergist technology, SONGFLAME® FR at the K 2019. The new synergists offer high-performance and competitive advantages to an extensive range of applications and were also designed to fuel the growth of halogen-free solutions for a wide variety of materials. Our two organizations are now currently working together to further develop new, safer and more environmentally friendly FR solutions for the wood construction sector.

The steady growth witnessed in the global market for flame retardants (FRs) is partly driven by the automotive and construction industries' demand to meet stringent fire safety standards. At K2019, SONGWON launched its new SONGFLAME® FR synergist technology that offers high-performance and competitive advantages to an extensive range of applications. Our two organizations are now currently working together to further develop new, safer and more environmentally friendly FR solutions for the wood construction sector.



“We have been very impressed by SONGWON’s leadership and its long-term vision and investment in making safer, more environmentally friendly solutions in FR. We’ve also been delighted to experience a real drive to bring joint-projects to completion.”

Aki Borgentorp,
Chief Executive Officer | Nordreat AS



OUR DRIVE FOR MORE *sustainability*

- agro-waste boiler, Panoli
- PE bags made from recycled materials
- LEDs in Ulsan
- FCE* certified printed materials
- de-inking solvents continuously recycled
- climate partner** label
- switched to renewable energy
- stabilizers prolong lifetime of polymers
- DHL Go Green initiative member
- product label reduction

* FSC (Forest Stewardship Council)

** Climate Partner supports companies in climate protection.

Corporate Social Responsibility (CSR)

To continue delivering the most advanced high-quality solutions, providing the best-in-class service for customers and contributing to more sustainability in our industry are main priorities for us. But we always aim to go an “extra mile” more than just those things. First and foremost, we are fully committed to being a responsible company that is continually improving its ecological footprint, as well as taking care of our people and the communities we serve. At SONGWON, giving back to the communities we serve is ingrained in the culture and values of our business. It is a common thread that runs across our global organization. It both unites and inspires us.

We have always believed that performance and responsibility are inseparable. Our belief that these two vital aspects belong side by side, forms the very core of our company culture. Both our approach to CSR, and how we conduct our business in general, are founded on SONGWON's values of passion, integrity, excellence, credibility, teamwork understanding the needs of our customers and our communities.

As an integral part of our business, CSR underpins SONGWON's strategy and helps us to manage our impact on society by contributing to a more sustainable way of doing business. Maintaining SONGWON's reputation as an organization operating with the utmost integrity, and an industry player dedicated to continually improving our ecological footprint, as well as taking care of our people and the communities we serve is essential to our success.

Furthermore, our growth and long-term success is dependent on the overall health of the economy, our environment and society, and on the continual succession of diverse and highly talented people. CSR guides us in managing our impact on society, as well as contributing towards a more sustainable way of doing business. It ensures that we consciously consider the direct and indirect impacts of our operations on all SONGWON's stakeholders including our employees, partners, customers, suppliers and the local community.

Our commitment to CSR also directs us to apply ethical and socially-responsible management approaches to complement considerations relating to the environment. We are dedicated to improving the sustainability, performance and consistent quality of all the products in our broad portfolio. Our efforts also

extend to optimizing the way we treat our people, the communities we serve and the environment around us. Most importantly, we seek positive ways to support our local communities and initiatives that address some of the wider issues that affect us as global citizens.

Caring for those in need

Even though health is one of our basic human rights, there are an estimated that 400 million people around the world who have no access to healthcare. Once again in 2019, SONGWON supported the efforts of a number of healthcare initiatives and medical missions to help efforts that enable people to lead better, healthier lives.

For several years, we have supported medical missions to the Siem Reap Province in northwestern Cambodia. It is the 2nd poorest province in the country with mortality rates that are almost double the regional average (according to WHO Western Pacific Region). Cambodians suffering extreme poverty, many of who live in isolated rural regions also suffer immensely from ill-health and little access to healthcare. SONGWON financially supports medical missions that enable Korean medical professionals to travel to Cambodia and provide free basic medical treatment and necessary surgery to people in need there.

In 2019, SONGWON supported the Dr. Jang Gi-ryeo Surgery Mission at the Hebron Medical Center located in Phnom Penh, the capital of Cambodia. There are also many underprivileged people living in the city who have very limited or no access healthcare. SONGWON's sponsorship makes it possible for medical experts specialized in cancer treatment from other countries, to perform necessary cancer-related operations on Cambodians who would not have been able to get this treatment otherwise. This mission is named after the renowned Korean surgeon, educator, and philanthropist, Dr. Jang Gi-ryeo and run by his grandson, Dr. Jang Yeogoo.

This year, SONGWON also continued to support initiatives in the developing country of Laos. Similar to the medical missions to Cambodia, we contributed to the Laos Medical Camp making it possible for Korean Blue Cross Medical Corps volunteer experts to provide medical treatment free-of-charge to those in need in Laos.

A love of helping people

Dr. Jang Gi-ryeo (August 14, 1911 – December 25, 1995) is known as the greatest doctor of all time in Korea. He devoted his life to helping the poor and during his lifetime, established many free medical clinics and founded the Blue Cross Medical Cooperative – Korea's first medical insurance union.

Our support of initiatives in his name that honor the love he had of helping people goes back a long way. SONGWON's founder Kyoung-jae (KJ) Park and Dr. Gi-ryeo Chang were friends. Pictured here is a handwritten message that Dr. Chang wrote to Kyoung-jae (KJ) Park which hangs proudly on a wall at our Ulsan facility. The message refers to the 3 virtues: "Faith, Hope and Love. But the greatest of these is Love.



Another initiative we have supported for a number of years is the Dr. Jang Gi-ryeo memorial initiative of the Korean Blue Cross Medical Cooperative's medical camp which also makes free medical treatment possible for those who are unable to afford it themselves.

Another charitable program in memory of Dr. Jang Gi-ryeo that SONGWON supports is referred to as "Healing Shoes" which is for underprivileged children in Laos and Cambodia. It takes place during the medical camp and in addition to the program's various educational activities, young people are given shoes and school materials like books and pens.

SONGWON also supported the Blue Cross' new initiative: the Blue Cross Puppet Theater Corps. The theater was formed especially to bring children with rare diseases some joy and happiness.



Reaching people in need



During one of the final Dr. Chang Surgery Camps in 2019, a young 12 year old Cambodian girl heard one of the local broadcasts about the camp. She had been ill since she was 9 years' old but could not receive the surgery she needed due to financial difficulties. She made the long and difficult journey to the camp and when she arrived, the medical team promised her the surgery in their first tour of 2020 and took a picture as a token of their commitment. This young girl is just one of many people who are receiving the urgent care they need from Dr. Chang Surgery Camp and it is people like her that we are proud to be able to support.

Raising awareness

Our CSR efforts extend to include new initiatives directed towards raising awareness of health-related issues. Cleanliness is an essential element to remaining healthy and this year SONGWON supported a Korean health and welfare initiative called "Cleaning Hands". The program provides students with valuable information on the importance of keeping hands as clean as possible. We also supported the Blue Cross Youth Corps program which educates Korean medical healthcare students on how to handle various types of medicine but also on ways to discard medicine waste properly to prevent polluting and damaging the environment.

SONGWON also actively participated in an initiative established by the Khalifa Industrial Zone of Abu Dhabi (KIZAD), in cooperation with the Center of Waste Management – Abu Dhabi (Tadweer). The clean-up campaign for employees across the industrial zone was launched to raise awareness and promote environmental preservation and encourage residents to be more socially responsible. SONGWON employees worked together with over 100 people from Abu Dhabi Ports and from 11 other companies situated at KIZAD to remove waste from the area, which was then collected for sorting and recycling.



EH&S

Total commitment to EH&S

To remain a sustainable organization, we know that creating the most value for our stakeholders means that we require not only environmental stewardship but also a safe, injury-free, healthy working environment. Safety, health and environmental protection lie not only at the center of our responsibility to our employees, customers and suppliers but also to the communities we serve.

Health and safety and protecting the environment, have always been a main priority for us. Using a

proactive approach, we make sure that SONGWON's EH&S strategy is fully implemented, embraced and complied with at every level of the organization. We are all proud of the significant progress we have made in these important areas in the past several years. At SONGWON, ongoing improvement is a key part of our overall sustainability strategy and we are committed to further building on the solid foundation we have successfully laid. Aligned with this aim, we have implemented EH&S policies, procedures and standards for performance in all of our facilities across the globe to ensure we remain in compliance with applicable laws and regulations.

In 2019

THE EH&S TEAM:

- prepared IEC (Integrated Environment Control) – will be ongoing until 2022
- submitted CCA (Chemical Control Act) after conducting an off-site consequence analysis for hazardous chemicals & handling facility inspection
- created risk management plans for chemicals requiring accident preparation as required by CCA
- conducted HAZOP (Hazard & Operability) & K-PSR (KOSHA process Safety Review) study under PSM (Process Safety Management) of existing Maeam and Ulsan on-site processes
- ran a PSM self inspection for the Ulsan, Maeam & Suwon plants
- submitted PSM document for the new TBA Storage Tank installation in Maeam plant
- carried out risk assessments (checklist & HAZOP study) under MOC (Management Of Change)
- implemented safety walks for the Ulsan, Maeam, Suwon & Panoli plants
- conducted the yearly health inspections
- installed gas and leakage detectors & CCTV to detect hazardous chemicals leaks at Ulsan and Maeam plants
- reduced GHG emissions and saved costs through continuous replacement of metal-halide lights with LEDs
- replaced halogen extinguisher systems with sprinklers in the warehouse at the Ulsan site
- renovated the facilities handling of harmful chemical substances according to legal standards
- installed trenches for hazardous chemical storage in the loading & unloading area of the Ulsan and Maeam plants
- replaced natural gas fired steam boiler with an agro-waste fired steam boiler at the Panoli plant
- carried out LCAs (lifecycle assessments) for SONGWON's main AOs



Full compliance with social and environmental regulations is firmly anchored in our corporate philosophy and we strive to maintain natural resources and advocate environmental awareness both within and outside the company. Protecting employees, our facilities and the environment, as well as strongly advocating the sustainable use of natural resources and promoting environmental awareness are major components of our company's mission statement, and are of prime importance to SONGWON. Observing social and ecological concerns is the only way to ensure that we can achieve sustainable economic success for future generations.

SONGWON's continual dedication to the long-term health and safety of our people and protecting the environment, in which we operate, has led to vast improvements and also raised the level of EHS awareness across our entire global organization. The safety culture within SONGWON is not cultivated by a top down approach but relies on everyone working together in an environment where the protection of every individual is non-negotiable. Every member of SONGWON's global team is committed and actively participating in identifying and managing risks, and always seeks ways to protect the environment and improve the health and safety of our operations. This collective and dedicated approach underpins our commitment to sustainability leadership to all of SONGWON's stakeholders.

Aiming for zero accidents

As a leading manufacturer, we continually monitor and seek to optimize the safety standards of our facilities, and do our very best to ensure accident-free operations. SONGWON's management emphasizes and promotes safety in every aspect of our daily operations and in all our facilities worldwide. Fully convinced that all accidents are preventable and that by applying safe working practices, hazards can be safeguarded against or removed, the management does everything in its power to create and support the safest working environment.

Furthermore, it is only possible to ensure accident-free manufacturing with a team of dedicated, safety-aware employees who are constantly alert and on the lookout for anything that might possibly be a threat to general safety and well-being. It is our belief that achieving best-in-class, zero accident safety is possible when our people have the right attitude, direct their efforts to eliminating or controlling risks and make the

right decisions accompanied by the most appropriate actions.

Throughout 2019, we continued our efforts to increase the EH&S awareness across our global team. In addition to extensive guidance for hazardous chemical management safety, we held trainings and delivered comprehensive information and best practices related to EH&S issues. In this respect, we use chemical accident videos and the EH&S materials created both by SONGWON and by official external authorities. As a result of ongoing training, we have been able to raise the PSM grade (Process Safety Management) at our Ulsan plant.

Our continual investment in intensive EH&S education and trainings instills higher levels of awareness relating to critical issues and encourages a proactive sense of responsible care among all the levels of the global organization. The management at SONGWON stresses EH&S as a top priority and this is strongly supported across the organization by SONGWON's managers who directly address root causes of workplace injuries, such as handling equipment incorrectly and encourage following appropriate safety procedures and best practices. In 2019, we had 2 recordable accidents across all our manufacturing sites, which include not only SONGWON employees but our contractors as well. Since 2008, this is the lowest value the organization has achieved and it continues to pursue a zero accident goal.

Accidents of any kind which occur at SONGWON must be reported. We compile the accident report data in our global database and carefully classify any injuries that may have occurred according to the local laws and record-keeping criteria. Accident report data involves all SONGWON Industrial Co. Ltd employees, as well as any contractors operating in our plants.

We continued to apply OCA (Offsite Consequence Analysis) and the RMP (Risk Management Plan) in accordance with the new Korean regulation (Chemical Control Act) and undergo regular safety inspections and assessments by the Korea Ministry of Environment. In order to enhance our efforts, we also cooperated with KISA (Korea Industrial Safety Association).

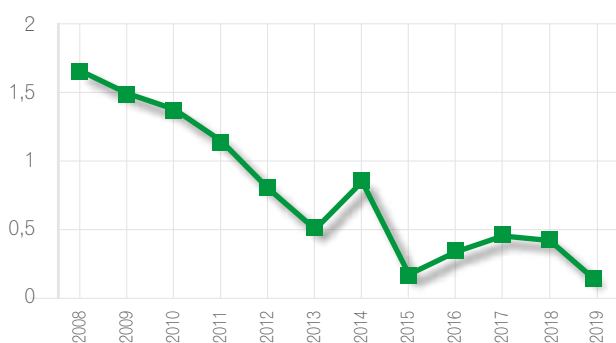
Preventative measures were also installed in 2019, in keeping with SONGWON's continuous improvement strategy. At our Ulsan and Maeam plants, gas and leakage detectors & CCTV are now fitted to make sure that any hazardous chemicals leaks are detected and

can be dealt with quickly. In the Ulsan warehouse, in addition to fire detectors, we replaced the gas extinguishing systems with sprinklers. Furthermore, we continued to implement even more stringent procedures. To improve our existing operating procedures as well as strengthen process areas, SONGWON makes it a priority each year to carry out continual investigations and assessments of all the possible risks within the organization. Twice a year, safety walk inspections are carried out in Ulsan, Maeam and Suwon in South Korea as well as at the Panoli plant in India. Joint emergency drill training with the local fire station and relevant government agency also took place this year at the Ulsan, Maeam and Suwon sites.

In 2019, a Process Safety Review (K-PSR) was done with operators which enabled us to identify and subsequently improve process risks and we will continue these reviews in 2020.

TRCR: Total Recordable Case Rate

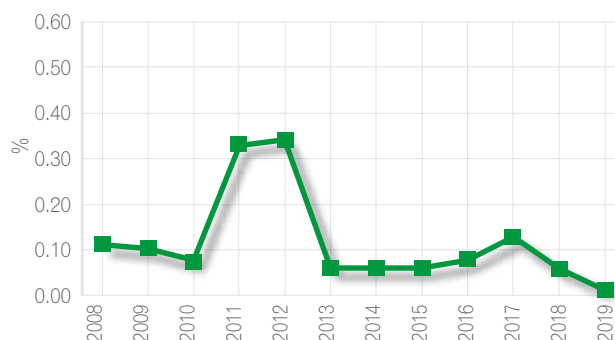
Recordable accidents *200,000 / total working hours



The Total Recordable Case Rate (TRCR) in 2019 reached 0.14 and SONGWON registered a 0.001% Total Lost Day Rate (LDR). For the 9th continuous year, there were no fatalities and the organization achieved a zero Occupational Diseases Rate (ODR) and 0.0146% Absentee Rate (AR).

LDR: Lost Day Rate

total lost days/total worked hours



Environmental awareness

SONGWON is dedicated to continually reducing the environmental impact of its business activities. The management team fully backs the development of processes that save energy, lower emissions and reduce the company's overall carbon footprint to ensure that SONGWON is able to meet its long-standing commitment to contributing to a more sustainable world.

The organization has a well-established and rigorous program for optimizing processes and increasing SONGWON's general competitiveness by lowering costs, as well as significantly reducing energy consumption, waste production and CO₂ emissions. To reduce our manufacturing technologies' overall pollution impact throughout 2019, we focused our efforts on substantially reducing the organic content in our wastewater and solid salts.

In line with our EH&S performance continual improvement strategy, we have started to implement the necessary technical improvements back in 2018 and now SONGWON is fully compliant with South Korean EH&S rules – such as the Chemical Control Act, relating to the integrated control of pollutant discharging facilities.

Compared to 2018, SONGWON achieved a volume reduction of waste water sludge in 2019, with a decrease in the sludge moisture content of 32% at Maeam and 69% at Ulsan.

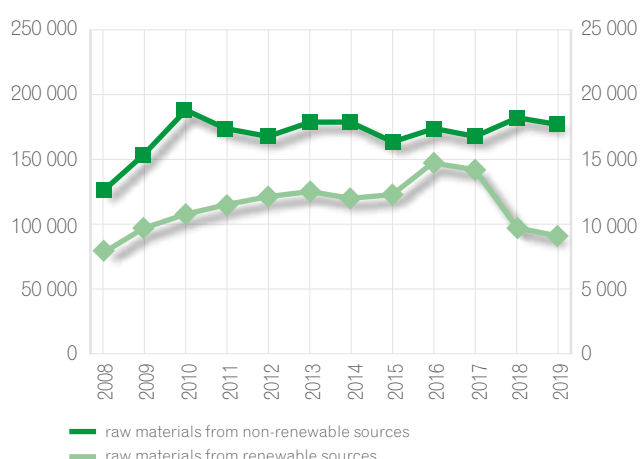


Materials

Raw Materials

Wherever possible, SONGWON has always aimed to find opportunities to use raw materials from renewable sources. The fact that the majority of the raw materials we require are metals or oil derivatives unfortunately means that there are actually very few key raw materials that we can acquire renewably. Stearyl alcohol derived from palm kernel oil is the only raw material available from renewable sources and only represents circa 5% of the total raw materials SONGWON needs.

Raw Materials Used
in tons



Recycled materials

Already back in 2018, SONGWON successfully consolidated the technology to recover raw materials that were previously disposed of as a final product in the organic wastes by applying a reverse reaction. Where the technology has been a success, SONGWON has seen the double benefit of reducing the environmental impact and recycling ca. 11% of the material. This amount corresponds to approximately 2250 t/y, of the raw material that was used in the production.

Energy

In January of 2015, South Korea launched its national ETS (KETS, Korea Emission Trading System) – a cap-and-trade program. This type of ETS is mandatory (threshold: company > 125,000 tCO₂/year, installation > 25,000 tCO₂/year) for operating companies with voluntary opt in. Participation for SONGWON is mandatory.

SONGWON's initiatives

SONGWON has a range of ongoing initiatives which are contributing to the organization reducing its energy needs and have led to providing energy-efficient or renewable energy-based products and services.

We have a program in place that involves the incineration of all the volatile organic compounds (VOC) produced in the plants, making it possible for us to generate all the steam we require for SONGWON's manufacturing process. In the Maeam plant, 3 incinerators have been in operation for 8 years, and an efficient steam generator based on the LNG (liquefied natural gas) has been used for the past 7 years.

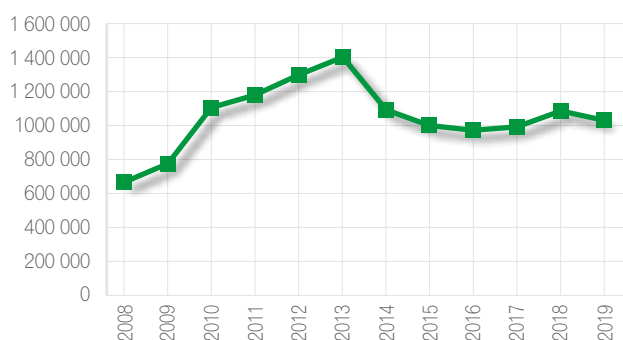
At the Ulsan plant, SONGWON has been replacing the metal-halide lights throughout the plant with more energy efficient LEDs which has already led to noticeable benefits. Due to the fact that LED lights use only approx. 25% of the energy needed by a metal-halide light and have a much longer service-life, the plant is succeeding in reducing energy consumption as well as overall costs. Furthermore, LEDs emit less heat making them much safer for our operators and we are saving approx. 900MW and 410 tCO₂ per year.

In addition to these, we also have implemented several energy consumption reduction initiatives to improve the long-term efficiency of SONGWON's operations and products. SONGWON's total annual energy consumption in 2019 increased by 9.8% compared to the previous year. This was the result of an increase in production volumes of almost 4% over 2018 in relation to the increase of IBL production volume in Maeam.

Direct energy consumption

Approximately 100% of SONGWON's direct energy consumption is in the form of natural gas and most of it is used for generating steam and heating oil. SONGWON consumed 1,037,293 GJ, which marks a 4.4% drop in consumption over 2018.

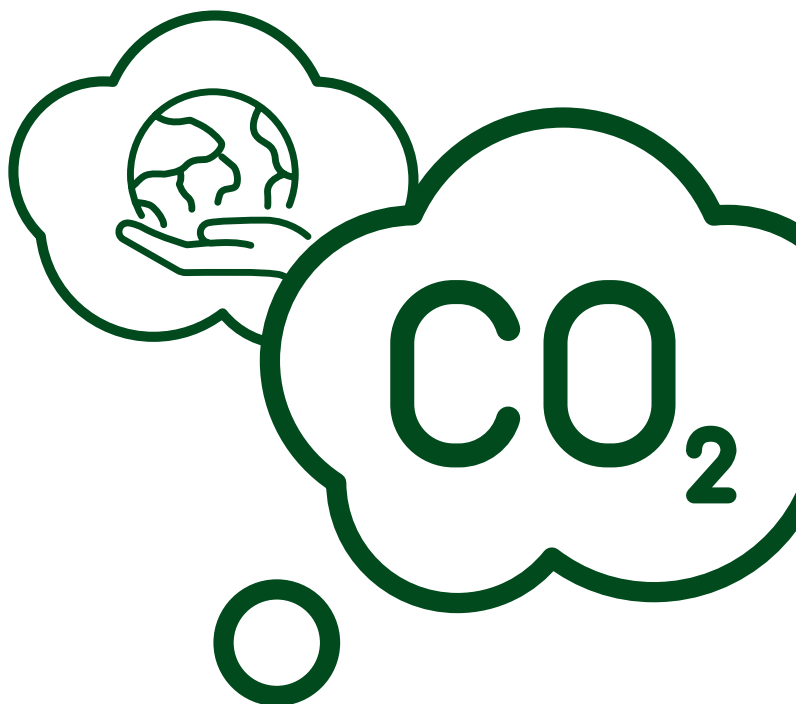
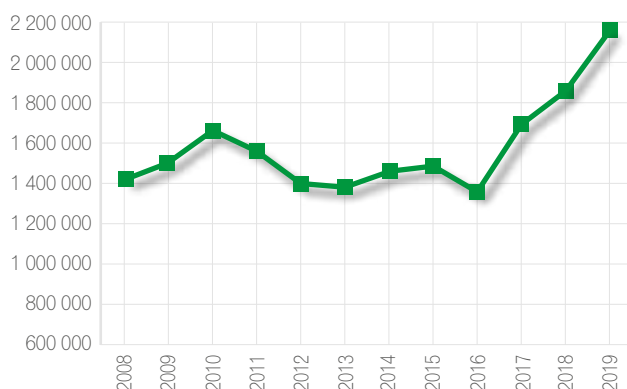
Direct Energy Consumption
In GJ (gigajoules)



Indirect Energy Consumption

SONGWON purchases almost 68% of the electricity and steam for its plants from the local utility companies who are using renewable energy sources.

Indirect Energy Consumption
In GJ (gigajoules)



Emissions

In South Korea, individual energy reduction measuring activities are not calculated singly and separate from each other but as follows:

$$\frac{\text{emission allowance} - \text{actual emissions}}{\text{emission allowance}} = \text{emission reduction}$$

(Unit: tCO₂eq/year)

Actual emissions are measured under South Korean law according to the "Guideline for the Greenhouse Gas Target Management System" and "The Allocation and Trade of Emission Allowance of Greenhouse Gas Act".

This is applied as follows:

Emission = Fuel consumption × NCV × EF × GWP, where:

- NCV = Net Calorific Value
- EF = Emission Factor
- GWP = Global Warming Potential

Direct & indirect greenhouse gas emissions

SONGWON directs its efforts to progressively reducing carbon emissions. We confirmed our commitment to a 7.5% reduction in general greenhouse gas emissions by 2020 compared to 2013 (GIR, Greenhouse Gas Inventory and Research Center). We are proud to report that in 2019, SONGWON was already 15% above our committed target. Although production volumes will increase by about 23% in 2020, compared to the production volumes in 2013, we will still maintain a reduction. In 2019, our direct GHG emissions were 78,733 tCO₂ and our indirect GHG emissions amounted to 71,991 tCO₂. Overall, compared to 2018, SONGWON achieved a total reduction in GHG emissions of 1.17% in 2019.

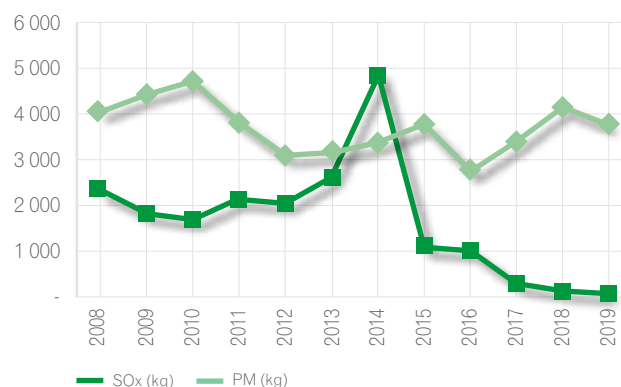
SONGWON believes that this positive achievement will most likely be achievable thanks to the purchase of steam generated from renewable energy and waste heat via an exothermic chemical reaction.

The data SONGWON has reported here includes the direct and the indirect emissions from our electricity and steam purchases and in 2019, there were no other indirect emissions for the organization to record.

Significant air emissions

Nitrogen oxide (NO_x), sulfur oxide (SO_x) and particulate matter (PM) emissions are automatically measured in SONGWON's manufacturing facilities by in-line analyzers. These values are sent in real-time to the relevant government agencies.

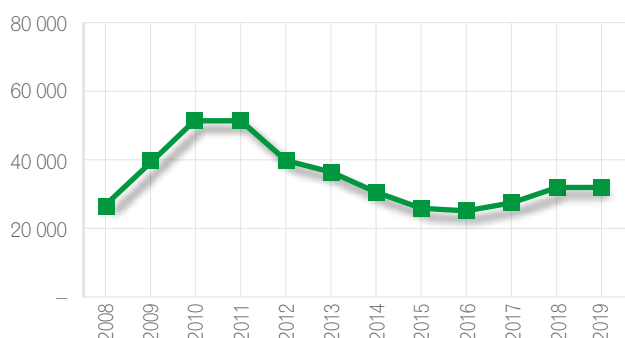
SO_x and Particulate Matter in kg



Compared to the year 2018, SONGWON recorded a 41% reduction in SO_x, a 9% reduction of PM and a 2.3% increase in NO_x air emissions in 2019.

The overall 1% average increase in air emissions compared to 2018 was partially due to the increased manufactured volumes (4%) and the greater steam demand generated by our incinerators. In addition, the newly installed analytical equipment at our sites enables us to make more accurate and continuous assessments of even very low SO_x concentrations in the air emissions we generate. In keeping with our strategy of improvement, we have ongoing action plans in place for bettering our emission levels going forward.

NO_x in kg



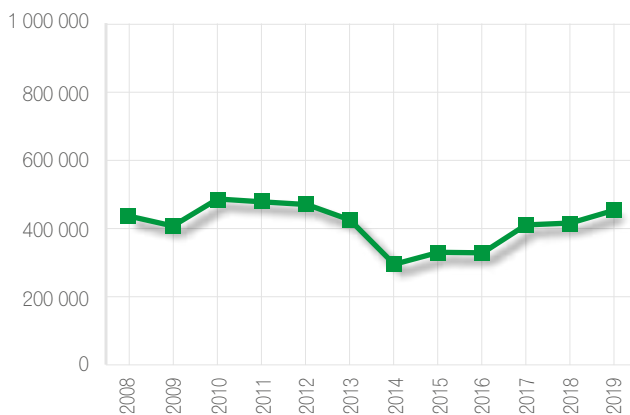
Water

Total withdrawal of water by source

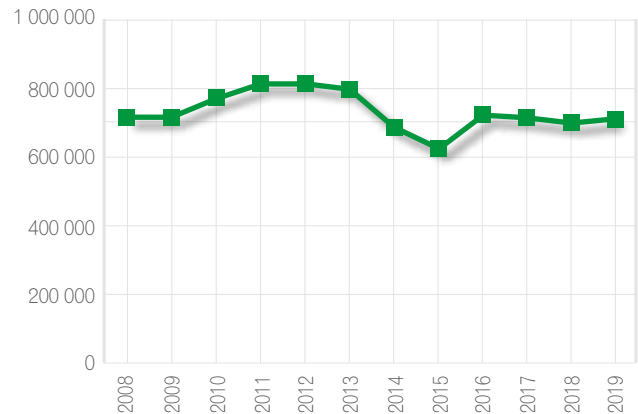
According to the direct onsite measurements made, SONGWON's total water consumption increased by 9.6% compared to 2018.

SONGWON purchases the water it needs for its Ulsan, Maeam and Panoli plants from the local municipality and suppliers. The water required by SONGWON's Suwon plant is directly sourced from underground.

Water Withdrawal

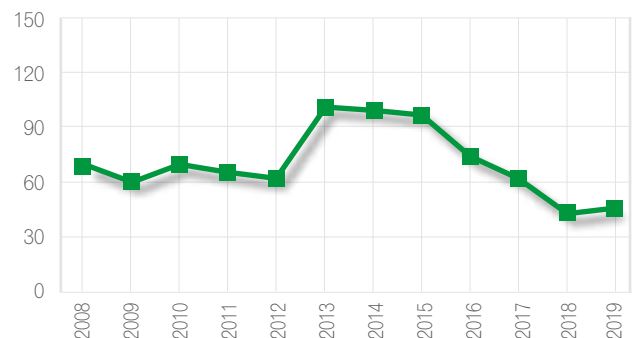


Water Discharged



During 2019, SONGWON continued to significantly improve the wastes it incinerated, the quality of the water discharged during the year, and the landfilled wastes. Due to the increased IBL production volume, the average COD (chemical oxygen demand) of SONGWON's manufacturing sites increased though from 42 to 54 ppm in 2019.

Discharged Water Quality COD (ppm)



Effluents & Wastes

Total water discharged

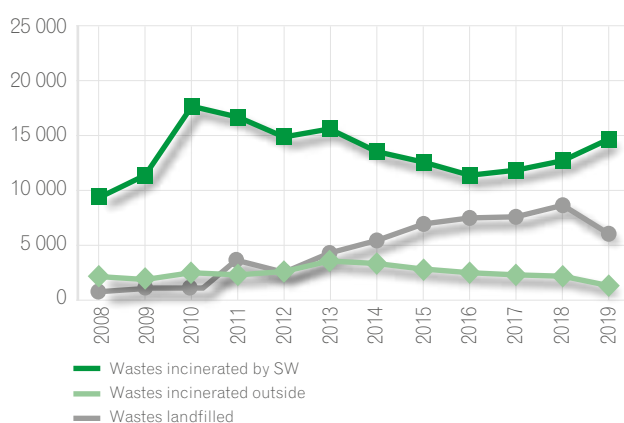
The total amount of water discharged by SONGWON's manufacturing facilities is internally treated and then conveyed to the central water treatment plants in the local municipalities. It is there that the organic content is reduced further and then released into the sea or discharged to a regional water treatment facility (e.g. as in Panoli, India).



Other wastes

This year, SONGWON'S operations generated 23,103 tons of hazardous wastes. Compared to 2018, the total hazardous waste disposed by SONGWON in 2019 decreased by 11%. In addition, waste incinerated externally also decreased by 22% and the organization reduced the amount of landfilled wastes by 29% over the previous year.

Wastes Disposed Outside of SONGWON
in tons



Significant spills

Since 2008, SONGWON has not had any spills to record or report. There were also none recorded or required to report in 2019.

Biodiversity

SONGWON does not own, lease or manage anything that is in, or near protected areas or areas of high biodiversity. Also, to the best of our knowledge, none of SONGWON's activities, products or services significantly impact biodiversity.

Non-compliance

Throughout 2018, SONGWON was in full compliance of all environmental rules and regulations and did not receive any fines.

“EH&S has long been a fundamental part of SONGWON’s values and our sustainability agenda. We have clearly established targets and processes in place to ensure real progress as we work towards maintaining safe operations and creating resource- efficient, environmentally sound solutions.”

Seongjin Song,
Leader of Manufacturing & EHS

GRI Sustainability Reporting Standards (GRI Standards)

Our approach to GRI

This report has been prepared in accordance with the GRI Standards: Core option.

It is aligned with the four GRI reporting principles:

- stakeholder inclusiveness
- sustainability context
- materiality
- completeness

These have been taken from the guidance in GRI 101: Foundation 2016.

We have consistently applied these GRI principles to varying degrees throughout this report.

Category: Content

Stakeholder Inclusiveness:

During the course of the year, we meticulously ensure that we identify SONGWON's key stakeholder groups and engage with them. Through various discussions between SONGWON's management, we have applied the Stakeholder Inclusiveness principle to the context of this report and matched its contents to our stakeholders' interests and expectations. We also believe that we have provided clear explanations on the various ways we engage with stakeholders, provided details relating to our understanding of their interests and expectations as well as how SONGWON has responded to these.

Sustainability Context:

After examining global trends towards sustainability within the regional and local contexts in which operate, we have identified various priorities among these contexts. In this report, we communicate how we address these priorities and present SONGWON's sustainability performance with regard to both our corporate performance and global sustainable development goals. Furthermore, the report highlights our commitment to monitoring SONGWON's performance relating to material sustainability issues and how we direct our efforts towards continuous improvement.

Materiality:

For us, this report is not only made for our stakeholders, but is also a tool we can use to measure and review our operations. The material topics the report covers are priority issues for our operations which have been determined by the Board and Executive Committee and integrated into SONGWON's strategy. They reflect the most relevant economic, environmental and social impacts and contributions which have the biggest potential impact on stakeholders as well as on SONGWON's ability to create long-term sustainable value.

Completeness:

This principle has been implemented by examining specific and material topics to ensure that sufficient detail and all information of significant concern to stakeholders, and relevant to the assessment of SONGWON's economic, environmental and social performance has been reported. It also serves to facilitate the determination of the boundaries of topics and enables stakeholders to assess SONGWON's performance during the reporting period.

Category: Quality

Accuracy

All the information presented in this report is aligned and in accordance with GRI Standards. We have aimed to achieve maximum accuracy and to make the information traceable, accurate and reliable while clearly identifying where estimates or limitations in our published information exist. In order to confirm accuracy, our financial results are also audited by the Group's auditor.

Balance

We have aimed to achieve balance throughout the report by providing and evaluating SONGWON's performance in terms of challenges and opportunities based on material issues and future targets, and making references to those occurring in the reporting year. In addition, we report on our positive performance as well as areas that require us to improve and re-evaluate. Each year, we also fully report on the same KPIs as in the previous year, independent of whether SONGWON's performance has improved or declined.

SONGWON's categories:



Clarity

We have designed the content of this report to be easily navigated and read. The straightforward language style is presented in such a way as to clearly communicate the information with visuals to highlight and support key data. For this reason, we have aimed to avoid the use of complex technical references, industry jargon and excessive detail. Keeping sustainability in mind and to cater to personal preferences, SONGWON's report can be downloaded or printed as required.

Reliability

The information in this report has been reviewed by SONGWON's senior management, business leaders and the Group's auditor, Ernst & Young Han Young. Throughout the report, sources of all third party / external information provided in the text have been included.

Comparability

Applying the GRI Standards makes SONGWON's annual report more comprehensive and transparent. The guidelines also make it possible for SONGWON to be easily compared with other companies around the world due to the fact that the GRI Standards are used internationally. Furthermore, our previous Annual Reports are all available for comparison on the SONGWON website (www.songwon.com) and we have provided year-on-year data following GRI disclosures wherever appropriate.

Timeliness

SONGWON is committed to reporting sustainability information at least once a year. The information presented in this report relates to FY2019. In addition to this report, SONGWON's financial performance information is published in quarterly reports. All this information is available throughout the year on the company's website and aligned with the organization's annual financial reporting schedule.

SONGWON's Stakeholders



GRI Topic Specific Standards

SONGWON has selected Environmental, Economic and Social as the relevant GRI topic-specific standards based on our material topics. As outlined in the GRI content index, we have provided information on the specific indicators relevant to our business for each topic-specific standard, as well as our management approach that best communicates the most material aspects of our sustainability performance at the level (global or local) that is most meaningful to report, including whether there were impacts within the organization or outside of it.

GRI 200: Economic

Through all of SONGWON's operations, we aim to secure the organization's financial success and thus long-term value creation for our stakeholders. We know this can be achieved through implementing our long-term strategy, recognizing and managing risks and opportunities, as well as providing transparent information to our stakeholders.

Our strategy has four key focus areas: business focus, growth, geographical focus, and innovation.

SONGWON provides expertise and high-quality products to different industries, for a myriad of important applications. We are dedicated to creating long-term value, providing sustainable solutions, and strengthening the competitive position of our customers.

At SONGWON, we are focused on building a balanced product portfolio in order to support targeted growth and we are continuing with our expansion strategy to strengthen our presence in emerging markets and consolidating our position in existing ones.

GRI 300: Environmental

Our sustainability strategy supports SONGWON's business goals and enables us to continuously reduce our environmental footprint. At the same time, we are working to ensure that we give something back to both our employees and society as a whole. Our global sustainability commitment is directly managed by our Executive Committee. The Committee is also responsible for overseeing the execution of all activities relating to achieving our sustainability goals.

All of SONGWON's initiatives are designed to ensure that we focus on those areas where we, as a company, have the greatest impact. They also provide us with a clear direction that enables us to strive for a better performance.

GRI 400: Social

At SONGWON, we emphasize the importance of our people for the company's long-term success: they manage strong brands, develop innovative products and support our customers around the world. Building and sustaining long-term, trustful relationships with our employees and all those who work for or with SONGWON is essential to our organizational success.

SONGWON's GRI Content Index

This report has been prepared in accordance with the GRI Standards: Core option.



"For the GRI Content Index Service, GRI Services reviewed that the GRI content index is clearly presented and the references for all disclosures included align with the appropriate sections in the body of the report."

GRI Content Index

GRI Standard	Disclosure	Description	Page number(s)	Omissions / Direct Answers
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GRI 101: Foundation 2016 [GRI 101 does not include any disclosures]

GRI 102: General Disclosures 2016

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Material Topics

GRI Standard	Disclosure	Description	Page number(s)	Omissions / Direct Answers
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GRI 201: Economic Performance 2016	201-1	Direct economic value generated and distributed	138-139; 176-178; 192; 202-203; 219-220; 224	
	201-3	Defined benefit plan obligations and other retirement plans	199-200	

Environmental Standards: 300 Series

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	103-2		100; 103; 105-106	
	103-3		100; 103; 105-106	
GRI 302: Energy 2016	302-1	Energy consumption within the organization	105-106	

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GRI 103: Management Approach 2016	103-1		103; 105-106	
	103-2		103; 105-106	
	103-1		103; 105-106	
GRI 305: Emissions 2016	305-1	Direct GHG emissions	107	
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Corporate Governance

Corporate Governance

Dedicated to strong, transparent & accountable governance

For SONGWON, adhering to the highest principles of sound corporate governance is a key factor in our ability to deliver long-term, sustainable growth and supports long-term value creation.

Our deep commitment to responsible and responsive governance provides transparency, visibility and accountability on the organization's financial and business performance to SONGWON's employees, customers, shareholders and other stakeholders. Exercising strong corporate governance at all times also ensures that we can deliver value and meet our targets while maintaining SONGWON's positive reputation for being a global company that operates with the highest ethical principles in compliance with our legal obligations, and an organization that makes a valuable contribution to the communities in which we do business.

At the very center of our approach to corporate governance lie SONGWON's core values: passion, credibility, entrepreneurship, expertise and accessibility. These values guide SONGWON's Board and Management and form the core of how we operate our business and plan for the future. They also support us to build win-win partnerships for stakeholders and assist us in creating value for them.

SONGWON is deeply committed to adopting what we consider to be the best governance standards possible and to focusing on the behavior, practices and processes that define our organization and help us to conduct our business in the utmost ethical manner. In order for SONGWON to thrive in such a rapidly changing world, we understand that our Board and Management must be in tune with, and sensitive to the demands of society, especially with regards to sustainability. It is essential for our senior leadership to take into consideration the broad and diverse range of SONGWON's stakeholders, who often have conflicting interests and demands. Adequately responding to these different requirements calls for absolute internal alignment and clarity on the company's values, mission, and strategy from SONGWON's Board and Management, as well as the ability to communicate these successfully to our stakeholders.

For us, good corporate governance is not solely the responsibility of our Board of Directors, the Executive Committee or our CEO to deal with. At SONGWON, the

principles of good corporate governance are embedded across our organization and practiced by every member of our global team at every level. How well we can meet the highest standards of accountability and create value for all of our stakeholders is how our people measure their contribution to SONGWON's overall success. In all of our day-to-day activities, each of us places the highest priority on responsible corporate governance. Having a clear framework for decision making and accountability across our business also provides us with the guidance on the behavior standards we expect not only of ourselves, but of each other and of SONGWON's partners.

The efficient and responsible decision-making and control processes we have in place at SONGWON are of central importance to our operations and especially geared towards driving our long-term corporate success. We ensure that everything we do on a daily basis is managed in the fairest and most transparent manner, and we seek to ensure that SONGWON's performance is always guided by the utmost integrity. Furthermore, we aim to build and maintain valuable relationships with all of our customers, partners, investors and stakeholders. Communicating and cooperating in this transparent and goal-oriented manner while ensuring we take into account the interests of all SONGWON's shareholders and employees supports the sustainable increase in the Group's value.

Most importantly, SONGWON's senior leadership always endeavors to align its management and supervision with internationally recognized standards of sound corporate governance. Adhering to this responsible management approach has been a key factor in SONGWON's sustained success and has helped us to preserve and continue to strengthen the trust that our employees, business partners and shareholders invest in us. Over time, we have noted that our stakeholders are expecting increasingly more from us as each year passes, not only in terms of what we do, but of how we do it. For us, it is very clear that long-term business success for SONGWON is only achievable when we make sure that each and every member of our global team abides by SONGWON's internal policies, corporate values and rules of behavior. To reinforce the principles of an 'open, fair and clean' corporate culture throughout the organization, the Executive Committee has implemented policies approved by the Board, such as the Code of Conduct which has been actively introduced across the whole organization over the years through internal promotion and training. Having a strong monitoring process in



Board of Directors

place ensures that should any breach of the Code occur, it can be easily detected and dealt with quickly.

It is also essential that we continually remain compliant with all the relevant external standards and regulations. In July 2019, to meet the ICFR* (ICS**) requirements, the management implemented a whistleblower policy for the entire Group. The purpose of the policy is to encourage employees as well as others to come forward and report on any wrongdoing or activity they deem to be illegal, unethical or dishonest. It also guarantees the protection of the individual who makes the report. At SONGWON, the policy is maintained by Global HR and therefore part of the organization's CFA (Chartered Financial Analyst) manual as well.

Our goal is to mitigate risk, by maintaining consistent standards and responsible business practices across the SONGWON Group. The Executive Committee and Board of Directors (BOD) ensure that it effectively manages both opportunities and risks by applying sound judgement. The policies and procedures which SONGWON already has in place for monitoring potential risks, together with the recently implemented ICFR process starting from Korea entity will further

strengthen the Group's ability to identify potential risks in the future when ICFR is implemented across the entire organization.

Annual Shareholders Meeting

All of SONGWON's shareholders are invited each year to attend the Annual Shareholders Meeting where important decisions are made on matters concerning SONGWON Industrial Co., Ltd. and the Group. Traditionally focusing on the annual report and financial accounts, the meeting also offers shareholders the opportunity to put forth any questions they may have relating to the Annual Shareholders Meeting agenda. Korean law provides mechanisms for shareholders that make it a requirement for company directors to organize a shareholders' meeting and to propose resolutions submitted by the shareholders.

SONGWON held its Annual General Meeting this year on March 22, 2019. During this meeting, the Annual Report for the financial year 2018 was adopted, as well as the proposal for the distribution of profits.

* Internal Control Over Financial Reporting

** Internal Control System

The Board of Directors (BOD) & Executive Committee

SONGWON Group's structure encompasses the Board of Directors and Executive Committee.

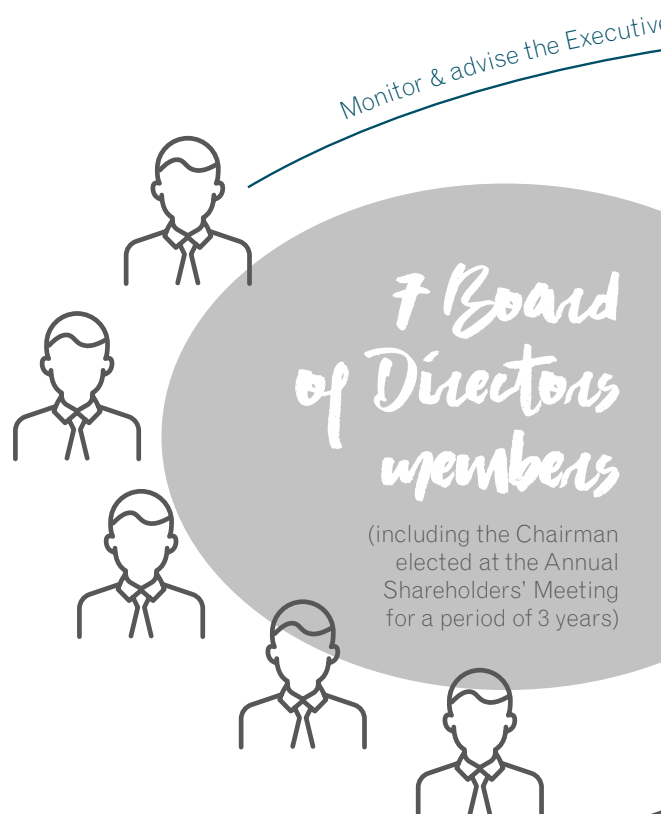
- As per Korean regulations, the Board of Directors consists of 3 executive members and 4 non-executive members, which is equivalent to 5 inside directors and 2 outside directors.

Over the course of the year, the members of the Board usually attend a total of 4 face-to-face meetings but due to the unexpected loss of the CEO in September, only 3 meetings took place. In addition to these meetings, ad hoc meetings in person or by phone are also organized whenever needed.

- Made up of 8 people who hold key managerial positions in the Group, the Executive Committee, meet in person once every quarter and also regularly hold tele- and video conferences, as well as communicating via email. Their responsibility is to manage all SONGWON's business, create policies and make key decisions relating to the organization's strategy, investments and employees, with the exception of specific decisions reserved for the BOD under the Korean Company Act. Should such instances related to the Korean Company Act arise, the Executive Committee prepares proposals and submits them to the BOD for final approval.
- The positions of Chairman of Board and of the CEO have been separated.

In 2016, SONGWON implemented a clearly defined separation between the Executive Committee and the Board of Directors. The division involved passing the responsibility for decisions on business operations to the Executive Committee. The Board remains involved in the decision process related to any decision-making involving SONGWON's strategy and investment. Separating the responsibilities in this way further strengthens the Group's corporate governance by ensuring greater transparency, controls and accountability. In line with SONGWON's tradition of continual improvement, the organization's leadership is seeking to further implement such things as Board activities which have a clearly defined scope of responsibility that differs from those of the Executive Committee.

* as per the IAA standard



Overseeing the strategic direction of the Group and ensuring that sound governance procedures are in place, the BOD supervises the decisions made by SONGWON's Executive Committee, the governing body that is responsible for making decisions relating to economic, environmental and social impacts and identifies and manages risks and opportunities. The BOD has also established an Audit Committee* and an HR Committee to support the Executive Committee optimize the overseeing of the activities within these two important areas.

The criteria for selecting directors (with the exception of the executive members) who are proposed for election to the Shareholders are chosen based on: performance history, ethical behavior, leadership, attitude towards different rules and regulations, expertise for responsible area, independence and expertise. The selection is also made to ensure that there is diversity with individuals of different backgrounds, who can share different perspectives. In 2019, the members of the Board of Directors represented 4 different nationalities and bring experience from a wide range of industries.

The Board of Directors conducts a process of self-evaluation on an annual basis, which involves supervisory approval in multi steps for performance evaluation using the specifically implemented system.



Chairman of the Board, Chief Executive Officer (CEO) & Executive Management

The Chairman of the Board is a non-executive Director who is elected at SONGWON's Annual Shareholders' Meeting. The CEO is the Chair of the Executive Committee and exercises ongoing control of the Group. The CEO manages according to the BOD's instructions, and in line with the division of responsibilities between the CEO and BOD as approved by the BOD.

This year, after the sudden loss of the CEO, Maurizio Butti in September, the Chairman of the Board ensured timely communication and a decision was made by the Board and Executive Committee to select an interim CEO. At the moment, the Chairman of the Board, Jongho Park is acting as the interim CEO. In the final quarter of the year, there were just 2 executive members on the Board of Directors.

Remuneration

For members of SONGWON's highest governance body, senior managers, and executives (incl. departure arrangements), remuneration is aligned with the overall performance of the company and takes into account the social, economic and environmental results.

External auditors

Each year at the Annual Shareholders Meeting, the auditors for SONGWON are elected for a period of 3 years. SONGWON's current auditors are Ernst & Young. To guarantee that they continually remain up-to-date and well-informed about relevant issues concerning the accounts, reporting procedures and management of the Group's assets, the BOD and the Executive Committee work closely with the auditors.



Corporate governance framework

The organization's Vision and Mission statements inherently reflect SONGWON's commitment to maintaining the highest level of integrity and ethical standards across its global operations.

At SONGWON, we believe that successfully establishing an open, fair and clean corporate culture requires encouraging open and fair communication at all levels. We fully understand that corporate culture determines people's behavior within an organization and that this is derived from the approach to corporate governance. For this reason, making sure that all of SONGWON's employees are also kept up-to-date and well-informed is very important to us.

We go out of our way to ensure that every person working at SONGWON receives information on the organization's operations, activities and strategic aims but more importantly those they clearly understand the guiding principles of ethical business conduct. Regularly communicating the importance of responsible behavior and ensuring that ethical business conduct remains at the forefront of the company's daily activities, is one of the priorities of SONGWON's Board and top management.

In order to underline this, both SONGWON's Vision and Mission statements are clearly communicated to all employees and also released publicly to our stakeholders worldwide. A complete set of policies which relate to all aspects of SONGWON's business activities has also been established. Readily accessible to every employee, the policies outline our dedication to high ethical standards and our compliance with the applicable laws in the areas and regions we operate.

When hired, every employee is given SONGWON's Code of Conduct and it is also available for download on our website. The guidelines in the Code of Conduct provide employees with essential guidance on how to apply basic principles in line with the organization's core values and our 'safe, honest, trustworthy, professional, customer focused' culture.

Furthermore, it also offers our employees practical advice on how best to comply with laws and regulations and how to relate to SONGWON's customers, communities and colleagues. A great deal of effort has been invested to ensure that our Code of Conduct is in line with internationally agreed standards and updated as necessary. Information is collected from various sources by the SONGWON's governing bodies (Board and Executive Committee) and after being thoroughly analyzed and approved is implemented into our Code and business activities as appropriate. The policies outlined in the Code of Conduct contains are applied and strictly enforced across the organization in all the regions.

As a non-hierarchically run organization, SONGWON's leadership believes in fostering a collaborative approach to management where each individual, including top management is easily approachable, always open to engaging in dialogue and ready to advise and provide their guidance. Right across the organization, questions and even discussions are both welcome and encouraged. With openness and clarity, the management seeks to create an environment where people are treated fairly and encouraged to contribute. Although, there is no culture of punishment at SONGWON, each employee is very aware that there is a zero tolerance for any breach of standards or any improper, unethical behavior.

At SONGWON, there is no established formal process to communicate critical concerns to the highest governance body but any concerns presented to the governing body is treated with great importance and great effort is made to resolve issues quickly or make changes within the organization as appropriate. The openness right across SONGWON and the above-mentioned non-hierarchical interaction and accessibility of its top management, all facilitate and make communicating or reporting concerns straightforward. There were no critical concerns communicated to the highest governing body this year. However, should any occur, then the most appropriate form of communication and/or consultation method is selected based on the nature of the issue at hand.

In 2019, there were no incidents such as e.g. corruption, anti-trust or discrimination which go against SONGWON's principles. In addition, SONGWON has no significant monetary or non-monetary fines to report for non-compliance with laws and regulations.

Internal control

A fundamental aspect of SONGWON's corporate culture is internal control. The company is driven to continually strengthen and improve its Internal Control Systems (ICS) to monitor all of the Group's activities. By doing so, the organization makes sure that SONGWON's rules of business engagement are diligently adhered to with regards to external legislation and regulations, as well as the established internal guidelines and control documentation. Another important aspect of internal control is identifying risks and then ensuring that they are managed effectively. Our main goal is to minimize SONGWON's exposure to risk as far as possible, while making sure that we can capitalize on desired opportunities at the same time.

The Group is organized in such a way as to meet the requirements for effective internal control. SONGWON's working methods are characterized by organizational transparency and a clear division of responsibilities. The Group also has the necessary financial and business reporting systems in place which are important control instruments to enable it to achieve true and fair consolidated financial reporting.

Each month, internal group reports are compiled, using well-established procedures, and then presented in a document which includes extensive analysis. A number of people from various Group departments and company levels are involved in working on the quarterly and annual accounts. The management team, the Executive Committee and the Board of Directors review the summarized results and then approve them.

Should a conflict of interest occur, the governing body member concerned will abstain from voting on the issues relating to the conflict of interest to make sure that the highest levels of corporate governance always prevail. SONGWON is not aware of any conflicts of interest arising in 2019, or of any which could have arisen during the year.

At SONGWON, we are fully aware that any form of corruption can have a severe impact on sustainable economic and social development and in particular, detrimentally affect poorer communities. As SONGWON's operations continue to expand, we are very conscious of the fact that it is highly likely for SONGWON to be more exposed to regions and environments where known corruption exists. For this reason, we are continuously strengthening SONGWON's policies and processes while remaining open and responsive to improvements that stakeholders and authorities may propose and consider necessary.

Identifying stakeholders

As part of the communication process, SONGWON stakeholders are identified by each individual site and business operation. There are also clear channels of communication in place for all consulting and engagement activities with SONGWON's stakeholders. These may take place as face-to-face meetings, group meetings, team briefings, meetings with union representatives, announcements, emails, letters, memos, notices and telephone calls.

The content contained within this report has been put together after taking into consideration the feedback and recommendations of all our stakeholders relating to the reported topics and their importance.

To optimize corporate governance.

SONGWON:



has further strengthened the interaction between middle management and the Board via efficient communication, as well as increased the Board's knowledge and understanding of the relevant economic, environmental and social impacts of SONGWON's activities. Throughout the year, each business and function was invited to present and discuss their strategies and actions with the Board on a rotational basis.



organized Town Hall meetings to support as well as improve engagement between employees at all levels and top management. These meetings are an opportunity for the CEO to share information on SONGWON's financial results, business activities and strategy and also enable 'guest speakers' to provide detailed overviews on specific business areas. All SONGWON's employees are invited to attend and also encouraged to ask questions and voice any concerns. In addition to assessing the quality of the meeting and identifying areas for improvement, the survey conducted after each meeting enables the management to follow-up on any issues and concerns that employees would like to have addressed. During these meetings, the CEO takes advantage of the opportunity to emphasize and reinforce SONGWON's expectations concerning ethical business conduct, our sustainability approach, EH&S etc.



further focused on improving and strengthening the Internal Control Systems (ICS) at all levels and at each entity of the Group.



placed more emphasis on sustainability. This year, the governing body appointed SONGWON's 1st Chief Sustainability Officer to ensure sustainability is firmly integrated into every part of SONGWON's global business. The Board and SONGWON's management are also committed to more actively supporting the shift to a circular economy by entering collaborative partnerships and through membership in the relevant associations.



continued to be actively involved in various associations and organizations to increase its ability to monitor issues from an environmental, economic and social point of view, identify possible risks and opportunities and ensure that SONGWON was in a position to act accordingly at an early stage.

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INTRODUCTION TO THE CONSOLIDATED FINANCIAL STATEMENTS

On the following pages (136-229), consolidated financial statements for the year 2019 are presented. The financial statements disclosed are prepared according to the Korean International Financial Reporting Standards ("K-IFRS") and represent the statements submitted for approval to the Annual General Shareholders' Meeting on March 20, 2020 in Ulsan, Korea.

While the management of the Group is responsible for the preparation and presentation of the financial statements, the Group's independent auditor is responsible for expressing an opinion on these financial statements. The report on the consolidated financial statements – issued by our Group auditor, Ernst & Young Han Young – can be found on pages (133-135).

INDEPENDENT AUDITOR'S REPORT



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Independent auditor's report

The shareholders and board of directors Songwon Industrial Co., Ltd.

Opinion

We have audited the accompanying consolidated financial statements of Songwon industrial Co., Ltd. and its subsidiaries (Collectively referred to as the "Group"), which comprise the consolidated statements of financial position as of December 31, 2019 and 2018, and the consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and the notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2019 and 2018, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean International Financial Reporting Standards (KIFRS).

Basis for opinion

We conducted our audit in accordance with Korean Auditing Standards (KGAAS). Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated financial statements section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in the Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

We selected the completeness and accuracy of intercompany transactions elimination for the preparation of consolidation financial statements as a key audit matter.

The Group consists of 13 subsidiaries and one associate and the Group has many transactions such as sales and purchases within the consolidated companies. There is a risk of error in the process of eliminating the intercompany transactions when preparing for the consolidated financial statements. Therefore, we identified the completeness and accuracy of internal transactions removal as a significant risk.

The main audit procedures we have undertaken are as follows:

- We compared the Group's significant transactions and balances with related parties between the current and prior reporting periods.
- We tested the Group's transactions and balances subject to removal with input data of consolidation system.
- We evaluated that all the intercompany transactions are being eliminated during the closing process.

Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with KIFRS, and for such internal control as management determines is necessary to enable the preparation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with KGAAS will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KGAAS we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.



We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The partner in charge of the audit resulting in this independent auditor's report is *Kim, Doo-Bong*.

February 24, 2020

This audit report is effective as of February 24, 2020, the independent auditor's report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the auditor's report date to the time this report is used. Such events and circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to this report.

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

as of December 31, 2019 and 2018

		2019	2018
Assets	Notes	Million KRW	Million KRW
Non-current assets		495,555	480,898
Property, plant and equipment	2.4, 6.3, 7, 26, 27	439,452	439,322
Right-of-use assets	6.3, 8	20,800	–
Investment properties	6.3, 9, 26, 27	3,502	3,516
Intangible assets	6.3, 10, 11, 26	14,630	17,826
Investments accounted for using the equity method	1.2.3, 5, 12	5,347	4,760
Other non-current assets		95	1,515
Other non-current financial assets	13, 25, 32	7,937	11,129
Deferred tax assets	29	3,792	2,830
Current assets		398,769	391,646
Inventories	14, 26	196,996	201,368
Trade and other receivables	15, 25.2, 32	128,166	115,969
Income tax receivables		1,516	610
Other current assets	16	7,556	4,387
Other current financial assets	13, 25, 32	1,403	6,006
Cash and cash equivalents	17, 25.2	63,132	63,306
Total assets		894,324	872,544
Equity and liabilities			
Equity		435,581	411,198
<i>Non-controlling interests</i>		<i>3,986</i>	<i>-714</i>
<i>Equity attributable to owners of the parent</i>		<i>431,595</i>	<i>411,912</i>
Issued capital	18.1	12,000	12,000
Capital surplus	18.2	22,359	24,361
Reserves	18.3	27,975	27,591
Retained earnings	18.3	372,745	352,906
Accumulated other comprehensive income	18.4	-3,484	-4,946
Non-current liabilities		165,369	84,690
Interest-bearing loans and borrowings	19, 25, 27	73,094	17,180
Pension liability	21	30,252	16,037
Other long-term employee-related liabilities	22	5,688	5,111
Non-current lease liabilities	8, 25	17,214	–
Other non-current financial liabilities	23, 25	2,485	3,361
Other non-current liabilities		458	41
Deferred tax liabilities	29	36,178	42,960
Current liabilities		293,374	376,656
Interest-bearing loans and borrowings	19, 25, 26, 27	171,200	267,930
Trade and other payables	24, 25, 32	98,910	100,529
Current lease liabilities	8, 25	2,309	–
Other current financial liabilities	23, 25	2,385	1,978
Other current liabilities		2,439	1,883
Income tax payable		16,131	4,336
Total liabilities		458,743	461,346
Total equity and liabilities		894,324	872,544

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

as of December 31, 2019 and 2018 (see note 2.3)

	2019	2018
	Thousand USD	Thousand USD
Assets		
Non-current assets	428,252	415,586
Property, plant and equipment	379,769	379,656
Right-of-use assets	17,975	–
Investment properties	3,026	3,038
Intangible assets	12,643	15,405
Investments accounted for using the equity method	4,621	4,114
Other non-current assets	82	1,309
Other non-current financial assets	6,859	9,618
Deferred tax assets	3,277	2,446
Current assets	344,610	338,455
Inventories	170,241	174,020
Trade and other receivables	110,759	100,219
Income tax receivables	1,310	527
Other current assets	6,530	3,791
Other current financial assets	1,212	5,190
Cash and cash equivalents	54,558	54,708
Total assets	772,862	754,041
Equity and liabilities		
	Thousand USD	Thousand USD
Equity	376,424	355,352
Non-controlling interests	3,445	-617
Equity attributable to owners of the parent	372,979	355,969
Issued capital	10,370	10,370
Capital surplus	19,322	21,052
Reserves	24,176	23,844
Retained earnings	322,121	304,977
Accumulated other comprehensive income	-3,010	-4,274
Non-current liabilities	142,908	73,188
Interest-bearing loans and borrowings	63,167	14,847
Pension liability	26,143	13,859
Other long-term employee-related liabilities	4,915	4,417
Non-current lease liabilities	14,876	–
Other non-current financial liabilities	2,148	2,905
Other non-current liabilities	395	35
Deferred tax liabilities	31,264	37,125
Current liabilities	253,530	325,501
Interest-bearing loans and borrowings	147,949	231,542
Trade and other payables	85,477	86,876
Current lease liabilities	1,995	–
Other current financial liabilities	2,061	1,709
Other current liabilities	2,108	1,627
Income tax payable	13,940	3,747
Total liabilities	396,438	398,689
Total equity and liabilities	772,862	754,041

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

for the years ended December 31, 2019 and 2018

		2019	2018
	Notes	Million KRW	Million KRW
Sales	6.1, 6.2, 32	814,340	788,738
Cost of sales	28.5, 32	-647,867	-632,582
Gross profit		166,473	156,156
Selling and administration costs	28.2, 28.5, 32	-107,181	-101,879
Operating profit		59,292	54,277
Other income	28.3, 32	2,198	3,628
Other expenses	28.4	-2,734	-4,757
Share of result from investments accounted for using the equity method	12, 31	1,010	1,382
Finance income	28.7, 32	18,780	20,747
Finance expenses	28.6	-30,224	-28,944
Profit before tax		48,322	46,333
Income tax expenses	29	-13,314	-8,528
Profit for the period		35,008	37,805

Other comprehensive income, net of taxes

<i>Net other comprehensive income to be reclassified to profit or loss in subsequent periods</i>		1,824	-648
Losses on valuation of interest rate swaps	18.4	-1,051	-118
Exchange differences on translation of foreign operations	18.4	2,875	-530
<i>Net other comprehensive income not to be reclassified to profit or loss</i>		-11,085	-3,217
(Losses) / gains on valuation of financial assets at FVOCI	18.4	-394	350
Re-measurement losses on defined benefit plans	18.4, 21	-10,691	-3,567
Total other comprehensive income, net of taxes		-9,261	-3,865
Total comprehensive income		25,747	33,940

Profit for the period attributable to:

Owners of the parent	30	34,754	38,084
Non-controlling interests		254	-279
Profit for the period		35,008	37,805

Total comprehensive income attributable to:

Owners of the parent		25,525	34,412
Non-controlling interests		222	-472
Total comprehensive income		25,747	33,940

Earnings per share

		KRW	KRW
Basic / diluted, profit for the period attributable to ordinary equity holders of the parent	30	1,448	1,587

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

for the years ended December 31, 2019 and 2018 (see note 2.3)

	2019	2018
	Thousand USD	Thousand USD
Sales	703,743	681,617
Cost of sales	-559,879	-546,669
Gross profit	143,864	134,948
Selling and administration costs	-92,624	-88,043
Operating profit	51,240	46,905
Other income	1,899	3,135
Other expenses	-2,363	-4,111
Share of result from investments accounted for using the equity method	873	1,194
Finance income	16,229	17,929
Finance expenses	-26,119	-25,012
Profit before tax	41,759	40,040
Income tax expenses	-11,505	-7,370
Profit for the period	30,254	32,670
Other comprehensive income, net of taxes		
<i>Net other comprehensive income to be reclassified to profit or loss in subsequent periods</i>	<i>1,576</i>	<i>-560</i>
Losses on valuation of interest rate swaps	-908	-102
Exchange differences on translation of foreign operations	2,484	-458
<i>Net other comprehensive income not to be reclassified to profit or loss</i>	<i>-9,579</i>	<i>-2,781</i>
(Losses) / gains on valuation of financial assets at FVOCI	-340	302
Re-measurement losses on defined benefit plans	-9,239	-3,083
Total other comprehensive income, net of taxes	-8,003	-3,341
Total comprehensive income	22,251	29,329
Profit for the period attributable to:		
Owners of the parent	30,034	32,911
Non-controlling interests	220	-241
Profit for the period	30,254	32,670
Total comprehensive income attributable to:		
Owners of the parent	22,059	29,737
Non-controlling interests	192	-408
Total comprehensive income	22,251	29,329
Earnings per share		
	USD	USD
Basic / diluted, profit for the period attributable to ordinary equity holders of the parent	1.25	1.37

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

for the years ended December 31, 2018 and 2019

	Attributable to owners of the parent						Non-controlling interests	Total equity
	Issued capital	Capital surplus	Reserves	Retained earnings	Accumulated OCI	Total		
	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
As of January 1, 2018	12,000	24,361	27,255	322,085	-4,841	380,860	-2,733	378,127
Profit for the period	—	—	—	38,084	—	38,084	-279	37,805
Losses on valuation of interest rate swaps, net of tax	—	—	—	—	-118	-118	—	-118
Exchange differences on translation of foreign operations	—	—	—	—	-337	-337	-193	-530
Gains on valuation of financial assets at FVOCI, net of tax	—	—	—	—	350	350	—	350
Re-measurement losses on defined benefit plans, net of tax	—	—	—	-3,567	—	-3,567	—	-3,567
Total comprehensive income	—	—	—	34,517	-105	34,412	-472	33,940
Dividends	—	—	—	-3,360	—	-3,360	—	-3,360
Appropriation to reserves	—	—	336	-336	—	—	—	—
Change in non-controlling interest due to interest increase	—	—	—	—	—	—	2,491	2,491
As of December 31, 2018	12,000	24,361	27,591	352,906	-4,946	411,912	-714	411,198
As of January 1, 2019	12,000	24,361	27,591	352,906	-4,946	411,912	-714	411,198
Profit for the period	—	—	—	34,754	—	34,754	254	35,008
Losses on valuation of interest rate swaps, net of tax	—	—	—	—	-1,051	-1,051	—	-1,051
Exchange differences on translation of foreign operations	—	—	—	—	2,907	2,907	-32	2,875
Losses on valuation of financial assets at FVOCI, net of tax	—	—	—	—	-394	-394	—	-394
Re-measurement losses on defined benefit plans, net of tax	—	—	—	-10,691	—	-10,691	—	-10,691
Total comprehensive income	—	—	—	24,063	1,462	25,525	222	25,747
Dividends	—	—	—	-3,840	—	-3,840	—	-3,840
Appropriation to reserves	—	—	384	-384	—	—	—	—
Change in non-controlling interest due to interest increase*	—	-2,002	—	—	—	-2,002	2,002	—
Change in non-controlling interest due to capital contribution*	—	—	—	—	—	—	2,476	2,476
As of December 31, 2019	12,000	22,359	27,975	372,745	-3,484	431,595	3,986	435,581

*refer to note 1.2.4.1 and 18.2 for further details

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

for the years ended December 31, 2018 and 2019 (see note 2.3)

	Attributable to owners of the parent						Non-controlling interests	Total equity
	Issued capital	Capital surplus	Reserves	Retained earnings	Accumulated OCI	Total		
	Thousand USD	Thousand USD	Thousand USD	Thousand USD	Thousand USD	Thousand USD	Thousand USD	Thousand USD
As of January 1, 2018	10,370	21,052	23,553	278,342	-4,183	329,134	-2,362	326,772
Profit for the period	–	–	–	32,911	–	32,911	-241	32,670
Losses on valuation of interest rate swaps, net of tax	–	–	–	–	-102	-102	–	-102
Exchange differences on translation of foreign operations	–	–	–	–	-291	-291	-167	-458
Gains on valuation of financial assets at FVOCI, net of tax	–	–	–	–	302	302	–	302
Re-measurement losses on defined benefit plans, net of tax	–	–	–	-3,083	–	-3,083	–	-3,083
Total comprehensive income	–	–	–	29,828	-91	29,737	-408	29,329
Dividends	–	–	–	-2,902	–	-2,902	–	-2,902
Appropriation to reserves	–	–	291	-291	–	–	–	–
Change in non-controlling interest due to interest increase	–	–	–	–	–	–	2,153	2,153
As of December 31, 2018	10,370	21,052	23,844	304,977	-4,274	355,969	-617	355,352
As of January 1, 2019	10,370	21,052	23,844	304,977	-4,274	355,969	-617	355,352
Profit for the period	–	–	–	30,034	–	30,034	220	30,254
Losses on valuation of interest rate swaps, net of tax	–	–	–	–	-908	-908	–	-908
Exchange differences on translation of foreign operations	–	–	–	–	2,512	2,512	-28	2,484
Losses on valuation of financial assets at FVOCI, net of tax	–	–	–	–	-340	-340	–	-340
Re-measurement losses on defined benefit plans, net of tax	–	–	–	-9,239	–	-9,239	–	-9,239
Total comprehensive income	–	–	–	20,795	1,264	22,059	192	22,251
Dividends	–	–	–	-3,319	–	-3,319	–	-3,319
Appropriation to reserves	–	–	332	-332	–	–	–	–
Change in non-controlling interest due to interest increase*	–	-1,730	–	–	–	-1,730	1,730	–
Change in non-controlling interest due to capital contribution*	–	–	–	–	–	–	2,140	2,140
As of December 31, 2019	10,370	19,322	24,176	322,121	-3,010	372,979	3,445	376,424

*refer to note 1.2.4.1 and 18.2 for further details

CONSOLIDATED STATEMENTS OF CASH FLOWS

for the years ended December 31, 2019 and 2018

		2019	2018
	Notes	Million KRW	Million KRW
Profit for the period		35,008	37,805
Total adjustments	31	57,918	43,957
Changes in operating assets and liabilities	31	-8,607	-15,930
Interest received		580	854
Payments of income tax		-6,917	-8,471
Net cash flow from operating activities		77,982	58,215
Proceeds from sale of property, plant and equipment	7, 31	151	99
Purchases of property, plant and equipment	7	-30,322	-28,929
Purchases of intangible assets	10	-643	-1,412
Dividends received from investments using equity method	12	511	534
Acquisition of a subsidiary, net of cash acquired	5	—	-2,137
Decrease in other financial assets, net		5,830	17,056
Net cash flow from investing activities		-24,473	-14,789
Proceeds from borrowings	31	601,376	602,310
Repayments of borrowings	31	-639,138	-625,990
Payment of lease liabilities	2.21	-3,246	—
Decrease in other financial liabilities, net		-1,853	-1,120
Interest paid		-8,232	-9,724
Dividends paid	18	-3,840	-3,360
Net cash flow from financing activities		-54,933	-37,884
(Decrease) / increase in cash and cash equivalents		-1,424	5,542
Net foreign exchange differences		1,250	2,360
Cash and cash equivalents as of January 1	17	63,306	55,404
Cash and cash equivalents as of December 31	17	63,132	63,306

CONSOLIDATED STATEMENTS OF CASH FLOWS

for the years ended December 31, 2019 and 2018 (see note 2.3)

	2019	2018
	Thousand USD	Thousand USD
Profit for the period	30,254	32,670
Total adjustments	50,052	37,987
Changes in operating assets and liabilities	-7,438	-13,767
Interest received	501	738
Payments of income tax	-5,978	-7,321
Net cash flow from operating activities	67,391	50,308
Proceeds from sale of property, plant and equipment	130	86
Purchases of property, plant and equipment	-26,204	-25,000
Purchases of intangible assets	-556	-1,220
Dividends received from investments using equity method	442	461
Acquisition of a subsidiary, net of cash acquired	—	-1,847
Decrease in other financial assets, net	5,038	14,740
Net cash flow from investing activities	-21,150	-12,780
Proceeds from borrowings	519,701	520,509
Repayments of borrowings	-552,335	-540,973
Payment of lease liabilities	-2,805	—
Decrease in other financial liabilities, net	-1,601	-968
Interest paid	-7,114	-8,403
Dividends paid	-3,318	-2,904
Net cash flow from financing activities	-47,472	-32,739
(Decrease) / increase in cash and cash equivalents	-1,231	4,789
Net foreign exchange differences	1,081	2,039
Cash and cash equivalents as of January 1	54,708	47,879
Cash and cash equivalents as of December 31	54,558	54,708

1. CORPORATE INFORMATION

1.1 THE GROUP

SONGWON Industrial Group (the "Group") consists of the parent company Songwon Industrial Co., Ltd. (the "Company") and its consolidated subsidiaries as listed below. The Company was incorporated on December 15, 1965, under the law of the Republic of Korea to engage in the manufacture and commercial sale of antioxidants, stabilizers and polyurethanes. The Company's main manufacturing plants are located in Korea in Ulsan, Maeam and Suwon and in India in Ankleshwar. The address of the registered office (Songwon Industrial Co., Ltd.) can be found at the end of the annual report.

The Company has listed its common shares on the Korea Exchange since June 1977, pursuant to the Korean Securities and Exchange Act.

1.2 SCOPE OF CONSOLIDATION

1.2.1 CHANGE IN THE SCOPE OF CONSOLIDATION

As of December 31, 2019, the scope of consolidation for the consolidated financial statements encompasses 14 entities (2018: 14 entities). Additionally, one entity is classified as a joint venture (2018: one entity) and accounted for using the equity method.

During the twelve months of 2019, the following change in the legal structure of the Group and scope of consolidation took place:

- Acquisition of an additional 26% interest in Songwon Polysys Additives LLC

The consolidated financial statements include the financial statements of the Company and of the subsidiaries listed in the following table. The table also includes joint ventures which are accounted for using the equity method.

Consolidated entities	Location	2019 December 31		2018 December 31	
		Status	Interest	Status	Interest
Songwon Industrial Co., Ltd.	Korea	Parent		Parent	
Songwon International – Japan K.K.	Japan	Subsidiary	100%	Subsidiary	100%
Songwon Specialty Chemicals-India Pvt. Ltd.	India	Subsidiary	100%	Subsidiary	100%
Songwon International – Americas Inc.	USA	Subsidiary	100%	Subsidiary	100%
Songwon International AG	Switzerland	Subsidiary	100%	Subsidiary	100%
Songwon Group Holding AG	Switzerland	Subsidiary	100%	Subsidiary	100%
Songwon Management AG	Switzerland	Subsidiary	100%	Subsidiary	100%
Songwon-ATG GmbH	Germany	Subsidiary	100%	Subsidiary	100%
Songwon Europe GmbH	Germany	Subsidiary	100%	Subsidiary	100%
Songwon Chemicals GmbH	Germany	Subsidiary	100%	Subsidiary	100%
Songwon Trading GmbH	Germany	Subsidiary	100%	Subsidiary	100%
Qingdao Long Fortune Songwon Chemical Co., Ltd.	China	Subsidiary	72%	Subsidiary	72%
Songwon International – Middle East FZE	UAE	Subsidiary	100%	Subsidiary	100%
Songwon Polysys Additives LLC	UAE	Subsidiary	81.5%	Subsidiary	55.5%

Entities accounted for using the equity method (joint ventures)

Songwon Baifu Chemicals (Tangshan) Co., Ltd.	China	Joint venture	30%	Joint venture	30%
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1.2.2 SUMMARIZED STATEMENTS OF FINANCIAL POSITION AND COMPREHENSIVE INCOME OF SUBSIDIARIES

The summarized statements of financial position and comprehensive income of subsidiaries are as follows:

	Total assets	Total liabilities	Total equity	Total revenue	Net income	Total comp. income
2019 as of December 31	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
Songwon Industrial Co., Ltd.	822,382	391,024	431,358	653,074	34,721	24,445
Songwon International – Japan K.K.	33,157	23,267	9,890	86,200	828	828
Songwon Specialty Chemicals-India Pvt. Ltd.	39,517	15,266	24,251	21,130	3,340	3,335
Songwon International – Americas Inc.	65,500	37,600	27,900	171,512	15	15
Songwon International AG	73,521	57,881	15,640	230,929	-1,360	-1,470
Songwon Group Holding AG	119,782	2,576	117,206	–	11,248	11,248
Songwon Management AG	25,685	23,632	2,053	–	3,474	1,731
Songwon-ATG GmbH	13,230	3,931	9,299	7,548	234	234
Songwon Europe GmbH	171	97	74	1,022	22	22
Songwon Chemicals GmbH	150	81	69	1,337	34	34
Songwon Trading GmbH	86	18	68	1,136	26	26
Qingdao Long Fortune Songwon Chemical Co., Ltd.	20,064	9,320	10,744	28,032	530	530
Songwon International – Middle East FZE	8,828	7,020	1,808	19,547	506	506
Songwon Polysys Additives LLC	32,351	24,433	7,918	19,744	571	571

2018 as of December 31

Songwon Industrial Co., Ltd.	812,959	402,205	410,754	618,101	7,529	2,793
Songwon International – Japan K.K.	37,520	28,871	8,649	96,025	2,009	2,009
Songwon Specialty Chemicals-India Pvt. Ltd.	34,660	13,873	20,787	18,393	2,799	2,799
Songwon International – Americas Inc.	50,608	23,778	26,830	158,772	17,306	17,306
Songwon International AG	62,939	38,878	24,061	210,501	7,555	7,669
Songwon Group Holding AG	115,526	3,615	111,911	–	7,031	7,031
Songwon Management AG	19,379	19,071	308	–	-977	310
Songwon-ATG GmbH	10,654	1,263	9,391	8,223	244	244
Songwon Europe GmbH	221	169	52	850	20	20
Songwon Chemicals GmbH	107	72	35	376	3	3
Songwon Trading GmbH	150	109	41	562	10	10
Qingdao Long Fortune Songwon Chemical Co., Ltd.*	16,389	6,367	10,022	17,731	1,125	1,125
Songwon International – Middle East FZE	5,686	2,867	2,819	21,189	1,705	1,705
Songwon Polysys Additives LLC	22,466	28,037	-5,571	12,214	-1,335	-1,335

* refer to note 5. for further details

1.2.3 INTEREST IN JOINT VENTURES

The Group has a 30% interest in Songwon Baifu Chemicals (Tangshan) Co., Ltd., classified as a jointly controlled entity which primarily engages in the production of thioesters. Determination was driven by the contractually agreed sharing of control with regard to relevant activities, requiring unanimous consent of the control-sharing parties. The established joint venture Qingdao Long Fortune Songwon Chemical Co., Ltd., which is involved in the production of One Pack System Blends, was fully consolidated as of May 1, 2018, due to the acquisition of additional shareholding (refer to note 5).

The summarized statements of financial position and summarized statements of comprehensive income of joint ventures (accounted for using the equity method) are as follows:

Statement of financial position	Cash and cash equivalents	Total current assets	Total non-current assets	Current financial liabilities	Total current liabilities	Non-current financial liabilities	Total non-current liabilities	Equity	Carrying amount
	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
Songwon Baifu Chemicals (Tangshan) Co., Ltd.	1,964	9,317	8,326	1,461	1,777	—	—	15,866	4,760
December 31, 2018	1,964	9,317	8,326	1,461	1,777	—	—	15,866	4,760
Songwon Baifu Chemicals (Tangshan) Co., Ltd.	2,437	11,524	8,587	1,784	2,132	147	155	17,824	5,347
December 31, 2019	2,437	11,524	8,587	1,784	2,132	147	155	17,824	5,347

Statement of comprehensive income	Revenue	Depreciation & Amortization	Interest income	Interest expense	Profit before tax	Income tax expenses	Profit for the period	Other comp. income	Total comp. income
	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
Songwon Baifu Chemicals (Tangshan) Co., Ltd.	26,404	-128	14	—	4,943	-1,236	3,707	-163	3,544
Qingdao Long Fortune Songwon Chemical Co., Ltd.*	10,656	-84	11	-91	746	-207	539	160	699
December 31, 2018	37,060	-212	25	-91	5,689	-1,443	4,246	-3	4,243
Songwon Baifu Chemicals (Tangshan) Co., Ltd.	25,231	-144	3	-11	4,503	-1,135	3,368	293	3,661
December 31, 2019	25,231	-144	3	-11	4,503	-1,135	3,368	293	3,661

The investment in the joint venture is accounted for as using the equity method. The joint venture is continuing its operations as of December 31, 2019, and its reporting period is the same as that of the Group. In 2019, dividends of 511 Million KRW were received from Songwon Baifu Chemicals (Tangshan) Co., Ltd. (2018: 534 Million KRW), refer to note 12.

* refer to note 5. for further details

1.2.4 NON-CONTROLLING INTERESTS

1.2.4.1 TRANSACTIONS WITH NON-CONTROLLING INTERESTS

Acquisition of an additional 26% interest in Songwon Polysys Additives LLC

With the effective date as of January 1, 2019, the Group acquired an additional 26% interest in Songwon Polysys Additives LLC paying a symbolic value of 1 USD and taking over accumulated losses of 2,002 Million KRW which were recognized in the capital surplus. Therefore, the Group's interest in Songwon Polysys Additives LLC, which had already been fully consolidated as of April 1, 2014, increased from 55.5% to 81.5%. With the effective date as of July 1, 2019, shareholder loans of 13,384 Million KRW granted by Songwon Group Holding AG (10,908 Million KRW) as well as by the minority shareholder (2,476 Million KRW) have been converted into the capital contribution of Songwon Polysys Additives LLC in proportion to their equity interests, to improve the financial structure of the subsidiary.

Purchase of non-controlling interests in Qingdao Long Fortune Songwon Chemical Co., Ltd.

As of May 1, 2018, the Group's shareholding increased through an increase in capital equating to 22% additional shares of Qingdao Long Fortune Songwon Chemical Co., Ltd. (interest increased from 50% to 72%). Therefore, the conditions to fully consolidate Qingdao Long Fortune Songwon Chemical Co., Ltd. and to disclose non-controlling interest were met. Refer to note 5.2 for further information regarding the step acquisition.

1.2.4.2 INTEREST OF NON-CONTROLLING INTERESTS

The Group has two subsidiaries with non-controlling interests of 18.5% and 28% in: Songwon Polysys Additives LLC, United Arab Emirates and Qingdao Long Fortune Songwon Chemical Co., Ltd., China as of December 31, 2019. The net gain attributable to the non-controlling interests for the year 2019 amounted to 254 Million KRW (2018: net loss of -279 Million KRW). Summarized cash flow information of the partly owned subsidiaries is as follows:

	2019	2018
	Million KRW	Million KRW
Operating cash flow	9,077	811
Investing cash flow	-2,012	21
Financing cash flow	-8,412	1,988
Net cash flow	-1,347	2,820

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

2.1 BASIS OF PREPARATION

The Group prepares statutory financial statements in the Korean language in accordance with Korean International Financial Reporting Standards (K-IFRS) enacted by the *Act on External Audit of Stock Companies*.

The consolidated financial statements have been prepared on a historical cost basis, except for certain items, such as financial instruments, which are mentioned separately in the following accounting principles. The consolidated financial statements are presented in Korean won (KRW) and all values are rounded to the nearest million (000,000), except when otherwise indicated.

The Group maintains its official accounting records in Korean won. In the event of any differences in the interpretation of the consolidated financial statements or the independent auditor's report thereon, the Korean version, which is used for regulatory reporting purposes, shall prevail.

2.2 BASIS OF CONSOLIDATION

The consolidated financial statements comprise the financial statements of the Group and its subsidiaries as of December 31, 2019. Control is achieved when the Group is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. Specifically, the Group controls an investee if, and only if, the Group has:

- Power over the investee (i.e. existing rights that give it the current ability to direct the relevant activities of the investee)
- Exposure or rights to variable returns from its involvement with the investee
- The ability to use its power over the investee to affect its returns

Generally, there is a presumption that a majority of voting rights results in control. To support this presumption and when the Group has less than a majority of the voting or similar rights of an investee, the Group considers all relevant facts and circumstances in assessing whether it has power over an investee, including:

- The contractual arrangement with the other vote holders of the investee
- Rights arising from other contractual arrangements
- The Group's voting rights and potential voting rights

The Group reassesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control. Consolidation of a subsidiary begins when the Group obtains control over the subsidiary and ceases when it loses control of the subsidiary. Assets, liabilities, income and expenses of a subsidiary acquired or disposed of during the year are included in the statements of comprehensive income from the date that the Group gains control until the date that it ceases to control the subsidiary.

Profit or loss and each component of other comprehensive income (OCI) are attributed to the equity holders of the parent of the Group and to the non-controlling interests, even if this results in the non-controlling interests having a deficit balance. When necessary, adjustments are made to the financial statements of subsidiaries to align their accounting policies with the Group's accounting policies. All intra-group assets and liabilities, equity, income, expenses and cash flows relating to transactions between members of the Group are eliminated in full on consolidation.

A change in the ownership interest of a subsidiary, without a loss of control, is accounted for as an equity transaction.



2.3 CONVENIENCE TRANSLATION INTO UNITED STATES DOLLAR AMOUNTS

The parent company operates primarily in Korean won and its official accounting records are maintained in KRW. The USD amounts provided in the financial statements represent supplementary information solely for the convenience of the reader. All KRW amounts are expressed in USD at the rate of 1,157.16 KRW to 1 USD, the exchange rate in effect on December 31, 2019. Such a presentation is not in accordance with generally accepted accounting principles and should not be construed as a representation that the KRW amounts shown could be readily converted, realized or settled in USD at this or at any other rate.

2.4 BUSINESS COMBINATIONS AND GOODWILL

Business combinations are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, which is measured at acquisition date fair value, and the amount of any non-controlling interests in the acquiree. For each business combination, the Group elects whether to measure the non-controlling interests in the acquiree at fair value or at the proportionate share of the acquiree's identifiable net assets. Acquisition-related costs are expensed as incurred and included in administrative expenses.

When the Group acquires a business, it assesses the financial assets and liabilities assumed for appropriate classification and designation in accordance with the contractual terms, economic circumstances and pertinent conditions as of the acquisition date. This includes the separation of embedded derivatives in host contracts by the acquiree.

Goodwill is initially measured at cost, being the excess of the aggregate of the consideration transferred and the amount recognized for non-controlling interests, and any previous interest held over the net identifiable assets acquired and liabilities assumed. If the fair value of the net assets acquired is in excess of the aggregate consideration transferred, the Group reassesses whether it has correctly identified all of the assets acquired as well as all of the liabilities assumed and reviews the procedures used to measure the amounts to be recognized at the acquisition date. If the re-assessment still results in an excess of the fair value of net assets acquired over the aggregated consideration transferred, then the gain is recognized in profit or loss.

After initial recognition, goodwill is measured at cost less any accumulated impairment losses. For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to each of the Group's cash-generating units (CGU) that are expected to benefit from the combination, irrespective of whether other assets or liabilities of the acquiree are assigned to those units.

Where goodwill has been allocated to a CGU and part of the operation within that unit is disposed of, the goodwill associated with the disposed operation is included in the carrying amount of the operation when determining the gain or loss on disposal. Goodwill disposed in these circumstances is measured based on the relative values of the disposed operation and the portion of the CGU retained.

2.5 INTEREST IN JOINT ARRANGEMENTS

Joint ventures

A joint venture is a type of joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint venture. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require unanimous consent of the parties sharing control. The considerations made in determining joint control are similar to those necessary to determine control over subsidiaries.

The Group's investments in its joint ventures are accounted for using the equity method. Under the equity method, the investment in a joint venture is initially recognized at cost. The carrying amount of the investment is adjusted to recognize changes in the Group's share of net assets of the joint venture since the acquisition date.

The statements of comprehensive income reflect the Group's share of the results of operations of the joint venture. Any change in OCI of those investees is presented as part of the Group's OCI. In addition, when there has been a change recognized directly in the equity of a joint venture, the Group recognizes its share of any changes, when applicable, in the statements of changes in equity. Unrealized gains and losses resulting from transactions between the Group and the joint venture are eliminated to the extent of the interest in the joint venture.

The aggregate of the Group's share of profit or loss in a joint venture is shown on the face of the statements of profit or loss outside operating profit and represents profit or loss after tax and non-controlling interests in the subsidiaries of the joint venture.

The financial statements of the joint venture are prepared for the same reporting period as the Group. When necessary, adjustments are made to align the accounting policies with those of the Group.

At each reporting date, the Group determines whether there is objective evidence that the investment in the joint venture is impaired. If there is such evidence, the Group calculates the amount of impairment as the difference between the recoverable amount of the joint venture and its carrying value, and then recognizes the loss as "Share of profit of a joint venture" in the statements of comprehensive income.

Upon loss of significant influence over the joint venture, the Group measures and recognizes any retained investment at its fair value. Any difference between the carrying amount of the joint venture – upon loss of significant influence or joint control – and the fair value of the retained investment and proceeds from disposal is recognized in profit or loss.

Joint operations

A joint operation is defined as an arrangement in which the parties with joint control have rights to the assets and obligations for the liabilities relating to that arrangement. In respect of its interest in a joint operation, a joint operator must recognize all of its assets, liabilities, revenues and expenses, including its relative share of jointly controlled assets, liabilities, revenue and expenses.

The considerations made in determining joint control are similar to those necessary to determine control over subsidiaries.

2.6 FOREIGN CURRENCY TRANSLATION

The consolidated financial statements are presented in KRW, which is the parent company's functional currency. Each entity in the Group determines its own functional currency, and items included in the financial statements of each entity are measured using that functional currency.

Transactions in foreign currencies are initially recorded by the companies at their respective functional currency rates prevailing at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are retranslated at the functional currency spot rate of exchange ruling at the reporting date. Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rates as at the dates of the initial transactions. Non-monetary items measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value is determined.

The assets, including goodwill and liabilities of foreign subsidiaries, where the functional currency is other than the KRW, are translated using the exchange rate at the end of the reporting period, while the statements of comprehensive income are translated using the average exchange rates during the period. Differences arising from such translations are recognized within equity and reclassified to net income when the gain or loss on disposal of the foreign subsidiary is recognized.

In determining the spot exchange rate to use on initial recognition of the related asset, expense or income (or part of it) on the derecognition of a non-monetary asset or non-monetary liability relating to advance consideration, the date of the transaction is the date on which the Group initially recognizes the non-monetary asset or non-monetary liability arising from the advance consideration. If there are multiple payments or receipts in advance, the Group determines the transaction date for each payment or receipt of advance consideration.

2.7 PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment are valued at cost less accumulated depreciation and accumulated impairment losses. Such costs include the cost of replacing part of the property, plant and equipment and borrowing costs for long-term construction projects, if the recognition criteria are met. Other repair and maintenance costs are recognized in the statements of comprehensive income as incurred. If the costs of certain components of an item of property, plant and equipment are significant in relation to the total cost of the item, they are accounted for and depreciated separately.

Depreciation expenses are calculated by using the straight-line method. The following useful lives are assumed:

Land	No depreciation
Buildings	18-54 years
Structures	10-40 years
Machinery	10-20 years
Other*	1-39 years

Residual values and useful lives are reviewed annually and adjusted accordingly if expectations differ from previous estimates.

The gain or loss arising from the derecognition of a property, plant or equipment shall be determined as the difference between the net disposal proceeds and the carrying amount of the asset. It shall be recognized in the income statement when the asset is derecognized.

* refer to note 2.14 for further details

2.8 INTANGIBLE ASSETS

Intangible assets acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is its fair value as at the date of acquisition. Following initial recognition, intangible assets are carried at cost less any accumulated amortization and accumulated impairment losses.

Intangible assets with useful finite lives are amortized over the useful economic life and assessed for impairment whenever there is an indication that the intangible asset may be impaired. The amortization period and the amortization method for an intangible asset with a finite useful life are reviewed at least at the end of each reporting period. Changes in the expected useful life, or the expected consumption pattern of future economic benefits embodied in the asset, are accounted for by changing the amortization period or method, as appropriate, and are treated as changes in accounting estimates. The amortization expense on intangible assets with finite lives is recognized in the income statement under cost of sales and selling and administration costs in the expense category that is consistent with the function of the intangible assets.

Intangible assets with indefinite useful lives (such as goodwill and memberships) are not amortized, but are tested for impairment annually either individually, or at the cash-generating unit level. The assessment of indefinite life is reviewed annually to determine whether the indefinite life continues to be supportable. If not, the change in useful life from indefinite to finite is made on a prospective basis.

Gains or losses arising from derecognition of an intangible asset are measured as the difference between the net disposal proceeds and the carrying amount of the asset, and are recognized in the income statement when the asset is derecognized.

Intangible assets with finite useful lives are amortized using the straight-line method with the following useful lives:

Software	3-10 years
Industrial rights	10 years
Useful lives of items recognized in business combinations	
Customer relationships	5-9 years
Non-compete contracts	6 years
Process technologies	5-6 years

2.9 INVESTMENT PROPERTY

The Group classifies the property to earn rentals or for capital appreciation, or both, as investment properties. As investment properties are accounted for using a cost model, the same accounting policies applied to property, plant and equipment are used for their accounting treatment, except for their classification and presentation.

2.10 Leases

The Group assesses at contract inception whether a contract is, or contains, a lease. That is, if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

Group as a lessee

The Group applies a single recognition and measurement approach for all leases, except for short-term leases and leases of low-value assets. The Group recognizes lease liabilities to make lease payments and right-of-use assets representing the right to use the underlying assets.

- Right-of-use assets

The Group recognizes right-of-use assets at the commencement date of the lease (i.e., the date the underlying asset is available for use). Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any re-measurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities recognized, initial direct costs incurred, and lease payments made at or before the commencement date less any lease incentives received. Unless the Group is reasonably certain to obtain ownership of the leased asset at the end of the lease term, the recognized right-of-use assets are depreciated on a straight-line basis over the shorter of its estimated useful life and the lease term. Right-of-use assets are subject to impairment (see note 8).

- Lease liabilities

At the commencement date of the lease, the Group recognizes lease liabilities measured at the present value of lease payments to be made over the lease term. The lease payments include fixed payments (including in-substance fixed payments) less any lease incentives receivable and amounts expected to be paid under residual value guarantees. The lease payments also include the exercise price of a purchase option reasonably certain to be exercised by the Group and payments of penalties for terminating a lease, if the lease term reflects the Group exercising the option to terminate (see note 25.3.3).

In calculating the present value of lease payments, the Group uses the incremental borrowing rate at the lease commencement date if the interest rate implicit in the lease is not readily determinable. The carrying amount of lease liabilities is re-measured if there is a modification, a change in the lease term, a change in the in-substance fixed lease payments or a change in the assessment to purchase the underlying asset.

- Short-term leases and leases of low-value assets

The Group applies the short-term lease recognition exemption to its short-term leases of tools and other equipment (i.e., those leases that have a lease term of twelve months or less from the commencement date and do not contain a purchase option). It also applies the lease of low-value assets recognition exemption to leases of office equipment that are considered of low value (i.e., below 5,000 USD). Lease payments on short-term leases and leases of low-value assets are recognized as an expense on a straight-line basis over the lease term.

- Significant judgement in determining the lease term of contracts with renewal options

The Group determines the lease term as the non-cancellable term of the lease, together with any periods covered by an option to extend the lease if it is reasonably certain to be exercised, or any periods covered by an option to terminate the lease, if it is reasonably certain not to be exercised.

- The Group has the option, under some of its leases to lease the assets for additional terms. The Group applies judgement in evaluating whether it is reasonably certain to exercise the option to renew. That is, it considers all relevant factors that create an economic incentive for it to exercise the renewal. After the commencement date, the Group reassesses the lease term if there is a significant event or change in circumstances that is within its control and affects its ability to exercise (or not to exercise) the option to renew (e.g., a change in business strategy).

Group as a lessor

Leases in which the Group does not transfer substantially all the risks and rewards incidental to ownership of an asset are classified as operating leases. Rental income arising is accounted for on a straight-line basis over the lease terms and is included in revenue in the statement of profit or loss due to its operating nature. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized over the lease term on the same basis as rental income. Contingent rents are recognized as revenue in the period in which they are earned. In the financial year 2019, the Group has not entered into lease agreements as a lessor.

2.11 IMPAIRMENT OF NON-FINANCIAL ASSETS

The Group reviews non-financial assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If any indication exists, or when annual impairment testing for assets, such as membership is required, the Group estimates the asset's recoverable amount. Recoverability of assets is measured by the comparison of the carrying amount of the asset to the recoverable amount, which is the higher of the asset's value in use and its fair value less costs to sell. If assets do not generate cash inflows that are largely independent of those from other assets or groups of assets, the impairment test is not performed at an individual asset level; instead, it is performed at the level of the cash-generating unit (CGU) that the asset belongs to.

Where the carrying amount of an asset or CGU exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. In determining fair value less costs to sell, recent market transactions are taken into account, if available. If no such transactions can be identified, an appropriate valuation model is used.

For assets excluding goodwill, an assessment is made at each reporting date as to whether there is any indication that previously recognized impairment losses may no longer exist or may have decreased. If such an indication exists, the Group estimates the asset or cash-generating unit's recoverable amount. A previously recognized impairment loss is reversed only if there has been a change in the assumptions used to determine the asset's recoverable amount since the last impairment loss was recognized. The reversal is limited, so that the carrying amount of the asset does not exceed its recoverable amount, nor exceed the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognized for the asset in prior years. Such a reversal is recognized in the income statement.

The following criteria are also applied in assessing impairment of specific assets:

Goodwill

Goodwill is tested for impairment annually as of December 31, and whenever there are events or changes in circumstances (triggering events), which suggest that the carrying amount may not be recoverable. Goodwill is carried at cost less accumulated impairment losses.

For the purpose of impairment testing, goodwill acquired in a business combination is allocated to the (groups of) cash-generating unit(s) that is expected to benefit from the synergies of the business combination. If the carrying amount of the cash-generating unit(s), to which the goodwill is allocated, exceeds its recoverable amount, an impairment loss on goodwill is recognized. The recoverable amount is the higher of the cash-generating unit(s) fair value less costs to sell and its value in use.

Impairment losses relating to goodwill cannot be reversed in future periods.

Intangible assets with indefinite useful lives

Intangible assets with indefinite useful lives are tested for impairment annually as of December 31, either individually, or at the cash-generating unit level, as appropriate and when circumstances indicate that the carrying value may be impaired.

2.12 BORROWING COSTS

Borrowing costs directly attributable to the acquisition, construction or production of an asset, that requires a substantial period of time to get ready for its intended use or sale, are capitalized as part of the cost of the respective assets.

2.13 INVENTORIES

Inventory is valued at the lower of the acquisition or production cost and net realizable value, cost being generally determined on the basis of a weighted average. Production costs comprise direct material and labor and applicable manufacturing overheads, including depreciation charges based on normal operating capacity. Net realizable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and selling expenses.

2.14 CHANGES IN ACCOUNTING POLICY AND DISCLOSURE

In the fourth quarter of 2019, a decision was made to reclassify property, plant and equipment (PPE) in connection with stopped production lines (assets can and will be reused in the future) to "Other" within PPE. As a result of the reclassification, the net book value decreased for buildings, structures and machinery, and increased for other assets. The reclassification had no impact on the consolidated statements of financial positions. However, the effect of the reclassification on the opening values and movements within PPE was applied retrospectively and is as follows:

	Land	Buildings	Structures	Machinery	Other	Construction in progress	Total
	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
Acquisition cost							
As of January 1, 2018	–	-3,351	-457	-23,656	27,464	–	–
Additions / disposals	–	–	–	–	–	–	–
As of December 31, 2018*	–	-3,351	-457	-23,656	27,464	–	–
Accumulated depreciation							
As of January 1, 2018	–	1,417	350	21,838	-23,605	–	–
Depreciation charge	–	87	23	362	-472	–	–
As of December 31, 2018*	–	1,504	373	22,200	-24,077	–	–
Net book value							
As of January 1, 2018	–	-1,934	-107	-1,818	3,859	–	–
As of December 31, 2018*	–	-1,847	-84	-1,456	3,387	–	–

Accordingly, the Group re-assessed its accounting for property, plant and equipment with respect to the defined useful lives for "Other" assets within PPE. The previously defined useful lives for "Other" PPE of 1-10 years have been adjusted to 1-39 years (refer to note 2.7). The depreciation for the reclassified assets continues according to the existing depreciation model. Therefore, the reclassification had no impact on the consolidated statements of comprehensive income.

2.15 CASH AND CASH EQUIVALENTS

Cash and cash equivalents in the statements of financial position comprise cash at banks, as well as on hand and short-term deposits with a maturity of three months or less.

* the impact on the closing value as of December 31, 2018 also reflects the impact on the opening value as of January 1, 2019

2.16 PROVISIONS

A provision is recognized when the Group has a present legal or constructive obligation as a result of a past event. It is probable that an outflow of economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. If the effect is material, provisions are recognized at present value by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money.

Greenhouse gas emissions

The Group receives free emission rights as a result of emission trading schemes. The rights are received on an annual basis and, in return, the Group is required to remit rights equal to its actual emissions. The Group has adopted the net liability approach to the emission rights granted. Therefore, a provision is recognized only when actual emissions exceed the emission rights granted and still held. The emission costs are recognized as other operating costs. Where emission rights are purchased from other parties, they are recorded at cost, and treated as a reimbursement right, whereby they are matched to the emission liabilities and re-measured to fair value. The changes in fair value are recognized in the statement of profit or loss and other comprehensive income.

2.17 PENSIONS AND OTHER LONG-TERM EMPLOYMENT BENEFITS

Pensions

The Group operates three defined benefit pension plans: one in Korea, one in Switzerland and one in India. The cost of providing benefits under the defined benefit plan is determined using the projected unit credit method.

Re-measurements, comprising actuarial gains and losses, the effect of the asset ceiling, excluding net interest and the return on plan assets (excluding net interest), are recognized immediately in the statements of financial position with a corresponding debit or credit to retained earnings through OCI in the period in which they occur. Re-measurements are not reclassified to profit or loss in subsequent periods.

Past service costs are recognized in profit or loss on the earlier of the date:

- the plan amendment or curtailment
- that the Group recognizes restructuring-related costs

Net interest is calculated by applying the discount rate to the net defined benefit liability or asset. The pension expenses are recognized in the income statement under cost of sales and selling and administration costs.

Other long-term employment benefits

The parent company also implements a bonus plan designed to present a prescribed quantity of gold and entitles compensated vacation to long-term service employees. Accounting policies of the bonus plan are mostly the same as the defined benefit plan, except that re-measurements are recognized immediately in profit or loss.

2.18 TAXES

Current income tax

Current income tax assets and liabilities for the current period are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are those that are enacted, or substantively enacted, at the reporting date in the countries where the Group operates and generates taxable income.

Deferred tax

Deferred tax is provided using the liability method on temporary differences at the reporting date between the tax basis of assets and liabilities, and their carrying amounts for financial reporting purposes.

Deferred tax liabilities are recognized for all taxable temporary differences, except:

- where the deferred tax liability arises from the initial recognition of goodwill, or of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit, nor taxable profit or loss;
- with respect to taxable temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, where the timing of the reversal of the temporary differences can be controlled and it is probable that the temporary differences will not reverse in the foreseeable future.

Deferred tax assets are recognized for all deductible temporary differences, carry forward of unused tax credits and unused tax losses, to the extent that it is probable that taxable profit will be available against which the deductible temporary differences, and the carry forward of unused tax credits and unused tax losses can be utilized, except:

- where the deferred tax asset relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit, nor taxable profit or loss;
- with respect to deductible temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, deferred tax assets are recognized only to the extent that it is probable that the temporary differences will reverse in the foreseeable future, and taxable profit will be available against which the temporary differences can be utilized.

The carrying amount of deferred tax assets is reviewed at each reporting date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilized. Unrecognized deferred tax assets are reassessed at each reporting date and recognized to the extent that it has become probable that future taxable profits will allow the deferred tax asset to be recovered. Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the year when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the reporting date.

Deferred tax relating to items recognized outside profit or loss is recognized outside profit or loss. Deferred tax items are recognized in correlation to the underlying transaction, either in other comprehensive income, or directly in equity.

Deferred tax assets and deferred tax liabilities are offset, if a legally enforceable right exists to set off current tax assets against current income tax liabilities and the deferred taxes relate to the same taxable entity and the same taxation authority.

2.19 REVENUE FROM CONTRACTS WITH CUSTOMERS

The Group's business is the manufacture and commercial sale of antioxidants, stabilizers and polyurethane. Revenue from contracts with customers is recognized when control of the goods or services are transferred to the customer at an amount that reflects the consideration to which the Group expects to be entitled in exchange for those goods or services. The Group has generally concluded that it is the principal in its revenue arrangements, except for the agency services below, because it typically controls the goods or services before transferring them to the customer.

Sales of Goods

The Group has concluded that revenue from sale of goods should be recognized at the point in time when control of the asset is transferred to the customer, generally on delivery of the goods.

Sale of services

The Group provides transportation service in combination with the sales of goods. The services can be provided by others and are not significantly modified or customized. There are two performance obligations in a contract for bundled sales of goods and transportation services, because its promises to transfer goods and provide transportation services, are capable of being distinct and separately identifiable. The Group allocates the transaction price based on the relative stand-alone selling prices of goods and transportation services. The Group concluded that revenue for transportation services, will be recognized over time because the customer simultaneously receives and consumes the benefits provided by the Group.

Contract balances

(1) Contract assets

A contract asset is the right to consideration in exchange for goods or services transferred to the customer. If the Group performs by transferring goods or services to a customer before the customer pays a consideration or before payment is due, a contract asset is recognized for the earned consideration that is conditional.

(2) Trade receivables

A receivable represents the Group's right to an amount of consideration that is unconditional (i.e., only the passage of time is required before payment of the consideration is due). Refer to accounting policies of financial assets in the note 2.20.

(3) Contract liabilities

A contract liability is the obligation to transfer goods or services to a customer for which the Group has received consideration (or an amount of consideration is due) from the customer. If a customer pays consideration before the Group transfers goods or services to the customer, a contract liability is recognized when the payment is made, or the payment is due (whichever is earlier). Contract liabilities are recognized as revenue when the Group performs under the contract.

2.20 FINANCIAL INSTRUMENTS

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.

Financial assets

Financial assets are classified, at initial recognition, as subsequently measured at amortized cost, fair value through other comprehensive income (FVOCI), and fair value through profit or loss (FVtPL).

The classification of financial assets at initial recognition depends on the financial asset's contractual cash flow characteristics and the Group's business model for managing them: With the exception of trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient, the Group initially measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs.

In order for a financial asset to be classified and measured at amortized cost or FVOCI, it needs to give rise to cash flows that are 'solely payments of principal and interest (SPPI)' on the principal amount outstanding. This assessment is referred to as the SPPI test and is performed at an instrument level.

The Group's business model for managing financial assets refers to how it manages its financial assets in order to generate cash flows. The business model determines whether cash flows will result from collecting contractual cash flows, selling the financial assets, or both.

Purchases or sales of financial assets that require delivery of assets within a time frame established by regulation or convention in the market place (regular way trades), are recognized on the trade date, i.e., the date that the Group commits to purchase or sell the asset.

(1) Subsequent measurement

For purposes of subsequent measurement, financial assets are classified in four categories:

- Financial assets at amortized cost (debt instruments);
- Financial assets at FVOCI with recycling of cumulative gains and losses (debt instruments);
- Financial assets designated at FVOCI with no recycling of cumulative gains and losses upon derecognition (equity instruments);
- Financial assets at FVtPL.

(2) Financial assets at amortized cost (debt instruments)

This category is the most relevant to the Group. The Group measures financial assets at amortized cost if both of the following conditions are met:

- the financial asset is held within a business model with the objective to hold financial assets in order to collect contractual cash flows; and
- the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Financial assets at amortized cost are subsequently measured using the effective interest (EIR) method and are subject to impairment. Gains and losses are recognized in profit or loss when the asset is derecognized, modified or impaired.

(3) Financial assets at FVOCI (debt instruments)

The Group measures debt instruments at FVOCI if both of the following conditions are met:

- the financial asset is held within a business model with the objective of both holding to collect contractual cash flows and selling; and
- the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

For debt instruments at FVOCI, interest income, foreign exchange revaluation and impairment losses or reversals are recognized in the statement of profit or loss and computed in the same manner as for financial assets measured at amortized cost. The remaining fair value changes are recognized in OCI. Upon derecognition, the cumulative fair value change recognized in OCI is recycled to profit or loss. The Group's debt instruments at FVOCI includes investments in quoted debt instruments included under other non-current financial assets.

(4) Financial assets designated at FVOCI (equity instruments)

Upon initial recognition, the Group can elect to classify irrevocably its equity investments as equity instruments designated at FVOCI when they meet the definition of equity under K-IFRS 1032 and are not held for trading. The classification is determined on an instrument-by-instrument basis.

Gains and losses on these financial assets are never recycled to profit or loss. Dividends are recognized as other income in the statement of profit or loss when the right of payment has been established, except when the Group benefits from such proceeds as a recovery of part of the cost of the financial asset, in which case, such gains are recorded in OCI. Equity instruments designated at FVOCI are not subject to impairment assessment.

The Group elected to classify irrevocably its non-listed equity investments under this category.

(5) Financial assets at FVtPL

Financial assets at FVtPL include financial assets held for trading, financial assets designated upon initial recognition at FVtPL, or financial assets mandatorily required to be measured at fair value. Financial assets are classified as held for trading if they are acquired for the purpose of selling or repurchasing in the near term. Derivatives, including separated embedded derivatives, are also classified as held for trading unless they are designated as effective hedging instruments. Financial assets with cash flows that are not solely payments of principal and interest are classified and measured at FVtPL, irrespective of the business model. Notwithstanding the criteria for debt instruments to be classified at amortized cost or at FVOCI, as described above, debt instruments may be designated at FVtPL on initial recognition if doing so eliminates, or significantly reduces, an accounting mismatch.

Financial assets at FVtPL are carried in the statement of financial position at fair value with net changes in fair value recognized in the statement of profit or loss.

A derivative embedded in a hybrid contract, with a financial liability or non-financial host, is separated from the host and accounted for as a separate derivative if: the economic characteristics and risks are not closely related to the host; a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative; and the hybrid contract is not measured at FVtPL. Embedded derivatives are measured at fair value with changes in fair value recognized in profit or loss. Reassessment only occurs if there is either a change in the terms of the contract that significantly modifies the cash flows that would otherwise be required or a reclassification of a financial asset out of the FVtPL category.

A derivative embedded within a hybrid contract containing a financial asset host is not accounted for separately. The financial asset host together with the embedded derivative is required to be classified in its entirety as a financial asset at FVtPL.

(6) Derecognition

A financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) is primarily derecognized (i.e., removed from the Group's consolidated statement of financial position) when:

- the rights to receive cash flows from the asset have expired; or
- the Group has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a pass-through arrangement; and either (a) the Group has transferred substantially all the risks and rewards of the asset, or (b) the Group has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset.

After the Group has transferred its rights to receive cash flows from an asset or has entered into a pass-through arrangement, it evaluates if, and to what extent, it has retained the risks and rewards of ownership. When it has neither transferred nor retained substantially all of the risks and rewards of the asset, nor transferred control of the asset, the Group continues to recognize the transferred asset to the extent of its continuing involvement. In that case, the Group also recognizes an associated liability. The transferred asset and the associated liability are measured on a basis that reflects the rights and obligations that the Group has retained.

Continuing involvement that takes the form of a guarantee over the transferred asset is measured at the lower of the original carrying amount of the asset and the maximum amount of consideration that the Group could be required to repay.

(7) Impairment of financial assets

Further disclosures relating to impairment of financial assets are also provided in the sections:

- significant accounting judgments, estimates and assumptions
- debt instruments at FVOCI
- trade and other receivables

The Group recognizes an allowance for expected credit losses (ECLs) for all debt instruments not held at FVtPL. ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that the Group expects to receive, discounted at an approximation of the original effective interest rate. The expected cash flows will include cash flows from the sale of collateral held or other credit enhancements that are integral to the contractual terms.

ECLs are recognized in two stages. For credit exposures for which there has not been a significant increase in credit risk since initial recognition, ECLs are provided for credit losses that result from default events that are possible within the next 12-months (a 12-month ECL). For those credit exposures for which there has been a significant increase in credit risk since initial recognition, a loss allowance is required for credit losses expected over the remaining life of the exposure, irrespective of the timing of the default (a lifetime ECL).

For trade receivables and contract assets, the Group applies a simplified approach in calculating ECLs. Therefore, the Group does not track changes in credit risk, but instead recognizes a loss allowance based on lifetime ECLs at each reporting date. The Group has established a provision matrix that is based on its historical credit loss experience, adjusted for forward-looking factors regional specific to the debtors and the economic environment.

For debt instruments at FVOCI, the Group applies the low credit risk simplification. At every reporting date, the Group evaluates whether the debt instrument is considered to have low credit risk using all reasonable and supportable information that is available without undue cost or effort. In making that evaluation, the Group reassesses the internal credit rating of the debt instrument. In addition, the Group considers that there has been a significant increase in credit risk when contractual payments are more than 30 days past due.

The Group considers a financial asset in default when contractual payments are 180 days past due. However, in certain cases, the Group may also consider a financial asset to be in default when internal or external information indicates that the Group is unlikely to receive the outstanding contractual amounts in full before taking into account any credit enhancements held by the Group. A financial asset is written off when there is no reasonable expectation of recovering the contractual cash flows.

Financial liabilities

(1) Initial recognition and measurement

Financial liabilities are classified, at initial recognition, as financial liabilities at PVtPL, loans and borrowings, payables, or as derivatives designated as hedging instruments in an effective hedge, as appropriate.

All financial liabilities are recognized initially at fair value and, in the case of loans and borrowings and payables, net of directly attributable transaction costs.

The Group's financial liabilities include mainly trade and other payables, interest-bearing loans and borrowings as well as derivative liabilities.

(2) Subsequent measurement

The measurement of financial liabilities depends on their classification, as described below:

(3) Financial liabilities at FVtPL

Financial liabilities at FVtPL include financial liabilities held for trading and financial liabilities designated upon initial recognition as at PVtPL.

Financial liabilities are classified as held for trading if they are incurred for the purpose of repurchasing in the near term. This category also includes derivative financial instruments entered into by the Group that are not designated as hedging instruments in hedge relationships as defined by K-IFRS 1109. Separated embedded derivatives are also classified as held for trading unless they are designated as effective hedging instruments.

Gains or losses on liabilities held for trading are recognized in the statement of profit or loss.

Financial liabilities designated upon initial recognition at FVtPL are designated at the initial date of recognition, and only if the criteria in K-IFRS 1109 are satisfied.

(4) Loans and borrowings

This is the category most relevant to the Group. After initial recognition, interest-bearing loans and borrowings are subsequently measured at amortized cost using the EIR method. Gains and losses are recognized in profit or loss when the liabilities are derecognized as well as through the EIR amortization process.

Amortized cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the EIR. The EIR amortization is included as finance costs in the statement of profit or loss.

This category generally applies to interest-bearing loans and borrowings. For more information, refer to note 25.

(5) Derecognition

A financial liability is derecognized when the obligation under the liability is discharged or cancelled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as the derecognition of the original liability and the recognition of a new liability. The difference in the respective carrying amounts is recognized in the statement of profit or loss.

Offsetting of financial instruments

Financial assets and financial liabilities are offset and the net amount is reported in the consolidated statement of financial position if there is a currently enforceable legal right to offset the recognized amounts and there is an intention to settle on a net basis, to realize the assets and settle the liabilities simultaneously.

Derivative financial instruments and hedge accounting

(1) Initial recognition and subsequent measurement

The Group uses derivative financial instruments, such as forward exchange contracts and interest rate swaps, to hedge its foreign currency risks, interest rate risks and commodity price risks. Such derivative financial instruments are initially recognized at fair value on the date on which a derivative contract is entered into and are subsequently remeasured at fair value. Derivatives are carried as financial assets when the fair value is positive and as financial liabilities when the fair value is negative.

For the purpose of hedge accounting, hedges are classified as:

- fair value hedges when hedging the exposure to changes in the fair value of a recognized asset or liability or an unrecognized firm commitment;
- cash flow hedges when hedging the exposure to variability in cash flows that is either attributable to a particular risk associated with a recognized asset or liability, or a highly probable forecast transaction or the foreign currency risk in an unrecognized firm commitment;
- hedges of a net investment in a foreign operation.

At the inception of a hedge relationship, the Group formally designates and documents the hedge relationship to which it wishes to apply hedge accounting and the risk management objective and strategy for undertaking the hedge.

The documentation includes identification of the hedging instrument, the hedged item, the nature of the risk being hedged and how the Group will assess whether the hedging relationship meets the hedge effectiveness requirements (including analysis of the sources of hedge ineffectiveness and how the hedge ratio is determined). A hedging relationship qualifies for hedge accounting if it meets all of the following effectiveness requirements:

- there is 'an economic relationship' between the hedged item and the hedging instrument.
- the effect of credit risk does not 'dominate the value changes' that result from that economic relationship.
- the hedge ratio of the hedging relationship is the same as that resulting from the quantity of the hedged item that the Group actually hedges and the quantity of the hedging instrument that the Group actually uses to hedge that quantity of hedged item.

Hedges that meet all the qualifying criteria for hedge accounting are accounted for, as described below:

(2) Fair value hedges

The change in the fair value of a hedging instrument is recognized in the statement of profit or loss as other expense. The change in the fair value of the hedged item attributable to the risk hedged is recorded as part of the carrying value of the hedged item and is also recognized in the statement of profit or loss as other expenses.

For fair value hedges relating to items carried at amortized cost, any adjustment to carrying value is amortized through profit or loss over the remaining term of the hedge using the EIR method. The EIR amortization may begin as soon as an adjustment exists and no later than when the hedged item ceases to be adjusted for changes in its fair value attributable to the risk being hedged.

If the hedged item is derecognized, the unamortized fair value is recognized immediately in profit or loss.

When an unrecognized firm commitment is designated as a hedged item, the subsequent cumulative change in the fair value of the firm commitment attributable to the hedged risk is recognized as an asset or liability with a corresponding gain or loss recognized in profit or loss. The Group had forward exchange contracts in order to hedge the risk of foreign exchange rate fluctuation of assets and liabilities denominated in foreign currencies. The Group applies fair value hedge accounting for forward exchange contracts (note 25.1.1).

(3) Cash flow hedges

The effective portion of the gain or loss on the hedging instrument is recognized in OCI in the cash flow hedge reserve, while any ineffective portion is recognized immediately in the statement of profit or loss. The cash flow hedge reserve is adjusted to the lower of the cumulative gain or loss on the hedging instrument and the cumulative change in fair value of the hedged item.

The amounts accumulated in OCI are accounted for, depending on the nature of the underlying hedged transaction. If the hedged transaction subsequently results in the recognition of a non-financial item, the amount accumulated in equity is removed from the separate component of equity and included in the initial cost or other carrying amount of the hedged asset or liability. This is not a reclassification adjustment and will not be recognized in OCI for the period. This also applies where the hedged forecast transaction of a non-financial asset or non-financial liability subsequently becomes a firm commitment for which fair value hedge accounting is applied.

For any other cash flow hedges, the amount accumulated in OCI is reclassified to profit or loss as a reclassification adjustment in the same period or periods during which the hedged cash flows affect profit or loss.

If cash flow hedge accounting is discontinued, the amount that has been accumulated in OCI must remain in accumulated OCI if the hedged future cash flows are still expected to occur. Otherwise, the amount will be immediately reclassified to profit or loss as a reclassification adjustment. After discontinuation, once the hedged cash flow occurs, any amount remaining in accumulated OCI must be accounted for depending on the nature of the underlying transaction as described above.

The Group had interest rate swap agreements about some borrowings. The Group applies cash flow hedge accounting for interest rate swap contracts (note 25.1.2).

(4) Hedges of a net investment

Hedges of a net investment in a foreign operation, including a hedge of a monetary item that is accounted for as part of the net investment, are accounted for in a way similar to cash flow hedges. Gains or losses on the hedging instrument relating to the effective portion of the hedge are recognized as OCI while any gains or losses relating to the ineffective portion are recognized in the statement of profit or loss. On disposal of the foreign operation, the cumulative value of any such gains or losses recorded in equity is transferred to the statement of profit or loss.

2.21 NEW AND AMENDED STANDARDS AND INTERPRETATIONS

The Group applied K-IFRS 1116 for the first time as of January 1, 2019. The nature and effect of the changes as a result of adoption of this new accounting standard is described below.

Several other amendments and interpretations apply for the first time in 2019, but do not have an impact on the consolidated financial statements of the Group. The Group has not early adopted any standards, interpretations or amendments that have been issued but are not yet effective.

K-IFRS 1116 Leases

K-IFRS 1116 supersedes K-IFRS 1017 *Leases*, K-IFRS 2104 *Determining whether an Arrangement contains a Lease*, K-IFRS 2015 *Operating Leases-Incentives* and K-IFRS 2027 *Evaluating the Substance of Transactions Involving the Legal Form of a Lease*. The standard sets out the principles for the recognition, measurement, presentation and disclosure of leases and requires lessees to account for all leases under a single on-balance sheet model.

Lessor accounting under K-IFRS 1116 is substantially unchanged from K-IFRS 1017. Lessors will continue to classify leases as either operating or finance leases using similar principles as in K-IFRS 1017. Therefore, K-IFRS 1116 did not have an impact for leases where the Group is the lessor.

The Group adopted K-IFRS 1116 using the modified retrospective method of adoption with the date of initial application of January 1, 2019. Under this method, the standard is applied retrospectively with the cumulative effect of initially applying the standard recognized at the date of initial application. The Group elected to use the transition practical expedient allowing the standard to be applied only to contracts that were previously identified as leases applying K-IFRS 1017 and K-IFRS 2104 at the date of initial application. The Group elected to use the recognition exemptions for lease contracts that, at the commencement date, have a lease term of 12 months or less and do not contain a purchase option ("short-term leases"), and lease contracts for which the underlying asset is of low value ("low-value leases").

The effect of adoption K-IFRS 1116 as of January 1, 2019 (increase / decrease) is as follows:

Million KRW

Assets

Right-of-use assets	22,337
Prepayments	-1,415
Total assets	20,922

Liabilities

Provisions	12
Non-current lease liability	18,616
Current lease liability	2,294
Total liabilities	20,922

(1) Nature of the effect of adoption of K-IFRS 1116

The Group has lease contracts for various items of buildings, structures, machinery, vehicles and other equipment. Before the adoption of K-IFRS 1116, the Group classified each of its leases (as lessee) at the inception date as either a finance lease or an operating lease. A lease was classified as a finance lease if it transferred substantially all of the risks and rewards incidental to ownership of the leased asset to the Group; otherwise it was classified as an operating lease. Finance leases were capitalized at the commencement of the lease at the inception date fair value of the leased property or, if lower, at the present value of the minimum lease payments. Lease payments were apportioned between interest (recognized as finance costs) and reduction of the lease liability. In an operating lease, the leased property was not capitalized, and the lease payments were recognized as rent expense in profit or loss on a straight-line basis over the lease term. Any prepaid rent and accrued rent were recognized under "Prepayments".

Upon adoption of K-IFRS 1116, the Group applied a single recognition and measurement approach for all leases, except for short-term leases and leases of low-value assets. The standard provides specific transition requirements and practical expedients, which has been applied by the Group.

- Leases previously classified as finance leases

As of December 31, 2018, the Group did not classify leases as finance leases. Therefore, there was no impact of initial application of K-IFRS 1116 as of January 1, 2019.

- Leases previously accounted for as operating leases

The Group recognized right-of-use assets and lease liabilities for those leases previously classified as operating leases, except for short-term leases and leases of low-value assets. The right-of-use assets for most leases were recognized based on the carrying amount as if the standard had always been applied, apart from the use of incremental borrowing rate at the date of initial application. In some leases, the right-of-use assets were recognized based on the amount equal to the lease liabilities, adjusted for any related prepaid and accrued lease payments previously recognized. Lease liabilities were recognized based on the present value of the remaining lease payments, discounted using the incremental borrowing rate at the date of initial application.

The Group also applied the available practical expedients wherein it:

- used a single discount rate to a portfolio of leases with reasonably similar characteristics;
- applied the short-term leases exemptions to leases with lease term that ends within 12 months at the date of initial application;
- excluded the initial direct costs from the measurement of the right-of-use asset at the date of initial application;
- used hindsight in determining the lease term where the contract contains options to extend or terminate the lease.

The lease liabilities as of January 1, 2019 can be reconciled to the operating lease commitments as of December 31, 2018 as follows:

	Million KRW
Operating lease commitments as of December 31, 2018	11,920
Weighted average incremental borrowing rate as of January 1, 2019	3.67%
Discounted operating lease commitments of January 1, 2019	10,672
Less:	
Commitments relating to short-term leases	-70
Commitments relating to leases of low-value assets	-78
Add:	
Commitments relating to newly identified leasing contracts and optional extension periods not recognized as of December 31, 2018	10,386
Lease liabilities as of January 1, 2019	20,910

(2) Summary of new accounting policies

The new accounting policy of the Group upon adoption of K-IFRS 1116 (see note 2.10), has been applied from the date of initial application.

Amendments to K-IFRS 1109: Prepayment Features with Negative Compensation

Under K-IFRS 1109, a debt instrument can be measured at amortized cost or at fair value through other comprehensive income, provided that the contractual cash flows are 'solely payments of principal and interest on the principal amount outstanding' (the SPPI criterion) and the instrument is held within the appropriate business model for that classification. The amendments to K-IFRS 1109 clarify that a financial asset passes the SPPI criterion regardless of the event or circumstance that causes the early termination of the contract and irrespective of which party pays or receives reasonable compensation for the early termination of the contract.

The amendments were applied retrospectively and are effective from January 1, 2019, with earlier application permitted. These amendments had no impact on the consolidated financial statements of the Group.

Amendments to K-IFRS 1019: Plan Amendment, Curtailment or Settlement

The amendments to K-IFRS 1019 address the accounting when a plan amendment, curtailment or settlement occurs during a reporting period. The amendments specify that when a plan amendment, curtailment or settlement occurs during the annual reporting period, an entity is required to determine the current service cost for the remainder of the period after the plan amendment, curtailment or settlement, using the actuarial assumptions used to re-measure the net defined benefit liability (asset) reflecting the benefits offered under the plan and the plan assets after that event. An entity is also required to determine the net interest for the remainder of the period after the plan amendment, curtailment or settlement using the net defined benefit liability (asset) reflecting the benefits offered under the plan and the plan assets after that event, and the discount rate used to re-measure that net defined benefit liability (asset).

These amendments had no impact on the consolidated financial statements of the Group as it did not have any plan amendments, curtailments, or settlements during the period.

Amendments to K-IFRS 1028: Long-term Interests in Associates and Joint Ventures

The amendments clarify that an entity applies K-IFRS 1109 to long-term interests in an associate or joint venture to which the equity method is not applied but that, in substance, form part of the net investment in the associate or joint venture (long-term interests). This clarification is relevant because it implies that the expected credit loss model in K-IFRS 1109 applies to such long-term interests.

The amendments also clarified that, in applying K-IFRS 1109, an entity does not take account of any losses of the associate or joint venture, or any impairment losses on the net investment, recognized as adjustments to the net investment in the associate or joint venture that arise from applying K-IFRS 1028 *Investments in Associates and Joint Ventures*.

These amendments had no impact on the consolidated financial statements as the Group does not have long-term interests in its associate and joint venture.

IFRIC Interpretation 23 Uncertainty over Income Tax Treatment

The interpretation addresses the accounting for income taxes when tax treatments involve uncertainty that affects the application of K-IFRS 1012 and does not apply to taxes or levies outside the scope of K-IFRS 1012, nor does it specifically include requirements relating to interest and penalties associated with uncertain tax treatments. The interpretation specifically addresses the following:

- whether an entity considers uncertain tax treatments separately;
- the assumptions an entity makes about the examination of tax treatments by taxation authorities;
- how an entity determines taxable profit (tax loss), tax bases, unused tax losses, unused tax credits and tax rates;
- how an entity considers changes in facts and circumstances.

An entity has to determine whether to consider each uncertain tax treatment separately or together with one or more other uncertain tax treatments. The approach that better predicts the resolution of the uncertainty needs to be followed.

The Group applies significant judgement in identifying uncertainties over income tax treatments. Since the Group operates in a complex multinational environment, it assessed on a yearly base whether the interpretation had an impact on its consolidated financial statements. Tax uncertainties were reflected appropriately in the consolidated financial statements as of December 31, 2019 (see note 29.1).

Annual Improvements 2015-2017 Cycle (issued in December 2017)

These improvements include:

(1) K-IFRS 1103 Business Combinations

The amendments clarify that, when an entity obtains control of a business that is a joint operation, it applies the requirements for a business combination achieved in stages, including re-measuring previously held interests in the assets and liabilities of the joint operation at fair value. In doing so, the acquirer re-measures its entire previously held interest in the joint operation.

An entity applies those amendments to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after January 1, 2019, with early application permitted.

These amendments had no impact on the consolidated financial statements of the Group as there is no transaction where a joint control is obtained.

(2) K-IFRS 1111 Joint Arrangements

A party that participates in, but does not have joint control of, a joint operation might obtain joint control of the joint operation in which the activity of the joint operation constitutes a business as defined in K-IFRS 1103. The amendments clarify that the previously held interests in that joint operation are not re-measured.

An entity applies those amendments to transactions in which it obtains joint control on or after the beginning of the first annual reporting period beginning on or after January 1, 2019, with early application permitted. These amendments are currently not applicable to the Group but may apply to future transactions.

(3) K-IFRS 1012 Income Taxes

The amendments clarify that the income tax consequences of dividends are linked more directly to past transactions or events that generated distributable profits than to distributions to owners. Therefore, an entity recognizes the income tax consequences of dividends in profit or loss, other comprehensive income or equity according to where the entity originally recognized those past transactions or events.

An entity applies those amendments for annual reporting periods beginning on or after January 1, 2019, with early application is permitted. When an entity first applies those amendments, it applies them to the income tax consequences of dividends recognized on or after the beginning of the earliest comparative period. Since the Group's current practice is in line with these amendments, the Group did not identify any effect on its consolidated financial statements.

(4) K-IFRS 1023 Borrowing Costs

The amendments clarify that an entity treats as part of general borrowings any borrowing originally made to develop a qualifying asset when substantially all of the activities necessary to prepare that asset for its intended use or sale are complete.

An entity applies those amendments to borrowing costs incurred on or after the beginning of the annual reporting period in which the entity first applies those amendments. An entity applies those amendments for annual reporting periods beginning on or after January 1, 2019, with early application permitted. Since the Group's current practice is in line with these amendments, the Group did not identify any effect on its consolidated financial statements.

3. SIGNIFICANT ACCOUNTING JUDGMENTS, ESTIMATES AND ASSUMPTIONS

The preparation of the Group's financial statements requires management to make judgments, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, and the disclosure of contingent liabilities, at the end of the reporting period. However, uncertainty about these assumptions and estimates could result in outcomes that require a material adjustment to the carrying amount of the asset or liability affected in future periods. The key assumptions concerning the future and other key sources of estimation uncertainty at the reporting date, which have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year, are described below.

Notes	Description	Nature of estimation
7, 8, 9, 10, 11	Impairment of non-financial assets / goodwill	Impairment exists when the carrying value of an asset or cash-generating unit exceeds its recoverable amount, which is the higher of its fair value less costs to sell and its value in use. The determination of the recoverable amount of a cash-generating unit involves the use of estimates by management. The fair value less costs to sell calculation is based on available data from binding sales transactions in an arm's length transaction of similar assets or observable market prices less incremental costs for disposing of the asset. The value in use calculation is based on a discounted cash flow model. The cash flows are derived from the expectations for the next three to five years and do not include restructuring activities that the Group is not yet committed to or significant future investments that will enhance the asset's performance of the cash-generating unit being tested. The recoverable amount based on the value in use is most sensitive to the discount rate used for the discounted cash flow model (WACC), as well as the expected future cash-inflows and the growth rate used for extrapolation purposes. The recoverable amount based on the fair value less cost to sell is most sensitive to the market prices, premiums and the estimate of cost to sell. These estimates, including the methodologies used, can have a material impact on the fair value and ultimately, the amount of any goodwill impairment.
10	Customer relations	Customer relations are classified as finite lived intangible assets under note 2.8 and amortized over their estimated useful life. The estimated useful life is based on estimates of the time period during which this intangible asset generates cash flows, as well as historic empirical data concerning customer loyalty. Calculation of the present value of estimated future cash flows includes essential assumptions, especially of future sales. In addition, discounting is based on assumptions and estimations concerning business-specific capital costs, which are themselves dependent on national risks, and additional risks resulting from the volatility of the respective business.
21, 22	Pension and other employment benefits	The cost of defined benefit pension plans and other similar long-term employee benefits, and the present value of the pension obligation are determined using actuarial valuations. An actuarial valuation involves making various assumptions, which may differ from actual developments in the future. These include the determination of the discount rate, future salary increases, mortality rates and future pension increases. Due to the complexity of the valuation, the underlying assumptions and its long-term nature, a defined benefit obligation is highly sensitive to changes in these assumptions.
29.1, 29.2	Income tax / deferred tax assets	The Group applies significant judgment in identifying uncertainties over income tax treatments. Since the Group operates in a complex multinational environment, it assesses on a yearly base whether these uncertainties have an impact on its consolidated financial statements. Deferred tax assets are recognized for all unused tax losses, to the extent that it is probable that taxable profit will be available against which the losses can be utilized. Significant management judgment is required to determine the amount of deferred tax assets that can be recognized, based upon the likely timing and the level of future taxable profits together with future tax planning strategies.
25.2	Fair value of financial instruments	Where the fair value of financial assets and financial liabilities recorded in the statement of financial position cannot be derived from active markets, their fair value is determined using valuation techniques including the discounted cash flow model. The inputs to these models are taken from observable markets where possible, but where this is not feasible, a degree of judgment is required in establishing fair values. The judgments include considerations of inputs, such as liquidity risk, credit risk and volatility. Changes in assumptions about these factors could affect the reported fair value of financial instruments.

25.3.3

**Leases –
determination
of lease
term and
incremental
borrowing
rate**

The Group determines the lease term as the non-cancellable term of the lease, together with any periods covered by an option to extend the lease if it is reasonably certain to be exercised, or any periods covered by an option to terminate the lease, if it is reasonably certain not to be exercised. The Group applies judgement in evaluating whether it is reasonably certain whether or not to exercise the option to renew or terminate the lease. That is, it considers all relevant factors that create an economic incentive for it to exercise either the renewal or termination. After the commencement date, the Group reassesses the lease term if there is a significant event or change in circumstances that is within its control and affects its ability to exercise or not to exercise the option to renew or to terminate (e.g., construction of significant leasehold improvements or significant customization to the leased asset). The Group cannot readily determine the interest rate implicit in the lease, therefore, it uses its incremental borrowing rate (IBR) to measure lease liabilities. The IBR is the rate of interest that the Group would have to pay to borrow over a similar term, and with a similar security, the funds necessary to obtain an asset of a similar value to the right-of-use asset in a similar economic environment.

4. STANDARDS ISSUED BUT NOT YET EFFECTIVE

The new and amended standards and interpretations that are issued, but not yet effective, up to the date of issuance of the Group's consolidated financial statements are disclosed below. The Group intends to adopt these new and amended standards and interpretations, if applicable, when they become effective.

Amendments to K-IFRS 1103: Definition of a Business

Amendments to the definition of a business in K-IFRS 1103 *Business Combinations* have been issued to help entities determine whether an acquired set of activities and assets is a business or not. They clarify the minimum requirements for a business, remove the assessment of whether market participants are capable of replacing any missing elements, add guidance to help entities assess whether an acquired process is substantive, narrow the definitions of a business and of outputs, and introduce an optional fair value concentration test. New illustrative examples were provided along with the amendments.

Since the amendments apply prospectively to transactions or other events that occur on or after the date of first application, the Group will not be affected by these amendments on the date of transition.

Amendments to K-IFRS 1001 and K-IFRS 1008: Definition of Material

Amendments to K-IFRS 1001 *Presentation of Financial Statements* and K-IFRS 1008 *Accounting Policies, Changes in Accounting Estimates and Errors* have been issued to align the definition of "material" across the standards and to clarify certain aspects of the definition. The new definition states that, "Information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial statements make on the basis of those financial statements, which provide financial information about a specific reporting entity."

The amendments to the definition of material is not expected to have a significant impact on the Group's consolidated financial statements.

5. BUSINESS COMBINATIONS

5.1 BUSINESS COMBINATIONS IN 2019

There were no business combinations during the 2019 financial year.

5.2 BUSINESS COMBINATIONS IN 2018

Step acquisition of Qingdao Long Fortune Songwon Chemical Co., Ltd.

Since August 2015, Qingdao Long Fortune Songwon Chemical Co., Ltd. (SWDM-CN) has been included in the consolidated financial statements of the Group using the equity method. In April 2018, the Group acquired additional 22% of the shares through a capital increase. The conditions to fully consolidate and disclose non-controlling interest were met and SWDM-CN was fully consolidated as of May 1, 2018.

The assets, liabilities and contingent liabilities of SWDM-CN were measured at fair value on the date of acquisition. If the costs exceed the fair value of the acquired identifiable assets, liabilities and contingent liabilities, the balance is reported as goodwill. If the costs fall under the fair value of the acquired identifiable assets, liabilities and contingent liabilities, the bargain purchase gain is recorded in the consolidated statements of comprehensive income.

Assets acquired and liabilities assumed

At the date of acquisition, the assessment of the fair values of the identifiable assets and liabilities of the acquired business were (figures represent a 100% interest):

Million KRW

Assets

Property, plant and equipment	1,483
Other non-current assets	1,554
Deferred tax assets	128
Inventories	6,012
Trade and other receivables	7,841
Other current assets	299
Cash and cash equivalents	2,103
Total assets	19,420

Liabilities

Other non-current financial liabilities	34
Trade and other payables	7,208
Other current liabilities	33
Income tax payable	657
Total liabilities	7,932

Total identifiable net assets at fair value 11,488

Bargain purchase gain arising on acquisition -2,258

Consideration satisfied by:

Consideration transferred on acquisition of 22% shareholdings	4,240
Preliminary revaluation of previously held interest in SWDM-CN	2,499
Non-controlling interest measured at fair value	2,491
Total consideration	9,230

Gain arising on acquisition (bargain purchase gain)

In 2017, SWDM-CN achieved a small positive net income. Under the consideration of the higher burden of environmental regulations as well as new competitors entering the market, the bargain purchase gain is reasonable. In addition, the Asian market remains to be volatile driven by spot business for SWDM-CN. The resulting gain of 2,258 Million KRW (bargain purchase gain) was recognized as other operating income in the consolidated statements of comprehensive income.

From the date of acquisition, May 1, 2018 through December 31, 2018, the acquired company has contributed 17,480 Million KRW of revenue and 894 Million KRW (gain) to the net profit before tax of the Group. If the business combination had taken place on January 1, 2018, revenue from continuing operations of the Group would have been 793,357 Million KRW and the net profit before tax from continuing operations for the Group would have been 46,497 Million KRW.

Revaluation of previously held interest

The Group had held 50% equity interest in SWDM-CN prior to the capital increase and classified the entity as a joint venture by using the equity method accounting. In this business acquisition, which was achieved in stages, the Group re-measured its previously held interest. As a result, the Group recognized a revaluation loss of 656 Million KRW, and the loss was included in the consolidated statements of comprehensive income.

6. SEGMENT INFORMATION

For management purposes, the Group was organized into one main operating segment until December 31, 2018. In the financial year 2019, the Group changed their approach to manage its business. The Group is now organized into two main reporting segments "Industrial Chemicals" and "Performance Chemicals". The segments are defined based on SONGWON's product portfolio and its respective product families:

- **Industrial Chemicals**
Industrial Chemicals operating segment mainly includes the product lines "Polymer Stabilizers" and "Fuel and Lubricant Additives".
- **Performance Chemicals**
Performance Chemicals operating segment mainly includes the product lines "Tin Intermediates", "PVC Stabilizers and Polymers" and "Specialty Chemicals".

The Chief Operating Decision Makers (CODM), at SONGWON, leaders of respective divisions, monitor the sales and operating profits or losses of its operating segments separately for the purpose of making decisions about resource allocation and performance assessment. However, certain income and expense positions such as other income / expenses, finance income / expenses and income tax expenses are managed on a Group basis and therefore not allocated to operating segments. The Group does not disclose a measure of total assets and liabilities for each reportable segment as such amounts are not reported to the CODM.

There are no inter-company transactions between the two operating segments.

6.1 REPORTED KEY FIGURES

The following key figures are presented each month to the CODM. For the segment reporting, the same accounting policies and methods of computation as were followed in the most recent annual financial statement are used.

	2019		2018		2019		2018	
	Industrial Chemicals		Performance Chemicals		Total			
Description	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
Sales*	604,295	581,484	210,045	211,870	814,340		793,354	
Adjusted operating profit*	69,755	61,607	-10,463	-6,159	59,292		55,448	

* Internally reported figures to the CODM

Reconciliation to K-IFRS figures

During the year 2018, the new segment reporting process was implemented within the Group. Up to the time of the implementation, certain investments accounted for using the equity method under K-IFRS were fully consolidated for internal management reporting.

	2019	2018	2019	2018	2019	2018
	Industrial Chemicals		Performance Chemicals		Total	
Description	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
Sales*	604,295	581,484	210,045	211,870	814,340	793,354
Difference in consolidation scope and others	—	-4,320	—	-296	—	-4,616
Total sales	604,295	577,164	210,045	211,574	814,340	788,738

	2019	2018	2019	2018	2019	2018
	Industrial Chemicals		Performance Chemicals		Total	
Description	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
Adjusted operating profit*	69,755	61,607	-10,463	-6,159	59,292	55,448
Difference in consolidation scope and others					—	-1,171
Operating profit per consolidated income statement					59,292	54,277

6.2 REVENUE FROM CONTRACTS WITH CUSTOMERS

	2019	2018	2019	2018	2019	2018
	Industrial Chemicals		Performance Chemicals		Total	
Description	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
Sales of goods	595,905	570,432	207,962	209,122	803,867	779,554
Sales of services	8,390	6,732	2,083	2,452	10,473	9,184
Total sales	604,295	577,164	210,045	211,574	814,340	788,738

* Internally reported figures to the CODM

6.3 GEOGRAPHIC INFORMATION

6.3.1 SALES

The sales information below is based on the location of the customer. Korea is disclosed separately due to the size of the Korean market whereas all other countries have been summarized to regions. Therefore, no country revenues are disclosed separately.

	2019	2018
	Million KRW	Million KRW
Korea	176,757	180,006
Rest of Asia	224,640	220,740
Europe	188,521	176,991
North and South America	170,699	162,894
Australia	2,533	2,431
Middle East and Africa	51,190	45,676
Total sales	814,340	788,738

The Group has no customer who accounts for more than 10% of the Group's total sales during the reporting periods.

6.3.2 NON-CURRENT ASSETS

Non-current assets information presented below consist of property, plant and equipment, right-of-use assets, investment properties and intangible assets.

	2019	2018
	Million KRW	Million KRW
Korea	398,389	405,051
Rest of Asia	29,916	21,402
Europe	16,537	13,249
North and South America	13,389	4,689
Middle East and Africa	20,153	16,273
Total	478,384	460,664

7. PROPERTY, PLANT AND EQUIPMENT

	Land	Buildings	Structures	Machinery	Other	Construction in progress	Total
	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
Acquisition cost							
As of January 1, 2018*	147,904	85,365	65,738	476,214	46,256	4,315	825,792
Additions	1,604	78	59	733	1,571	23,048	27,093
Disposals	—	—	-152	-9,374	-2,002	—	-11,528
Reclassifications	—	947	841	21,036	1,069	-23,893	—
Business combination	—	—	—	1,139	292	52	1,483
Net exchange differences	—	492	—	-147	4	-24	325
As of December 31, 2018*	149,508	86,882	66,486	489,601	47,190	3,498	843,165
As of January 1, 2019*	149,508	86,882	66,486	489,601	47,190	3,498	843,165
Additions	—	23	115	1,898	1,756	27,776	31,568
Disposals	—	-728	-3,307	-12,339	-2,337	—	-18,711
Reclassifications	42	1,664	511	14,108	501	-16,826	—
Net exchange differences	—	521	—	781	290	-197	1,395
As of December 31, 2019	149,550	88,362	63,805	494,049	47,400	14,251	857,417

Accumulated depreciation

As of January 1, 2018*	—	-21,022	-37,057	-289,600	-36,392	—	-384,071
Depreciation charge*	—	-2,342	-3,114	-21,870	-2,165	—	-29,491
Disposals	—	—	151	7,691	1,984	—	9,826
Net exchange differences	—	-40	—	-13	-54	—	-107
As of December 31, 2018*	—	-23,404	-40,020	-303,792	-36,627	—	-403,843
As of January 1, 2019*	—	-23,404	-40,020	-303,792	-36,627	—	-403,843
Depreciation charge	—	-2,380	-3,039	-22,648	-2,435	—	-30,502
Disposals	—	248	2,846	11,768	2,168	—	17,030
Net exchange differences	—	-49	—	-361	-240	—	-650
As of December 31, 2019	—	-25,585	-40,213	-315,033	-37,134	—	-417,965

Net book value

As of December 31, 2019	149,550	62,777	23,592	179,016	10,266	14,251	439,452
As of December 31, 2018*	149,508	63,478	26,466	185,809	10,563	3,498	439,322

In 2019 as well as in 2018, no impairment of fixed assets has been recognized. Non-cash transactions amounting to 1,246 Million KRW (2018: 2,148 Million KRW) are included in the additions for the year ending 2019.

Capitalized borrowing costs

Borrowing costs, which are directly attributable to the acquisition or production of a qualified asset, are capitalized as part of the cost of that asset. No borrowing costs have been capitalized during the 2019 and 2018 financial years.

* refer to note 2.14 for further details

Contractual commitments and pledged assets

A pledged asset is an asset that is transferred to a lender for the purpose of securing debt. The lender of the debt maintains possession of the pledged asset but does not have ownership unless a default occurs (refer to note 27). For contractual commitments to purchase property, plant and equipment (refer to note 26.3).

8. RIGHT-OF-USE ASSETS AND LEASES

Set out below are the carrying amounts of right-of-use assets recognized and the movements during the period:

	Right-of-use assets - land	Right-of-use assets - buildings	Right-of-use assets - structures	Right-of-use assets - machinery	Right-of-use assets - other	Total
	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
Acquisition cost						
As of January 1, 2019	—	20,612	803	241	681	22,337
Additions	—	10	340	—	348	698
Disposals	—	—	—	—	-74	-74
Modification of contract	—	4	—	-169	—	-165
Net exchange differences	—	647	1	12	22	682
As of December 31, 2019	—	21,273	1,144	84	977	23,478

Accumulated depreciation

As of January 1, 2019	—	—	—	—	—	—
Depreciation charge	—	-1,618	-658	-58	-371	-2,705
Disposals	—	—	—	—	26	26
Net exchange differences	—	2	—	—	-1	1
As of December 31, 2019	—	-1,616	-658	-58	-346	-2,678

Net book value

As of December 31, 2019	—	19,657	486	26	631	20,800

In 2019, no impairment of right-of-use assets has been recognized. Further, the Group recorded rent expenses from short-term leases of 168 Million KRW, leases of low-value assets of 69 Million KRW and variable lease payments of 384 Million KRW in the consolidated statements of comprehensive income.

Set out below are the carrying amounts of lease liabilities and the movements during the period:

	2019
Description	KRW
As of January 1	20,910
Additions	698
Modifications	-165
Net exchange differences	641
Accretion of interest	685
Payments	-3,246
As of December 31	19,523

The maturity analysis of lease liabilities is disclosed in note 25.3.3.

9. INVESTMENT PROPERTIES

	Land	Buildings	Structures	Total
Acquisition cost	Million KRW	Million KRW	Million KRW	Million KRW
As of January 1, 2018	3,278	498	32	3,808
Net exchange differences	1	6	—	7
As of December 31, 2018	3,279	504	32	3,815
As of January 1, 2019	3,279	504	32	3,815
Disposals	—	—	-3	-3
Net exchange differences	1	5	—	6
As of December 31, 2019	3,280	509	29	3,818

Accumulated depreciation

As of January 1, 2018	—	-253	-25	-278
Depreciation charge	—	-18	-1	-19
Net exchange differences	—	-2	—	-2
As of December 31, 2018	—	-273	-26	-299
As of January 1, 2019	—	-273	-26	-299
Depreciation charge	—	-17	-1	-18
Disposals	—	—	3	3
Net exchange differences	—	-2	—	-2
As of December 31, 2019	—	-292	-24	-316

Net book value

As of December 31, 2019	3,280	217	5	3,502
As of December 31, 2018	3,279	231	6	3,516

Investment properties are stated at cost less any accumulated depreciation and impairment losses, if any. The same useful lives have been applied for property, plant and equipment.

	2019	2018
	Million KRW	Million KRW
Rental income	14	17
Operational expenses	-80	-35

The Company owns an office building in Busan which is subleased. The fair value of the office building amounts to 5,000 Million KRW as of December 31, 2019. In addition, Songwon International – Japan K.K. owns an object which is subleased. The fair value of the building and land is 34 Million KRW.

During the current year, the Company disposed of fully depreciated investment properties comprising structures in October 2019 (2018: no disposal of investment properties).

Disclosure of pledged assets can be found in note 27.

10. INTANGIBLE ASSETS

	Industrial rights	Software	Memberships	Customer relationships	Capitalization process technology	Goodwill	Construction in progress	Total
	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
Acquisition cost								
As of January 1, 2018	3,601	2,601	831	27,627	3,142	40,791	1,485	80,078
Additions	23	69	—	—	—	—	1,320	1,412
Impairment	—	—	—	—	—	—	-694	-694
Reclassifications	1,915	—	—	—	—	—	-1,915	—
Net exchange differences	—	39	—	1,058	152	1,138	—	2,387
As of December 31, 2018	5,539	2,709	831	28,685	3,294	41,929	196	83,183
As of January 1, 2019	5,539	2,709	831	28,685	3,294	41,929	196	83,183
Additions	2	183	—	—	—	—	458	643
Disposals	-28	-82	—	—	—	—	—	-110
Impairment	-55	—	—	—	—	—	-33	-88
Reclassifications	523	—	—	—	—	—	-523	—
Net exchange differences	—	36	—	1,136	163	1,146	—	2,481
As of December 31, 2019	5,981	2,846	831	29,821	3,457	43,075	98	86,109
Accumulated amortization								
As of January 1, 2018	-1,700	-2,431	—	-21,429	-2,254	-30,655	—	-58,469
Amortization charge	-403	-83	—	-3,314	-475	—	—	-4,275
Net exchange differences	—	-32	—	-1,139	-163	-1,279	—	-2,613
As of December 31, 2018	-2,103	-2,546	—	-25,882	-2,892	-31,934	—	-65,357
As of January 1, 2019	-2,103	-2,546	—	-25,882	-2,892	-31,934	—	-65,357
Amortization charge	-557	-94	—	-2,821	-405	—	—	-3,877
Disposals	28	82	—	—	—	—	—	110
Net exchange differences	—	-28	—	-1,118	-160	-1,049	—	-2,355
As of December 31, 2019	-2,632	-2,586	—	-29,821	-3,457	-32,983	—	-71,479
Net book value								
As of December 31, 2019	3,349	260	831	—	—	10,092	98	14,630
As of December 31, 2018	3,436	163	831	2,803	402	9,995	196	17,826

Intangible assets with a definite useful life are amortized over the useful life and assessed for impairment whenever there is an indication that the intangible asset may be impaired. In the financial year 2019, the Group recognized an impairment loss on industrial rights of 88 Million KRW (financial year 2018: 694 Million KRW).

The intangible assets with an indefinite useful life are tested for impairment on an annual basis. An impairment test was carried out for goodwill and memberships based on the recoverable amount of each asset. For further details of the impairment test, refer to note 11. The goodwill items consist of items acquired in a business combination. In the financial years 2019 and 2018, no business combination took place that led to a recognition of goodwill.

10.1 DETAILS OF INDIVIDUALLY SIGNIFICANT INTANGIBLE ASSETS

Description	Remark	2019	2018	Remaining life
		December 31 Million KRW	December 31 Million KRW	
Industrial rights	REACH	2,845	2,224	7.1
Industrial rights	1330 Technology	713	832	6.0
Memberships	New Seoul Country Club	778	778	indefinite
Goodwill	Acquisition of Songwon Group Holding AG (former: Songwon International AG)	1,836	1,836	indefinite
Goodwill	Acquisition of ATG Additive Technology Greiz GmbH	4,798	4,735	indefinite
Goodwill	Acquisition of Songwon Polysys Additives LLC	127	123	indefinite
Goodwill	Acquisition of Business SeQuent Scientific Limited	3,331	3,301	indefinite
Intangible assets acquired in a business combination	Customer relationships	–	2,803	–
Intangible assets acquired in a business combination	Capitalization process technologies	–	402	–
Construction-in-progress	REACH	98	196	n/a
Significant intangible assets total		14,526	17,230	

11. IMPAIRMENT TESTING OF GOODWILL AND INTANGIBLES WITH INDEFINITE USEFUL LIFE

11.1 IMPAIRMENT TESTING OF GOODWILL AND INTANGIBLE ASSETS WITH INDEFINITE USEFUL LIFE

Goodwill acquired through business combinations and memberships with an indefinite useful life have been allocated to the cash-generating units (CGUs) according to their business activities. Goodwill acquired in a business combination is allocated to each CGU expected to benefit from the synergies of the business combination. The goodwill acquired from the acquisition of Songwon Group Holding AG (former: Songwon International AG), Songwon-ATG GmbH, Songwon Polysys Additives LLC, as well as memberships are allocated to the Group's CGU comprising the acquired entities and the parent company, which correspond almost to the entire Group. The goodwill resulting from the business acquisition of SeQuent Scientific Limited was allocated to the individual CGU of Songwon Specialty Chemicals – India Pvt. Ltd., India (SWDM-IN).

Details of the allocation of goodwill and intangible assets with an indefinite useful life to the CGU is as follows:

Description	2019	2018
	December 31 Million KRW	December 31 Million KRW
Goodwill of Songwon Specialty Chemicals-India Pvt. Ltd., India (SWDM-IN)	3,331	3,301
Goodwill of the rest of the Group (main CGU)	6,761	6,694
Memberships with an indefinite useful life of the rest of the Group (main CGU)	831	831
Total tested goodwill and intangible assets with indefinite useful life	10,923	10,826

The Group performed its annual impairment test in December 2019 and 2018. The recoverable amount of the CGUs – to which goodwill and intangible assets with an indefinite useful life are allocated – has been determined based on its value in use, calculated using the discounted cash flow (DCF) model.

As of December 31, 2019, the recoverable amount of the main CGU (rest of the Group) equals to 702,131 Million KRW (2018: 705,662 Million KRW). The recoverable amount of the CGU of Songwon Specialty Chemicals – India Pvt. Ltd., India amounts to 78,949 Million KRW or 4,867 Million INR (2018: 40,227 Million KRW or 2,502 Million INR).

There was no impairment loss recognized in the financial year 2019 and 2018, according to the impairment test on goodwill and memberships. As of the measurement date, the recoverable amount based on the value in use in 2019 and 2018, exceeded the carrying amount of the relevant CGUs.

11.2 KEY ASSUMPTIONS USED IN CALCULATION OF VALUE IN USE

The calculation of the CGU value in use reflects the future cash flows for the next three years for the main CGU and for the next five years for SWDM-IN discounted to the present value at the weighted average cost of capital (WACC) and an estimated residual value. The projected cash flows for the main and SWDM-IN's CGUs are estimated on the basis of the Budget 2020 and the Business Plan 2020 – 2024, respectively, as approved by management, and mid-term assumptions. For the free cash flows extending beyond the detailed planning period, a terminal value was computed by capitalizing the normalized cash flows using a constant growth rate. The long-term growth rate was calculated in consideration of the long-term inflation expectations for relevant countries.

In addition, a market risk premium of 6.50% (2018: 6.00%) and a small cap premium of 3.39% (2018: 3.48%) were applied for the calculation of the WACC.

The key assumptions underlying the calculation are as follows:

Parameters for the determination of the recoverable amount of the CGU

Parameters for the determination of the recoverable amount of the CGU	Description
Average annual growth	Average annual growth is calculated on the basis of mid-term assumptions.
WACC	WACC, which is the weighted average of cost of equity and cost of debt, is calculated using the Capital Asset Pricing Model (CAPM). The application of pre-tax WACC and post-tax WACC yield the same value in use.
Long-term growth rate	Long-term growth rate is calculated based on the long-term inflation expectations for the relevant countries.

Parameters for the determination of the recoverable amount of the main CGU

	2019	2018
Average annual growth	4.14%	4.45%
Pre-tax WACC	12.44%	12.23%
Post-tax WACC	10.10%	9.99%
Long-term growth rate	2.20%	2.21%

Parameters for the determination of the recoverable CGU amount of SWDM-IN

	2019	2018
Average annual growth	15.17%	12.20%
Pre-tax WACC	16.34%	15.31%
Post-tax WACC	12.55%	13.88%
Long-term growth rate	2.98%	4.09%

The following changes in key assumptions led to a situation where the value in use equals the carrying amount:

Parameters for the determination of the recoverable CGU amount

Parameters for the determination of the recoverable CGU amount	Sensitivity analysis main CGU (rest of the Group)	Sensitivity analysis SWDM-IN
Average annual growth	0.00%	0.00%
Pre-tax WACC	12.65%	41.39%
Post-tax WACC	10.26%	30.61%
Long-term growth rate	2.02%	0.00%

12. INVESTMENT ACCOUNTED FOR USING THE EQUITY METHOD

Changes in the investments in joint ventures are summarized as follows:

	As of January 1	Dividends	Share of result from equity method revaluation	Change in scope of consolidation	Exchange rate effects	As of December 31
	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
2018						
Songwon Baifu Chemicals (Tangshan) Co., Ltd.	4,231	-534	1,112	—	-49	4,760
Qingdao Long Fortune Songwon Chemical Co., Ltd.*	2,804	—	270	-3,154	80	—
Total	7,035	-534	1,382	-3,154	31	4,760
2019						
Songwon Baifu Chemicals (Tangshan) Co., Ltd.	4,760	-511	1,010	—	88	5,347
Total	4,760	-511	1,010	—	88	5,347

* refer to note 5 for further details

13. OTHER FINANCIAL ASSETS

Description	2019 December 31		2018 December 31	
	Non-current	Current	Non-current	Current
	Million KRW	Million KRW	Million KRW	Million KRW
Financial instruments at amortized cost (bank deposit)	740	1	635	2,291
Financial instrument at FVtPL	6,000	794	8,863	1,710
Interest-bearing loans at amortized cost	—	—	—	1,346
Derivative assets at FVOCI	—	—	1	69
Derivative assets at FVtPL	—	61	—	4
Equity instrument at FVOCI	842	—	1,354	—
Guarantee deposits at amortized cost	355	547	276	586
Total	7,937	1,403	11,129	6,006

13.1 LOANS

Details of loans as of December 31, 2019 and 2018 are as follows:

Description	2019 December 31		2018 December 31	
	Annual interest rate (%)	Million KRW	Annual interest rate (%)	Million KRW
Loans to related party (note 32)	—	—	0.25	1,346
Total		—		1,346

13.2 EQUITY INSTRUMENTS AT FVOCI

Details of equity instruments at FVOCI as of December 31, 2019 and 2018 are as follows:

Description	2019 December 31				2018 December 31			
	Number of shares	% to equity	Cost	Fair value	Number of shares	% to equity	Cost	Fair value
			Million KRW	Million KRW			Million KRW	Million KRW
Ulsan Broadcasting Corporation	180,000	3.00%	900	842	180,000	3.00%	900	1,354
Total			900	842			900	1,354

Investments in equity instruments that do not have a quoted market price in an active market are measured using an appropriate valuation technique.

14. INVENTORIES

Description	2019	2018
	December 31 Million KRW	December 31 Million KRW
Raw materials and supplies	39,219	41,559
Construction in progress	494	809
Finished and semi-finished goods	123,283	120,436
Goods in transit	32,981	37,057
Consignment stocks	1,019	1,507
Total inventories at the lower of cost and net realizable value	196,996	201,368

As of December 31, 2019, the Group recognized inventory allowance of 4,489 Million KRW for raw materials and finished goods (December 31, 2018: 3,804 Million KRW).



15. TRADE AND OTHER RECEIVABLES

Description	2019	2018
	December 31	December 31
	Million KRW	Million KRW
Trade and notes receivables	124,229	114,754
Allowances for trade and notes receivables	-1,482	-1,985
Trade and notes receivables (related parties)	106	—
Other receivables	4,960	3,336
Allowances for other accounts receivables	-9	-203
Accrued income	362	65
Accrued income (related parties)	—	2
Total	128,166	115,969

Other receivables third parties include customs duty refunds, rental income receivables and others.

Changes in the allowance for doubtful accounts for trade and other receivables are as follows:

	Million KRW
January 1, 2018	-1,813
Charge for the period	-1,161
Utilized	178
Unused amounts reversed	608
December 31, 2018	-2,188
January 1, 2019	-2,188
Charge for the period	-509
Utilized	589
Unused amounts reversed	617
December 31, 2019	-1,491

The ageing analysis of trade and other receivables is as follows:

	Total	Neither past due, nor impaired	Past due, but not impaired			
			≤ 90 days	91-120 days	121-180 days	> 180 days
	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
December 31, 2019	128,166	119,652	7,907	22	62	523
December 31, 2018	115,969	108,852	6,459	27	66	565

Refer to note 25.3.2 on credit risk of trade receivables, which describes how the Group manages and measures credit quality of trade receivables that are neither past due, nor impaired.

16. OTHER CURRENT ASSETS

Other current assets as of December 31, 2019 and 2018, consist of the following:

Description	2019	2018
	December 31 Million KRW	December 31 Million KRW
Advance payments	688	429
Prepaid expenses	5,327	2,755
VAT refundable	1,541	1,203
Total	7,556	4,387

17. CASH AND CASH EQUIVALENTS

Description	2019	2018
	December 31 Million KRW	December 31 Million KRW
Cash on hand	76	72
Bank accounts	59,067	56,813
Time deposit (< 3 months)	3,989	6,421
Total	63,132	63,306

Cash at banks earns interest at floating rates based on daily bank deposit rates. Time deposits are made for varying periods of between one day and three months, depending on the Group's immediate cash requirements, and earn interest at the respective short-term deposit rates.

18. ISSUED CAPITAL AND RESERVES

18.1 SHARE CAPITAL

In accordance with the Articles of Incorporation, the Company is authorized to issue 100,000,000 shares of common stock with a par value of 500 KRW per share. As of December 31, 2019 and 2018, the Company issued 24,000,000 shares of common stocks outstanding with a carrying value of 12,000 Million KRW.

18.2 CAPITAL SURPLUS

As of December 31, 2019 and 2018, the Group's capital surplus is composed of the following:

Description	2019	2018
	December 31 Million KRW	December 31 Million KRW
Paid-in capital in excess of par value	20,065	20,065
Gain on disposal of treasury stock	4,296	4,296
Loss on change in non-controlling interest due to interest acquisition*	-2,002	—
Total	22,359	24,361

18.3 RESERVES

Description	2019	2018
	December 31 Million KRW	December 31 Million KRW
Legal reserve	2,160	1,776
Asset revaluation surplus	25,815	25,815
Total	27,975	27,591

Legal reserves

In accordance with the Korean Commercial Code, an amount equal to at least 10% of cash dividends is required to be appropriated as a legal reserve until the reserve equals 50% of paid-in capital. The legal reserve may not be utilized for cash dividends, but may only be used to offset a deficit, if any, or be transferred to capital. Appropriation to the legal reserve from retained earnings, pursuant to the approval of the General Meeting of Shareholders on March 22, 2019 amounted to 384 Million KRW (2018: 336 Million KRW).

Asset revaluation reserve

The Group re-valued certain parts of its property, plant and equipment in accordance with the Korean Asset Revaluation Act on January 1, 1984, and January 1, 1999, resulting in a revaluation surplus of 2,884 Million KRW and 64,277 Million KRW, respectively. An asset revaluation surplus amounting to 62,343 Million KRW, net of related revaluation tax, was credited to capital surplus. As of December 31, 2019 and 2018, the asset revaluation surplus is 25,815 Million KRW. The asset revaluation surplus of 23,312 Million KRW and 13,216 Million KRW were utilized in disposition of accumulated deficit pursuant to the approval of the stockholders on March 6, 2008, and March 7, 2009, respectively. The asset revaluation surplus may not be utilized for cash dividends, but may only be used to offset a deficit, if any, or be transferred to capital.

*refer to note 1.2.4.1

Dividends

Dividends approved by the shareholders are as follows:

Description	2019	2018
	December 31	December 31
Subject to the year	2018	2017
Dividends on ordinary shares in KRW	3,840,000,000	3,360,000,000
Number of shares	24,000,000	24,000,000
Dividends per share in KRW	160	140

18.4 ACCUMULATED OTHER COMPREHENSIVE INCOME

Accumulated other comprehensive income, net of tax, as of December 31, 2019 and 2018, is composed of the following:

Description	2019	2018
	December 31 Million KRW	December 31 Million KRW
Exchange differences on translation of foreign operations	-2,444	-5,351
(Losses) / gains on valuation of interest rate swaps	-996	55
(Losses) / gains on valuation of financial assets at FVOCI	-44	350
Total	-3,484	-4,946

Details of other comprehensive income for the year ended December 31, 2019 and 2018, are as follows:

Description	2019	2018
	Million KRW	Million KRW
Pre-tax amounts		
Losses on valuation of interest rate swaps	-1,362	-153
(Losses) / gains on valuation of financial assets at FVOCI	-512	454
Exchange differences on translation of foreign operations	2,875	-530
Re-measurement losses on defined benefit plans	-13,664	-4,778
Pre-tax amounts total	-12,663	-5,007

Tax effects

Gains on valuation of interest rate swaps	311	35
Gains / (losses) on valuation of financial assets at FVOCI	118	-104
Re-measurement gains on defined benefit plans	2,973	1,211
Tax effects total	3,402	1,142

Net amounts

Losses on valuation of interest rate swaps	-1,051	-118
(Losses) / gains on valuation of financial assets at FVOCI	-394	350
Exchange differences on translation of foreign operations	2,875	-530
Re-measurement losses on defined benefit plans	-10,691	-3,567
Net amounts total	-9,261	-3,865

19. INTEREST-BEARING LOANS AND BORROWINGS

Interest-bearing loans and borrowings as of December 31, 2019 and 2018, are as follows:

Description	2019	2018
	December 31 Million KRW	December 31 Million KRW
Long-term borrowings	73,094	17,180
Non-current interest-bearing loans and borrowings	73,094	17,180
Current portion of long-term borrowings	11,280	82,742
Short-term borrowings	159,920	185,188
Current interest-bearing loans and borrowings	171,200	267,930
Total	244,294	285,110

Details of long-term borrowings as of December 31, 2019 and 2018, are as follows:

Banks	Description	Maturity date	Annual interest rate (%)	2019	2018
				December 31 Million KRW	December 31 Million KRW
Woori Bank	General Loan	03.07.2020~ 08.05.2024	3MCD+1.02~1.43	35,800	43,833
Korea Development Bank	General Loan	n/a	n/a	—	2,209
Busan Bank	General Loan	08.05.2024	6M Base rate +1.39	5,310	6,333
KEB Hana Bank	General Loan	08.05.2024	3MCD+1.70	31,450	26,667
Kyongnam Bank	General Loan	08.05.2024	12MBBR+1.32	5,700	6,333
KEB Abu Dhabi	General Loan	29.08.2020*	3.31	4,629	5,920
Polysys Industries LLC	General Loan	n/a	n/a	—	5,133
Pan Gulf Holding Company W.L.L.	General Loan	31.12.2022	3.15	1,485	3,494
Subtotal				84,374	99,922
Less current portion				-11,280	-82,742
Non-current portion				73,094	17,180

Details of short-term borrowings as of December 31, 2019 and 2018, are as follows:

Banks	Description	Annual interest rate (%)	2019	2018
			December 31 Million KRW	December 31 Million KRW
Woori Bank	Trade loan	2.78~2.83	24,181	26,137
KEB Hana Bank	General & trade loan	0.98~3.93	8,663	17,527
Korea Development Bank	General & trade loan	0.71~3.15	92,822	96,322
Busan Bank	General & trade loan	1.50	14,260	20,231
Kyongnam Bank	General & trade loan	2.82~3.00	9,994	17,971
NH Bank	General loan	2.51~2.60	10,000	7,000
Subtotal			159,920	185,188

* Maturity date will be extended by one year (roll over is at the discretion of the entity), therefore categorized as long-term borrowing.

20. EMISSION RIGHTS AND EMISSION LIABILITIES

Details of annual quantity of allocated emission allowances as of December 31, 2019, are as follows
(Unit: Korean Allowance Unit - KAU):

	2015	2016	2017	Total
Allocated emission allowance	161,630	153,985	204,928	520,543

	2018	2019	2020	Total
Allocated emission allowance	122,199	122,199	122,199	366,597

Changes in emission allowances during each planned period are as follows (Units: KAU and Million KRW):

	2015		2016		2017		Total (1 st planned period)	
	Quantity	Book value	Quantity	Book value	Quantity	Book value	Quantity	Book value
Beginning	-	-	32,769	-	-	-	-	-
Allocation	161,693	-	154,498	-	151,361	-	467,552	-
Allocation cancel	-63	-	-513	-	-	-	-576	-
Additional allocation	-	-	-	-	53,567	-	53,567	-
Purchase	-	-	22,000	453	-	-	22,000	453
Borrowed	-	-	24,319	-	-24,319	-	-	-
Disposal	-	-	-110,581	-	-22,000	-	-132,581	-
Delivery to government	-128,861	-	-122,492	-453	-131,427	-	-382,780	-453
Carryforward	-32,769	-	-	-	-27,182	-	-27,182	-
Ending	-	-	-	-	-	-	-	-

	2018		2019		2020	
	Quantity	Book value	Quantity	Book value	Quantity	Book value
Beginning	27,182	-	6,376	-	-	-
Allocation	122,199	-	122,199	-	122,199	-
Delivery to government	-143,005	-	-141,374	-	-	-
Carryforward	-6,376	-	-	-	-	-
Ending	-	-	12,799	512	-	-

There are no emission rights provided as collateral as of December 31, 2019.

Changes in emission liabilities during the current and prior reporting period are as follows (in Million KRW):

	2019	2018
As of January 1	—	—
Increase	512	—
Decrease	—	—
As of December 31	512	—

Allocated greenhouse gas emissions free of charge in 2019 were 122,199 KAU.

Estimated greenhouse gas emissions in 2019 were 141,374 KAU.

21. PENSION LIABILITY

Pension plan	2019 Million KRW	2018 Million KRW
Net defined benefit liability	30,252	16,037
Korean	18,855	7,955
Swiss	11,397	8,082
Indian	—	—
Net defined benefit asset	—	10
Korean	—	—
Swiss	—	—
Indian	—	10

The Group has three defined benefit pension plans: one pension plan in Korea, one in Switzerland and one in India.

The following tables summarize the components of net benefit expense recognized in the income statement and the funded status and amounts recognized in the statement of financial position for the respective plans.



21.1 DEFINED BENEFIT OBLIGATION

Changes in the defined benefit obligation:

	Korean plan Million KRW	Swiss plan Million KRW	Indian plan Million KRW	Total Million KRW
Defined benefit obligation as of January 1, 2018	59,224	33,270	171	92,665
Pension cost charged to profit or loss				
Service costs	4,638	1,543	21	6,202
Interest	2,183	244	14	2,441
<i>Sub-total included in profit or loss</i>	<i>6,821</i>	<i>1,787</i>	<i>35</i>	<i>8,643</i>
Benefits (paid) / received	-2,088	1,021	—	-1,067
Re-measurement gains / (losses) in OCI				
Actuarial changes arising from changes in demographic assumptions	441	—	—	441
Actuarial changes arising from changes in financial assumptions	4,006	-676	1	3,331
Experience adjustments	231	365	-3	593
<i>Sub-total included in OCI</i>	<i>4,678</i>	<i>-311</i>	<i>-2</i>	<i>4,365</i>
Employee contributions	—	867	—	867
Plan amendment	—	1,558	—	1,558
Exchange differences	—	1,307	-7	1,300
Defined benefit obligation as of December 31, 2018	68,635	39,499	197	108,331
Pension cost charged to profit or loss				
Service costs	5,468	1,775	21	7,264
Interest	2,139	352	15	2,506
<i>Sub-total included in profit or loss</i>	<i>7,607</i>	<i>2,127</i>	<i>36</i>	<i>9,770</i>
Benefits paid	-1,624	-4,660	-18	-6,302
Re-measurement gains / (losses) in OCI				
Actuarial changes arising from changes in demographic assumptions	8	—	3	11
Actuarial changes arising from changes in financial assumptions	7,554	3,938	7	11,499
Experience adjustments	3,498	-585	1	2,914
<i>Sub-total included in OCI</i>	<i>11,060</i>	<i>3,353</i>	<i>11</i>	<i>14,424</i>
Employee contributions	—	904	—	904
Exchange differences	—	1,917	2	1,919
Defined benefit obligation as of December 31, 2019	85,678	43,140	228	129,046
Weighted average duration 2018 (years)	10.40	17.30	8.34	
Weighted average duration 2019 (years)	10.77	17.66	6.79	

21.2 PLAN ASSETS

Changes in the fair value of plan assets:

	Korean plan Million KRW	Swiss plan Million KRW	Indian plan Million KRW	Total Million KRW
Plan assets as of January 1, 2018	58,322	25,861	204	84,387
Pension cost charged to profit or loss				
Interest	2,000	190	14	2,204
Administration expenses	—	-87	—	-87
<i>Sub-total included in profit or loss</i>	<i>2,000</i>	<i>103</i>	<i>14</i>	<i>2,117</i>
Benefits (paid) / received	-1,374	1,021	—	-353
Re-measurement gains / (losses) in OCI				
Return on plan assets (excluding amounts included in interest expenses)	-1,768	1,357	-2	-413
<i>Sub-total included in OCI</i>	<i>-1,768</i>	<i>1,357</i>	<i>-2</i>	<i>-413</i>
Employer contributions	3,500	1,193	—	4,693
Employee contributions	—	867	—	867
Exchange differences	—	1,015	-9	1,006
Plan assets as of December 31, 2018	60,680	31,417	207	92,304
Pension cost charged to profit or loss				
Interest	1,729	282	15	2,026
Administration expenses	—	-16	—	-16
<i>Sub-total included in profit or loss</i>	<i>1,729</i>	<i>266</i>	<i>15</i>	<i>2,010</i>
Benefits paid	-2,198	-4,660	-18	-6,876
Re-measurement gains / (losses) in OCI				
Return on plan assets (excluding amounts included in interest expenses)	-388	1,142	6	760
<i>Sub-total included in OCI</i>	<i>-388</i>	<i>1,142</i>	<i>6</i>	<i>760</i>
Employer contributions	7,000	1,167	16	8,183
Employee contributions	—	904	—	904
Exchange differences	—	1,507	2	1,509
Plan assets as of December 31, 2019	66,823	31,743	228	98,794

The Group expects to contribute comparable amounts (as in 2019) to its defined benefit pension plan in 2020.

21.3 NET PENSION LIABILITY

Changes in the net defined benefit liability are as follows:

	Korean plan Million KRW	Swiss plan Million KRW	Indian plan Million KRW	Total Million KRW
Net defined benefit asset as of January 1, 2018	—	—	33	33
Net defined benefit liability as of January 1, 2018	-902	-7,409	—	-8,311
Pension cost charged to profit or loss				
Service costs	-4,638	-1,543	-21	-6,202
Administration expenses	—	-87	—	-87
Net interests	-183	-54	—	-237
<i>Sub-total included in profit or loss</i>	<i>-4,821</i>	<i>-1,684</i>	<i>-21</i>	<i>-6,526</i>
Benefits received	714	—	—	714
Re-measurement gains / (losses) in OCI				
Actuarial changes arising from changes in demographic assumptions	-441	—	—	-441
Actuarial changes arising from changes in financial assumptions	-4,006	676	-1	-3,331
Return on plan assets (excluding amounts included in interest expenses)	-1,768	1,357	-2	-413
Experience adjustments	-231	-365	3	-593
<i>Sub-total included in OCI</i>	<i>-6,446</i>	<i>1,668</i>	<i>—</i>	<i>-4,778</i>
Employer contributions	3,500	1,193	—	4,693
Employee contributions	—	—	—	—
Plan amendment	—	-1,558	—	-1,558
Exchange differences	—	-292	-2	-294
Net defined benefit asset as of December 31, 2018	—	—	10	10
Net defined benefit liability as of December 31, 2018	-7,955	-8,082	—	-16,037
Pension cost charged to profit or loss				
Service costs	-5,468	-1,775	-21	-7,264
Administration expenses	—	-16	—	-16
Net interests	-410	-70	—	-480
<i>Sub-total included in profit or loss</i>	<i>-5,878</i>	<i>-1,861</i>	<i>-21</i>	<i>-7,760</i>
Benefits paid	-574	—	—	-574
Re-measurement gains / (losses) in OCI				
Actuarial changes arising from changes in demographic assumptions	-8	—	-3	-11
Actuarial changes arising from changes in financial assumptions	-7,554	-3,938	-7	-11,499
Return on plan assets (excluding amounts included in interest expenses)	-388	1,142	6	760
Experience adjustments	-3,498	585	-1	-2,914
<i>Sub-total included in OCI</i>	<i>-11,448</i>	<i>-2,211</i>	<i>-5</i>	<i>-13,664</i>
Employer contributions	7,000	1,167	16	8,183
Employee contributions	—	—	—	—
Exchange differences	—	-410	—	-410
Net defined benefit liability as of December 31, 2019	-18,855	-11,397	—	-30,252

The re-measurement losses recognized in the statements of comprehensive income were losses of -10,691 Million KRW (2018: losses of -3,567 Million KRW), net of tax. The total amount at December 31, 2019, of accumulated loss included in retained earnings is -36,269 Million KRW (2018: accumulated loss of -25,578 Million KRW), net of tax.

The principal assumptions used in determining pension benefit obligations for the Group's plans are shown below:

	Determining net benefit expense		Determining pension benefit obligation	
	2019	2018	2019 December 31	2018 December 31
Discount rate				
Korean plan	3.20%	3.80%	2.90%	3.20%
Swiss plan	0.25%	0.85%	0.25%	0.85%
Indian plan	7.50%	7.50%	6.80%	7.50%
Future salary increases				
Korean plan	5.00%	5.00%	5.60%	5.00%
Swiss plan	2.00%	2.00%	2.00%	2.00%
Indian plan	5.00%	5.00%	5.00%	5.00%

A quantitative sensitivity analysis for significant assumptions as of December 31, 2019, is as follows:

	Sensitivity level		Impact on defined benefit obligation
	Change		Million KRW
Discount rate			
Korean plan	+1.00%		-8,413
	-1.00%		10,043
Swiss plan	+0.25%		-1,729
	-0.25%		1,854
Indian plan	+1.00%		-218
	-1.00%		239
Salary increase			
Korean plan	+1.00%		9,662
	-1.00%		-8,288
Swiss plan	+0.25%		189
	-0.25%		-185
Indian plan	+1.00%		239
	-1.00%		-217

The sensitivity analysis above has been determined based on a method that extrapolates the impact on defined benefit obligation as a result of reasonable changes in key assumptions occurring at the end of the reporting period.

22. OTHER LONG-TERM EMPLOYEE-RELATED LIABILITIES

Other long-term employee-related liabilities consist of the following:

Description	2019	2018
	December 31	December 31
	Million KRW	Million KRW
Other long-term employee benefits - Korea	3,334	2,450
Other long-term employee benefits - Others	521	393
Share-based payment-related liability	1,833	2,268
Total other long-term employee-related liabilities	5,688	5,111

22.1 OTHER LONG-TERM EMPLOYEE BENEFITS – KOREA

The parent company implements a bonus plan designed to compensate employees with a prescribed quantity of gold and entitle compensated vacation to long-term service employees. Accounting policies of the bonus plan are mostly the same as that of the defined benefit plan, except that all the past service costs and actuarial variances are recognized immediately in profit or loss.

Description	Million KRW
As of January 1, 2018	2,252
Current service costs	254
Interest costs	75
Re-measurement losses	59
Total payment	-190
As of December 31, 2018	2,450
Current service costs	283
Interest costs	73
Re-measurement losses	701
Total payment	-173
As of December 31, 2019	3,334

Description	2019	2018
	December 31	December 31
Discount rate	2.70%	3.20%
Compensation increase	5.60%	5.00%
Compensation per day for vacation	KRW 96,960 - 200,400	KRW 100,160 - 195,840
Rate of increase in gold price	5.40%	5.10%
Gold price per 3.75 grams	KRW 223,000	KRW 181,000

22.2 OTHER LONG-TERM EMPLOYEE BENEFITS – OTHERS

The remaining other long-term employee benefits refer to legally established termination benefits of subsidiaries located in United Arab Emirates of 416 Million KRW (as of December 31, 2018: 287 Million KRW) and expenses for the defined contribution plan of Songwon Specialty Chemicals India Pvt. Ltd. of 105 Million KRW (as of December 31, 2018: 106 Million KRW).

22.3 SHARE-BASED PAYMENT RELATED LIABILITY

On March 31, 2013, the Group granted virtual stock options to eligible employees of subsidiaries according to the Virtual Stock Option and Long-term Incentive Plan ("LTIP"). The virtual stock options granted are an entitlement of cash compensation, and are neither a stock option, nor any other listed or unlisted security and do not grant any right to physically acquire stocks. Settlement of options exercised is in cash only. When the virtual stock option is exercised, the Group shall pay to the holder the greater of the difference between the fair market value at the exercise date (the listed stock price of Songwon Industrial Co., Ltd.) minus the strike price or nil (zero). The virtual stock options, granted under the LTIP, are subject to a vesting period of two to four years during which the holder of the options must be continuously employed by the Group.

The fair value of options, granted as of December 31, 2019 and 2018, was estimated using the following assumptions:

	2019	2018
Dividend yield	0.70%	0.60%
Expected volatility	45.00%	45.00%
Risk-free interest rate	1.96%	2.77%
Weighted average expected life of share options (years)	4.7	4.5
Model used	Binomial tree	Binomial tree

The carrying amount of the liability relating to the LTIP on December 31, 2019 amounts to 1,833 Million KRW (December 31, 2018: 2,268 Million KRW) and the corresponding number of share options vested as of December 31, 2019 and 2018 is 144,463 and 83,400, respectively.

The income for employee services received during the year 2019, recognized in the statements of comprehensive income, amounted to 289 Million KRW (2018: income of 262 Million KRW). There were no cancellations and modifications to the awards during the years 2019 and 2018.

Movements during the year

The following table illustrates the number and weighted average exercise prices (WAEP) of, and movements in, share options during the reporting period:

Description	2019		2018	
	Number	KRW	Number	KRW
Outstanding as of January 1	388,401	17,275	318,676	13,359
Granted during the year	115,050	19,050	110,250	27,000
Forfeited during the year	-39,500	18,743	-12,375	19,054
Exercised during the year	-14,500	11,690	-28,150	10,253
Outstanding as of December 31	449,451	17,780	388,401	17,275
Exercisable as of December 31	144,463	11,854	83,400	10,891

The weighted average of remaining contractual life for the share options, outstanding as of December 31, 2019, was 5.9 years (December 31, 2018: 6.9 years). The weighted average fair value of options granted during the reporting period was 4,956 KRW (2018: 6,505 KRW).

The exercise price for options outstanding at the end of the reporting period ranges from 8,120 KRW – 27,000 KRW (2018: 8,120 KRW – 27,000 KRW).

23. OTHER FINANCIAL LIABILITIES

Other financial liabilities as of December 31, 2019 and 2018, are as follows:

Description	2019 December 31		2018 December 31	
	Non-current Million KRW	Current Million KRW	Non-current Million KRW	Current Million KRW
Derivative liabilities (note 25)	979	425	–	45
Deposits	1,506	1,447	3,361	1,398
Accrued interest expenses	–	510	–	533
Unpaid dividends	–	3	–	2
Total	2,485	2,385	3,361	1,978

24. TRADE AND OTHER PAYABLES

Description	2019 December 31	2018 December 31
	Million KRW	Million KRW
Trade payables	50,641	54,319
Trade payables (related parties)	1,535	1,148
Other accounts payables	23,437	17,855
Other accounts payables (related parties)	6	5
Withholdings	1,761	1,303
Accrued expenses	21,509	25,887
Guarantee deposits	21	12
Total	98,910	100,529

Trade and other payables do not bear interest and usually become due within 30-60 days.

25. ADDITIONAL INFORMATION ON FINANCIAL INSTRUMENTS

25.1 DERIVATIVES FINANCIAL INSTRUMENTS

Description	2019		2018	
	December 31		December 31	
	Assets	Liabilities	Assets	Liabilities
	Million KRW		Million KRW	
Forward exchange contracts (current portion)	61	113	4	45
Interest rate swaps (current portion)	—	312	69	—
Interest rate swaps (non-current portion)	—	979	1	—
Total	61	1,404	74	45

25.1.1 FORWARD EXCHANGE CONTRACTS

Details of forward exchange contracts which the Group entered into with financial institutions in order to hedge the risk of foreign exchange rate fluctuation of assets denominated in foreign currencies as of December 31, 2019 and 2018 are as follows:

2019

December 31

Contractual party	Position	Contract amount	Maturity dates	Contractual exchange rate (KRW)
Citibank Korea	sell	EUR 8,850,000	31.01.2020~30.06.2020	1,318.00~1,321.00
Woori Bank	sell	EUR 10,200,000	28.01.2020~29.06.2020	1,326.10
Citibank Korea	sell	JPY 282,300,000	31.01.2020~31.03.2020	10.4900~10.6000
Woori Bank	sell	JPY 283,000,000	23.01.2020~31.03.2020	10.4938~10.5979
KEB Hana Bank	sell	JPY 330,000,000	31.01.2020~30.06.2020	10.8320~10.8701

2018

December 31

Contractual party	Position	Contract amount	Maturity dates	Contractual exchange rate (KRW)
Citibank Korea	sell	EUR 3,300,000	31.01.2019~18.06.2019	1,317.00
Woori Bank	sell	EUR 2,400,000	31.01.2019~28.06.2019	1,318.00
Citibank Korea	sell	JPY 27,993,934	04.01.2019	10.2650
Woori Bank	sell	JPY 265,000,000	31.01.2019~31.05.2019	10.2500

25.1.2 INTEREST RATE SWAPS

As of December 31, 2019 and 2018, the Group has entered into the following interest rate swap contracts:

2019

December 31

Description	Bonds contract	Interest rate swap contract
Contract date	03.07.2017	03.07.2017
Maturity date	03.07.2020	03.07.2020
Contract amount	10,000 Million KRW	10,000 Million KRW
Fixed interest rate	n/a	2.73%
Floating interest rate	3MCD+1.02%	3MCD+1.02%
Contract date	08.05.2019	08.05.2019
Maturity date	08.05.2024	08.05.2024
Contract amount	36,000 Million KRW	36,000 Million KRW
Fixed interest rate	n/a	3.47%
Floating interest rate	3MCD+1.43%	3MCD+1.43%
Contract date	08.05.2019	08.05.2019
Maturity date	08.05.2024	08.05.2024
Contract amount	34,000 Million KRW	34,000 Million KRW
Fixed interest rate	n/a	3.52%
Floating interest rate	3MCD+1.70%	3MCD+1.70%

2018
December 31

Description	Bonds contract	Interest rate swap contract
Contract date	08.03.2016	08.03.2016
Maturity date	08.05.2019	08.05.2019
Contract amount	40,000 Million KRW	40,000 Million KRW
Fixed interest rate	n/a	3.48%
Floating interest rate	3MCD+1.90%	3MCD+1.90%
Contract date	08.03.2016	08.03.2016
Maturity date	08.05.2019	08.05.2019
Contract amount	60,000 Million KRW	60,000 Million KRW
Fixed interest rate	n/a	3.30%
Floating interest rate	3MCD+1.57%	3MCD+1.57%
Contract date	03.07.2017	03.07.2017
Maturity date	03.07.2020	03.07.2020
Contract amount	10,000 Million KRW	10,000 Million KRW
Fixed interest rate	n/a	2.73%
Floating interest rate	3MCD+1.02%	3MCD+1.02%

The Group applies cash flow hedge accounting on interest rate swaps; in the current reporting period and in 2018 there was an interest rate swap designated as cash flow hedge. The balances included in accumulated other comprehensive income are -996 Million KRW as of December 31, 2019, and 55 Million KRW as of December 31, 2018, respectively (refer to note 18.4), net of income tax.

25.2 FAIR VALUES

Set out below is a comparison by class of the carrying amounts and fair value of the Group's financial instruments that are carried in the financial statements.

	2019 December 31	Carrying amount		Fair value	
		Non-current Million KRW	Current Million KRW	Non-current Million KRW	Current Million KRW
Financial assets	Description				
	Financial assets at amortized cost				
	Other financial assets	1,095	548	1,095	548
	Trade and other receivables	–	128,166	–	128,166
	Cash and cash equivalents	–	63,132	–	63,132
	Total financial assets at amortized cost	1,095	191,846	1,095	191,846
	Financial assets at FVOCI				
	Other financial assets	842	–	842	–
	Total financial assets at FVOCI	842	–	842	–
	Financial assets at FVtPL				
	Forward exchange contracts	–	61	–	61
	Other financial assets	6,000	794	6,000	794
	Total financial assets at FVtPL	6,000	855	6,000	855
	Total financial assets	7,937	192,701	7,937	192,701
Financial liabilities	Financial liabilities at amortized cost				
	Other financial liabilities	1,506	1,960	1,506	1,960
	Lease liabilities	17,214	2,309	17,214	2,309
	Trade and other payables	–	98,910	–	98,910
	Interest-bearing loans and borrowings	73,094	171,200	73,094	171,200
	Total financial liabilities at amortized cost	91,814	274,379	91,814	274,379
	Financial liabilities at FVOCI				
	Interest rate swaps	979	312	979	312
	Total financial liabilities at FVOCI	979	312	979	312
	Financial liabilities at FVtPL				
	Forward exchange contracts	–	113	–	113
	Total financial liabilities at FVtPL	–	113	–	113
	Total financial liabilities	92,793	274,804	92,793	274,804

2018 December 31		Carrying amount		Fair value	
Description		Non-current Million KRW	Current Million KRW	Non-current Million KRW	Current Million KRW
Financial assets	Financial assets at amortized cost				
	Other financial assets	911	4,223	911	4,223
	Trade and other receivables	—	115,969	—	115,969
	Cash and cash equivalents	—	63,306	—	63,306
	Total financial assets at amortized cost	911	183,498	911	183,498
	Financial assets at FVOCI				
	Other financial assets	1,354	—	1,354	—
	Interest rate swaps	1	69	1	69
	Total financial assets at FVOCI	1,355	69	1,355	69
	Financial assets at FVtPL				
	Forward exchange contracts	—	4	—	4
	Other financial assets	8,863	1,710	8,863	1,710
	Total financial assets at FVtPL	8,863	1,714	8,863	1,714
Total financial assets	11,129	185,281	11,129	185,281	
Financial liabilities	Financial liabilities at amortized cost				
	Other financial liabilities	3,361	1,933	3,361	1,933
	Trade and other payables	—	100,529	—	100,529
	Interest-bearing loans and borrowings	17,180	267,930	17,180	267,930
	Total financial liabilities at amortized cost	20,541	370,392	20,541	370,392
	Financial liabilities at FVtPL				
	Forward exchange contracts	—	45	—	45
	Total financial liabilities at FVtPL	—	45	—	45
Total financial liabilities	20,541	370,437	20,541	370,437	

The fair value of the financial assets and liabilities are included at the amount at which the instrument could be exchanged in a current transaction between willing parties, other than in a forced or liquidation sale.

The following methods and assumptions were used to estimate the fair values:

- cash and cash equivalents, trade and other receivables, trade payables and other current liabilities approximate their carrying amounts largely due to the short-term maturities of these instruments;
- fair value of financial assets at FVOCI and financial assets at FVtPL are derived from quoted market prices in active markets, if available;
- fair value of unquoted financial assets at FVOCI and financial assets at FVtPL are estimated using appropriate valuation techniques (refer to note 25.2.1).

25.2.1 FAIR VALUE HIERARCHY

The Group uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique:

Description	Valuation technique
Level 1	Quoted (unadjusted) prices in active markets for identical assets or liabilities
Level 2	Other techniques for which all inputs which have a significant effect on the recorded fair value are observable either directly or indirectly
Level 3	Techniques which use inputs that have a significant effect on the recorded fair value that are not based on observable market data

As of December 31, 2019 and 2018, the Group held the following financial instruments carried at fair value on the statements of financial position:

Description	December 31, 2019	Level 1	Level 2	Level 3
Financial assets	Million KRW	Million KRW	Million KRW	Million KRW
Derivatives				
Forward exchange contracts	61	—	61	—
Total derivatives	61	—	61	—
Debt instruments				
Exchange traded fund at FVtPL	794	794	—	—
Total debt instruments	794	794	—	—
Equity instruments				
Equity instruments at FVOCI	842	—	—	842
Total equity instruments	842	—	—	842
Total financial assets	1,697	794	61	842
Financial liabilities				
Derivatives				
Forward exchange contracts	113	—	113	—
Interest Rate Swaps	1,291	—	1,291	—
Total derivatives	1,404	—	1,404	—
Total financial liabilities	1,404	—	1,404	—

	December 31, 2018	Level 1	Level 2	Level 3
Financial assets	Million KRW	Million KRW	Million KRW	Million KRW
Derivatives				
Forward exchange contracts	4	–	4	–
Interest Rate Swaps	70	–	70	–
Total derivatives	74	–	74	–
Debt instruments				
Exchange traded fund at FVtPL	630	630	–	–
Total debt instruments	630	630	–	–
Equity instruments				
Equity instruments at FVOCI	1,354	–	–	1,354
Total equity instruments	1,354	–	–	1,354
Total financial assets	2,058	630	74	1,354

Financial liabilities

Derivatives				
Forward exchange contracts	45	–	45	–
Total derivatives	45	–	45	–
Total financial liabilities	45	–	45	–

During the reporting periods ended December 31, 2019 and 2018, there were no transfers between Level 1 and Level 2 fair value measurements. For the financial assets and financial liabilities for which the fair value is disclosed (refer to note 25.2) the carrying amount is a reasonable approximation of fair values and is measured using Level 3 measurement methods, except for cash and cash equivalents.

25.3 FINANCIAL RISK MANAGEMENT OBJECTIVES AND POLICIES

The Group's principal financial liabilities comprise loans and borrowings, trade and other payables, and other financial liabilities. The main purpose of these financial liabilities is to finance the Group's operations. The Group has trade accounts and other accounts receivables, cash and cash equivalents and other financial assets that arrive directly from its operations. The Group also holds available-for-sale investments and enters into derivative transactions and applies hedge accounting for cash flow hedges if applicable.

The Group is exposed to market, credit and liquidity risk. To minimize their effects, the Group's management oversees the managing of these risks through appropriate risk assessment and monitoring activities.

25.3.1 MARKET RISK

Market risk refers to the risk that a financial instrument's fair value or future cash flows will fluctuate because of changes in market prices. Market prices comprise two types of risk:

- interest rate risk; and,
- foreign currency risk.

Financial instruments affected by market risk include loans and borrowings, deposits, financial assets at FVOCI, financial assets at FVTPL and derivative financial instruments. The sensitivity analyses in the following sections relate to the position as of December 31, 2019 and 2018.

Interest rate risk

Interest rate risk refers to the risk that a financial instrument's fair value or future cash flows will fluctuate because of changes in market interest rates. The Group's exposure to the risk of changes in market interest rates relates primarily to the Group's interest-bearing loans and borrowings as well as bank deposits with floating interest rates.

The Group's exposure to the risk of changes in market interest rates relates substantially to the Group's interest-bearing loans and borrowings with floating interest rates, which exposes the Group to cash flows risk. In response, the Group is minimizing the risk partially through an interest rate swap contract or choosing the best favorable financing instruments by switching to the loans with more favorable conditions or improving the Group's credit rating.

Interest rate sensitivity

The following table demonstrates the sensitivity to a reasonably possible change in interest rates. The Group's exposure to the risk of changes in market interest rates relates primarily to the Group's interest-bearing loans and borrowings as well as bank deposits with floating interest rates. With all other variables held constant, the Group's profit before tax is affected through the impact on floating rate borrowings as follows:

	Increase / (decrease) in %	Effect on profit before tax Million KRW
December 31, 2019	1.00	-1,091
	-1.00	1,091
December 31, 2018	1.00	-1,094
	-1.00	1,094

Foreign currency risk

The Group's exposure to the risk of changes in foreign exchange rates relates primarily to the Group's operating activities. The risk of foreign exchange primarily relates to US Dollar (USD), Euro (EUR), Japanese Yen (JPY), Chinese Yuan Renminbi (CNY), Swiss Franc (CHF), United Arab Emirates Dirham (AED) and to the Indian Rupee (INR).

Foreign exchange risks arise when commercial transactions, recognized assets or liabilities are denominated in a currency that is not the entity's functional currency.

The objective of the management of foreign currency risk is to maximize the value of the firm through minimizing the fluctuation of net profit and uncertainty arising from the fluctuation in foreign currency. To accomplish this, the Group uses a strategy to accord the collection terms of receivables and payment terms of payables denominated in USD considering the similar volume of exports and imports. In regard to EUR and JPY, the Group manages the risk through currency forward contracts.

Foreign currency sensitivity

The Group carries out a sensitivity analysis for the dominant foreign currencies: US Dollar (USD), Euro (EUR), Japanese Yen (JPY), Chinese Yuan Renminbi (CNY), Swiss Franc (CHF), United Arab Emirates Dirham (AED) and to the Indian Rupee (INR). The assumed possible currency fluctuations are based on historical observations and future prognoses. The financial instruments are incorporated into calculations. The following table demonstrates the sensitivity of consolidated net profit before tax to a reasonably possible shift in exchange rates related to financial instruments held in the balance sheet. Assuming that the other variables are constant and the foreign exchange rate only changes by 10%, the impacts on net profit for the years ended on December 31, 2019 and 2018, are as follows:

Currency	2019 December 31		2018 December 31	
	10% increase Million KRW	10% decrease Million KRW	10% increase Million KRW	10% decrease Million KRW
USD	1,903	-1,903	1,472	-1,472
EUR	728	-728	516	-516
JPY	240	-240	-44	44
CNY	—	—	-38	38
CHF	206	-206	235	-235
AED	-186	186	-79	79
INR	973	-973	986	-986
Total	3,864	-3,864	3,048	-3,048

The Group's exposure to foreign currency changes for all other currencies is not material.

25.3.2 CREDIT RISK

Credit risk is the risk that the counterparty will not meet its obligations under a financial instrument or customer contract, leading to a financial loss. The Group is exposed to credit risk from its operating activities (primarily for trade and other receivables) and investing activities.

The Group maintains a policy to keep trade relationship only with the customers with high credit rating assessed by credit assessment, considering their financial position, past experience of defaults and other indicators of default. If the credit rating of a customer worsens, the Group sets an individual credit limit on that customer and intensively manages its credit risk. In addition, the Group minimizes the credit risk by maintaining the exposure to the credit risk at an insignificant level through ongoing management including periodical reviews of all the customers. The maximum exposure to credit risk at the reporting date is the carrying value of each class of financial assets disclosed in note 13.

The Group is also exposed to the credit risk with regard to bank deposits, as well as cash and cash equivalents in which the maximum exposure to credit risk at the reporting date is the carrying value. The exposure to the related credit risk, however, is relatively restricted because the Group maintains relationships with the financial institutions with high credit ratings.

25.3.3 LIQUIDITY RISK

Liquidity risk is the risk that the Group will encounter difficulty in meeting obligations associated with financial liabilities due to the unfavorable economy of the industry or financial markets.

The Group manages its liquidity risk through its own strategy and plans which consider the maturity of financial instruments and expected operating cash flows and include the policy to map out the maturity of financial assets and liabilities.

In addition, the Group maintains credit facilities with the banks including overdraft to respond to an unexpected shortage in liquidity. In response to expansion of the business, the Group manages funding schedules and ongoing review procedures, considering the appropriate mix of long-term and short-term loans and borrowings, to maintain the consistency and flexibility in obtaining liquidity and stable financing.

The details of maturity profile of the Group's financial liabilities and lease liabilities, excluding financial derivative instruments, based on contractual undiscounted payments as of December 31, 2019 and 2018, are as follows:

	Less than a month	1 to 3 months	3 to 12 months	1 to 5 years	> 5 years	Total
2019	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
December 31						
Interest-bearing loans and borrowings	26,309	49,165	95,726	73,094	–	244,294
Trade and other payables	76,100	20,634	2,176	–	–	98,910
Lease liabilities	274	541	2,128	7,937	14,097	24,977
Other financial liabilities	376	1,560	24	1,506	–	3,466
Total	103,059	71,900	100,054	82,537	14,097	371,647

	Less than a month	1 to 3 months	3 to 12 months	1 to 5 years	> 5 years	Total
2018	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW	Million KRW
December 31						
Interest-bearing loans and borrowings	24,177	53,213	190,540	17,180	–	285,110
Trade and other payables	73,461	22,813	4,255	–	–	100,529
Other financial liabilities	425	1,496	12	3,361	–	5,294
Total	98,063	77,522	194,807	20,541	–	390,933

25.3.4 CAPITAL MANAGEMENT

The capital managed by the Group is identical to the total amount of equity presented in the consolidated statements of financial position. The primary objective of the Group's capital management is to ensure its continued ability to provide consistency for its equity shareholders through a combination of capital growth and distribution. In order to achieve this objective, the Group monitors its gearing to balance risk and returns at an acceptable level, and also maintains a sufficient funding base to enable the company to meet its working capital and strategic investment needs. To maintain or adjust the capital structure, the company may adjust the dividend payment to shareholders, return capital to shareholders or issue new shares considering not only the short-term position, but also its long-term operational and strategic objectives. At Group level the debt ratio is reviewed regularly. The debt-equity ratio as of December 31, 2019 and 2018, is 105% and 112%, respectively.

On a monthly basis, all subsidiaries have to report key performance indicators, which also include capital management information.

26. COMMITMENTS AND CONTINGENCIES

26.1 CONTINGENT LIABILITY

There are no current proceedings of lawsuits, claims, investigations and negotiations in relation to the product liability, mercantile law, environmental protection, health and safety etc., which could have a significant impact on the business operations and the consolidated financial position as well as consolidated financial performance of the Group.

26.2 OTHER LEASE COMMITMENTS

The Group has entered into short-term and low-value leases on certain buildings, vehicles, furniture and fixtures. The lease periods for low-value leases are below 5 years. There are no restrictions placed upon the Group by entering into these leases. Future minimum short-term and low-value lease payments as of December 31, 2019 are as follows:

		2019
		December 31
		Million KRW
Description		
Short-term lease commitments		
Within one year		-68
Total short-term lease commitments		-68
Low-value lease commitments		
Within one year		-33
After one year but not more than five years		-11
Total low-value lease commitments		-44
Total		-112

26.3 OTHER COMMITMENTS

As part of the ordinary business, the Group enters into various contractual commitments for the purchase of fixed assets and intangible assets as well as investment properties and others. As of December 31, 2019, the Group entered into commitments to purchase property, plant and equipment, as well as raw materials amounting to 2,635 Million KRW (December 31, 2018: 2,815 Million KRW).

The Group has provided one blank promissory note to Hanwha Chemical Co., Ltd. as security on the supply contracts.

One check and one promissory note which the Group received from KEB Hana Bank and provided to its customer are outstanding as of December 31, 2019, due to bankruptcy declared by the customer.

Details of the Group's available short-term credit line facilities (excluding general loans) as of December 31, 2019, are as follows:

Description	Currency	Credit limit	Used	Unused
USANCE and L/C for import	Thousand USD	21,000	5,936	15,064
D/A and D/P	Thousand USD	112,400	54,219	58,181
	Million KRW	32,000	4,994	27,006
Trade loans	Million KRW	15,000	—	15,000
Secured loan of credit sales	Million KRW	9,000	3,467	5,533
Other foreign currency guarantees	Thousand USD	17,020	8,320	8,700
	Total Million KRW	56,000	8,461	47,539
	Total Thousand USD	150,420	68,475	81,945



27. ASSETS PLEDGED AS COLLATERAL AND GUARANTEES

Details of property, plant and equipment and investment properties pledged by the Group as collateral for interest-bearing loans and borrowings as of December 31, 2019 and 2018, presented in the maximum value registered to Korean court, are as follows:

Pledged to	Pledged assets	2019 December 31	2018 December 31
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Property, plant and equipment

(Joint collateral in connection with long-term loan)

Busan Bank	Land, buildings and machinery	Million KRW	30,000	30,000
Kyongnam Bank	Land, buildings and machinery	Million KRW	18,000	18,000
Woori Bank	Land, buildings and machinery	Million KRW	120,000	120,000
KEB Hana Bank	Land, buildings and machinery	Million KRW	60,000	60,000
Korea Development Bank	Land, buildings and machinery	Million KRW	57,000	57,000

Property, plant and equipment

(Collateral for other than long-term loan)

Busan Bank	Land, buildings and machinery	Thousand USD	24,000	24,000
Total		Million KRW	285,000	285,000
		Thousand USD	24,000	24,000

No other items of property, plant and equipment are pledged as collateral for interest-bearing loans and borrowings as of December 31, 2019 and 2018.

The Group has received payment guarantees amounting to 193,428 Million KRW and 32,076 Thousand USD provided by Jongho Park, the Chairman of the Board of Directors of the Group, in connection with the Group's borrowings from banks as of December 31, 2019.

The bank deposits pledged as collateral in connection with interest-bearing loans and borrowings as of December 31, 2019 and 2018, are as follows:

Description	2019 December 31	2018 December 31
Bank deposits – current (in Thousand USD)	–	2,049

28. OPERATING PROFIT AND OTHER INCOME / EXPENSES

28.1 RESEARCH AND DEVELOPMENT EXPENSES

Research and development expenses of 6,199 Million KRW (2018: 4,811 Million KRW) are recorded in the income statement. Development expenses are not capitalized because the conditions for capitalization have not been met.

28.2 SELLING AND ADMINISTRATION EXPENSES

	2019	2018
Description	Million KRW	Million KRW
Sales-related costs	-24,289	-26,305
Personnel expenses	-52,579	-48,018
Travelling and entertainment	-7,499	-6,546
Depreciation and amortization	-5,520	-4,625
Administration expenses	-10,638	-10,429
Others	-6,656	-5,956
Total	-107,181	-101,879

28.3 OTHER INCOME

	2019	2018
Description	Million KRW	Million KRW
Fee income	153	121
Miscellaneous income	1,861	3,380
Gains on disposal of property, plant and equipment	77	57
R&D sales income	93	53
Rental income	14	17
Total	2,198	3,628

28.4 OTHER EXPENSES

	2019	2018
Description	Million KRW	Million KRW
Miscellaneous expenses	-1,039	-2,403
Losses on disposal of property, plant and equipment	-1,607	-1,660
Impairment of intangible assets	-88	-694
Total	-2,734	-4,757

28.5 EXPENSES CLASSIFIED BY NATURE

	2019	2018
Description	Million KRW	Million KRW
Purchased material	-459,833	-456,716
Freight and logistic costs	-22,536	-22,869
Energy costs	-40,485	-39,376
Personnel expenses	-126,063	-114,793
Depreciation and amortization	-36,449	-33,790
Other expenses	-72,416	-71,674
Total	-757,782	-739,218
Thereof recorded in cost of sales	-647,867	-632,582
Thereof recorded in selling and administration costs	-107,181	-101,879
Thereof recorded in other expenses	-2,734	-4,757
Total	-757,782	-739,218

28.6 FINANCE EXPENSES

	2019	2018
Description	Million KRW	Million KRW
Interest on borrowings	-9,335	-10,028
Total interest expenses	-9,335	-10,028
Losses on foreign exchange	-19,495	-18,172
Losses on derivative transactions	-795	-2
Losses on valuation of derivatives	-113	-45
Losses on valuation of financial assets at FVtPL	—	-358
Bank charges	-486	-339
Total finance expenses	-30,224	-28,944

28.7 FINANCE INCOME

	2019	2018
Description	Million KRW	Million KRW
Gains on foreign exchange	17,087	17,182
Gains on derivative transactions	890	2,662
Gains on valuation of derivatives	61	4
Gains on valuation of financial assets at FVtPL	164	—
Interest on loans and receivables	576	292
Interest on loan and receivables (related parties)	2	607
Total finance income	18,780	20,747

28.8 NET GAINS AND LOSSES OF FINANCIAL INSTRUMENT CLASSES

Description	2019	2018
	Million KRW	Million KRW
Financial assets at amortized cost	-506	4,924
Financial assets at FVOCI	-1,443	232
Financial assets at FVtPL	320	2,306
Financial liabilities at amortized cost	-10,659	-15,043
Financial liabilities at FVtPL	-113	-45
Total net losses of the classes of financial instruments	-12,401	-7,626

Thereof:

Net gains / (losses) of financial instruments recognized in the consolidated statement of comprehensive income

Finance expense*	-29,738	-28,605
Finance income	18,780	20,747
Total	-10,958	-7,858

Net gains / (losses) of financial instruments recognized in the consolidated statement of other comprehensive income

Financial assets at FVOCI	-1,443	232
Total	-1,443	232
Total	-12,401	-7,626

* excluding bank charges

29. INCOMETAX EXPENSES

The major components of income tax expense in the statements of comprehensive income are as follows:

29.1 CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

Description	2019	2018
	Million KRW	Million KRW
Current income tax charge	-18,294	-8,994
Adjustments in respect of current income tax of previous year	678	-497
Deferred income taxes relating to changes of temporary differences, net	434	914
Deferred income taxes relating to tax loss carry forwards	—	-1,177
Deferred income taxes related to changes in tax rate	466	84
Deferred income taxes recognized directly in other comprehensive income	3,402	1,142
Income tax expenses	-13,314	-8,528

Description	2019	2018
	Million KRW	Million KRW
Accounting profit before income taxes	48,322	46,333
At parent company's statutory income tax rate of 23.22% (2018: 21.79%)	-11,219	-10,094

(Increase) / decrease in income tax expenses resulting from:

Adjustments in respect of current income tax of previous years	678	-497
Non-temporary differences	-525	127
Tax credits	432	1,023
Non-deductible expenses / (non-taxable income)	23	511
Tax audit	-1,350	-33
Effect of different tax rates in tax jurisdiction	-1,459	-42
Others	106	477
At the effective income tax rate 27.55% (2018: 18.41%)	-13,314	-8,528

29.2 DEFERRED TAX

Deferred tax relates to the following:

Description	Consolidated statements of financial position		Consolidated statements of comprehensive income	
	2019	2018	2019	2018
	December 31	December 31	December 31	December 31
	Million KRW	Million KRW	Million KRW	Million KRW
Pension obligation	4,741	1,884	-116	-556
Other long-term employment benefits	935	809	126	25
Trade receivables	135	52	83	120
Inventories	2,108	626	1,482	134
Fixed assets	-10,641	-11,442	801	1,316
Right-of-use assets	-244	—	-244	—
Gain on revaluation of land	-27,307	-27,786	479	-98
Other non-current financial assets	13	-104	-1	—
Other current financial assets	-24	64	-88	1,345
Other current assets	1	-17	18	-17
Accrued income	—	-3	3	9
Current lease liabilities	253	—	253	—
Other current financial liabilities	1,605	285	1,320	-102
Other current liabilities	249	243	6	102
Intangible assets	128	-76	204	-76
Gain / (loss) on interest swaps	295	-16	—	212
Loss available for offsetting against future taxable income	—	—	—	-1,177
Investments in subsidiaries	-4,633	-4,649	16	-20
Translation difference			-40	-254
Deferred tax income			4,302	963
Net deferred tax liabilities	-32,386	-40,130		

Reflected in the statements of financial positions as follows:

Deferred tax assets	3,792	2,830
Deferred tax liabilities	-36,178	-42,960

The Group offsets tax assets and liabilities if, and only if, it has a legally enforceable right to do so, and the deferred tax assets and deferred tax liabilities relate to income taxes levied by the same tax authority.

Reconciliation of deferred tax liabilities, net:

Description	2019	2018
	Million KRW	Million KRW
Opening balance as of January 1	-40,130	-42,489
Deferred tax recognized in statements of comprehensive income	4,302	963
Deferred tax recognized in other comprehensive income (note 18.4)	3,402	1,142
Translation differences	40	254
Closing balance as of December 31	-32,386	-40,130

Expecting sufficient taxable income, the Group recognized deferred income tax assets to the extent of future taxable income. For the following deductible temporary differences, no deferred tax assets as of December 31, 2019 and 2018, were recognized.

Description	2019	2018
	Million KRW	Million KRW
Temporary differences related to investments in subsidiaries	1,690	1,758
Total	1,690	1,758

As of December 31, 2019 and 2018, there are no unused recognized tax loss carry forwards and tax credit carry forwards available.

30. EARNINGS PER SHARE

Basic earnings per share amounts are calculated by dividing net profit for the year attributable to ordinary equity holders of the parent company by the average number of ordinary shares outstanding during the year. There is no difference between basic and diluted earnings per share in 2019 and 2018.

The following reflects the income and share data used in the basic per share computations:

Description	2019	2018
	KRW	KRW
Net profit attributable to ordinary equity holders of the parent	34,753,845,371	38,083,876,612
Weighted average number of ordinary shares	24,000,000	24,000,000
Earnings per share (basic / diluted)	1,448	1,587

31. CASH FLOW STATEMENT

Cash and cash equivalents in the consolidated statements of cash flows are equal to those in the consolidated statements of financial position.

The Group's consolidated statement of cash flow is prepared using the indirect method. The adjustments to the net profit for the period of the non-cash and non-operating items and changes in operating assets and liabilities for the years ended December 31, 2019 and 2018, are as follows:

		2019	2018
Description	Notes	Million KRW	Million KRW
Adjustments			
Depreciation of property, plant and equipment	7	30,502	29,491
Depreciation of right-of-use assets	8	2,705	—
Depreciation of investment properties	9	18	19
Amortization of intangible assets	10	3,877	4,275
Impairment of intangible assets	10	88	694
Impairment of non-current financial assets		3	5
Losses on disposals of property, plant and equipment, net	7	1,530	1,603
Share of result from investments accounted using the equity method	12	-1,010	-1,382
Financial income		-8,292	-9,023
Financial expenses		15,183	9,747
Income tax expenses	29	13,314	8,528
Total		57,918	43,957

Description	2019	2018
	Million KRW	Million KRW
Changes in operating assets and liabilities		
Trade receivables	-9,582	16,653
Other receivables	-1,922	2,818
Other current assets	-3,072	-751
Other current financial assets	1,481	-104
Inventories	6,539	-28,316
Trade payables	-3,479	-4,258
Other payables	-1	-4,502
Other current financial liabilities	328	235
Other current liabilities	918	-21
Pension liabilities	-257	2,855
Other long-term employment benefits	440	-539
Total	-8,607	-15,930

Changes in liabilities arising from financing activities for the years ended December 31, 2019 and 2018, are as follows:

	Current interest-bearing loans and borrowings	Non-current interest-bearing loans and borrowings	Other financial liabilities
	Million KRW	Million KRW	Million KRW
As of January 1, 2018	208,754	98,783	6,368
Cash flows	-23,680	—	-1,120
Foreign exchange movement	114	638	91
Reclassification	82,742	-82,241	—
As of December 31, 2018	267,930	17,180	5,339
Cash flows	-30,771	-6,991	-1,853
Foreign exchange movement	-1,612	-1,442	53
Net losses on valuation of financial liabilities	—	—	1,331
Reclassification	-64,347	64,347	—
As of December 31, 2019	171,200	73,094	4,870

32. RELATED PARTY DISCLOSURES

The following table provides the total amount of transactions that have been entered into with related parties for the relevant financial years and balances as per year-end:

Related party	Description	2019	2018
		Million KRW	Million KRW
Jongho Park, Chairman of the Board of Directors	Finance income	—	562
Maurizio Butti (refer to note 32.3 for further details)	Finance income	2	2
Songwon Moolsan Co., Ltd.	Selling and administration costs	-73	-58
Songwon Baifu Chemicals (Tangshan) Co., Ltd. (Joint venture)	Sales	161	62
	Cost of sales	-14,587	-15,138
Qingdao Long Fortune Songwon Chemical Co., Ltd.*	Sales	—	5,761
	Cost of sales	—	-138
	Selling and administration costs	—	-332
	Other income	—	11
	Finance income	—	43
Total	Sales	161	5,823
	Cost of sales	-14,587	-15,276
	Selling and administration costs	-73	-390
	Other income	—	11
	Finance income	2	607

Related party	Description	2019	2018
		December 31 Million KRW	December 31 Million KRW
Maurizio Butti (refer to note 32.3 for further details)	Trade and other receivables	—	2
	Other current financial assets	—	1,346
Songwon Moolsan Co., Ltd.	Other non-current financial assets	24	24
	Trade and other payables	6	5
Songwon Baifu Chemicals (Tangshan) Co., Ltd. (Joint venture)	Trade and other receivables	106	—
	Trade and other payables	1,535	1,148
Total	Other non-current financial assets	24	24
	Trade and other receivables	106	2
	Other current financial assets	—	1,346
	Trade and other payables	1,541	1,153

* refer to note 5. for further details

32.1 THE ULTIMATE PARENT

Songwon Industrial Co., Ltd. is the ultimate parent based and listed in Korea.

32.2 TERMS AND CONDITIONS OF TRANSACTIONS WITH RELATED PARTIES

The sales to and purchases from related parties are made at terms equivalent to those that prevail in arm's length transactions. Outstanding balances at the year-end are unsecured, interest free and settlement occurs in cash. There have been no guarantees provided or received for any related party receivables or payables. For the year ended December 31, 2019, the Group has not recorded any impairment of receivables relating to amounts owed by related parties (December 31, 2018: none). This assessment is undertaken periodically by examining the financial position of the related party and the market in which the related party operates.

32.3 TRANSACTIONS WITH KEY MANAGEMENT PERSONNEL

In the first quarter of 2019, the former Chief Executive Officer of the Group, Maurizio Butti fully repaid his loan of in total 1,346 Million KRW (1,185 Thousand CHF). During the second quarter of 2019, the Group granted a loan of 1,358 Million KRW (1,195 Thousand CHF) to the former Chief Executive Officer of the Group, Maurizio Butti under normal market conditions (accumulated interest 2019 of 2 Million KRW). In September 2019, SONGWON Industrial Group's Board of Directors announced the unexpected death of the former Chief Executive Officer of the Group, Maurizio Butti. The respective loan was set off against the accrued employment claim of Maurizio Butti in October 2019.

32.4 COMPENSATION OF KEY MANAGEMENT PERSONNEL OF THE GROUP

Description	2019	2018
	Million KRW	Million KRW
Short-term employee benefits	13,438	13,269
Post-employment benefits	720	779
Other long-term benefits	1,914	1,467
Share based payments	-198	-248
Total compensation paid to key management personnel	15,874	15,267

The amounts disclosed in the table are the amounts recognized as an expense during the reporting period related to key management personnel. Key management personnel are those persons with authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any director (whether executive or otherwise) of that entity.

32.5 OTHER RELATED PARTIES

Other related parties are Songwon Moolsan Co., Ltd. (Korea) which has significant influence on the Group due to the interest held in the share capital of the parent company of 23.88%. Further, the subsidiary of Songwon Moolsan Co., Ltd., Kyungshin Industrial Co., Ltd., which holds interest in the share capital of the parent company of 9.15%, is identified as a related party of the Group.

33. EVENTS AFTER THE REPORTING PERIOD

The consolidated financial statements for the year ended December 31, 2019, were approved by the Board of Directors of the parent company on January 31, 2020.

Otherwise, no significant events occurred during the period from the statement of financial position date, up to the date upon which the annual consolidated financial statements were issued.



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Final Overview view

SONGWON brands

SONGFLAME®

Flame Retardant Synergists

SONGCIZER™

Plasticizers

SONGSTOMER™

TPU Grades

SONGXTEND®

Stabilizer Solutions

SONGSTAR™

Polyester Diols

SONGCURE®

Photoinitiators

SONGCAT™

Organo-Tin Intermediates

SONGNOX®

Stabilizers & OPS Blends

SONGSTAB™

PVC Stabilizers

HI-THANE™

Polyurethanes

SONGSORB®

Light Stabilizers

*Every day,
everywhere*

© Registered trademarks of Songwon Industrial Co., Ltd. ™ Trademarks of Songwon Industrial Co., Ltd.

All of SONGWON's trademarks and product line brand names used in conjunction with SONGWON's business operations are registered (®) with the U.S. Patent and Trademark Office, and registered or subject to pending trademark applications (™) with the registries of many foreign countries, and/or are protected by common law.

Accordingly, SONGWON intends to keep its filings current and seek protection for new trademarks or product names on a country-by-country basis consistent with its business needs. All other trademarks, service marks, logos and trade names referenced in any of SONGWON's material are the property of their respective owners.

About this report

Publishing this comprehensive report each year and disclosing our operational, social and environmental and financial performance, reaffirms our commitment to providing our stakeholders with a transparent account of the challenges and opportunities facing SONGWON, our industry and the regions and communities across the world where we operate and do business.

This is SONGWON Industrial Group's 9th Annual Report. It contains a detailed overview of our economic, environmental and social performance in FY 2019 (January 1st to December 31st) and replaces the SONGWON Annual Report 2018, which was published in March 2019. Unless otherwise specified, the latest report includes updates to the previous report that reflect data through end-of-year 2019.

Reporting Scope

In this Annual Report, we share information on SONGWON management's approach, strategy, performance and the progress made in 2019 related to the Group's material topics. The material topics covered in the report focus on the key areas of corporate governance, economic, environment, labor practices, human rights, society and product responsibility.

The topics featured in this Annual Report were identified using a broad review and consultation process and reflect the concerns and views gathered throughout the year via direct and indirect engagement with all of SONGWON Industrial Group's stakeholders (among them, employees, customers, suppliers, partners and SONGWON's Senior Management etc.) Further information on the Group's materiality topics, the review and stakeholder engagement processes can be found on pages 110-113 of this year's report.

Unless stated otherwise, all the data which has been compiled for this report has been carefully measured according to industry standard measurement methods. In 2019, there were no significant changes in the reporting period, scope, boundary or measurement methods which have been applied or included in the report.

The boundary for this report is defined by the structure of the SONGWON Industrial Group and the countries in which it operates, unless otherwise specifically stated. Any restatements regarding the content of previous reports have been disclosed separately.

Reporting Standards

This report has been prepared in accordance with the GRI Standards: Core option. The GRI Standards are the world's most widely used sustainability reporting standard and represent global reporting best practices for a range of economic, environmental, social and corporate governance topics.

SONGWON Industrial Group does not currently engage an external agency or organization to audit its GRI responses.

For more information on the disclosures that are relevant to SONGWON's business operations, see the GRI Content Index on pages 114-117.



Forward-looking Statements

SONGWON's Annual Report 2019 contains forward-looking statements concerning the future plans, strategies and performance of the SONGWON Group. Some of the statements contained in this report that are not historical facts are statements of future expectations and other forward-looking statements reflecting SONGWON Group management's views, assumptions and expectations available at the date of publication. Please be advised that these involve known and unknown risks and uncertainties which are difficult to predict and generally beyond our control, and could cause the actual results, financial situation, performance or events to differ materially from those expressed in, implied or projected by the forward-looking information and statements contained within this report.

These statements may be identified by words such as 'anticipate', 'assume', 'believe', 'could', 'expect', 'foresee', 'plan', 'shall', 'should', and other similar words or expressions used to identify forward-looking statements. Furthermore, any statement that refers to expectations, projections or other indications of future events or circumstances, including any underlying assumptions should also be considered forward-looking statements. SONGWON does not intend and does not assume any obligation to update or amend any industry information or forward-looking statements or forecasts presented in this report to reflect new information, subsequent events and developments or otherwise except as required by applicable law or stock exchange regulation.

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