



Fuel and Lubricant
Antioxidants

A comprehensive range of products that enhance the performance and prolong the life of engines and machinery

With more than 50 years' experience in stabilization, SONGWON offers an extensive portfolio of fuel and lubricant additives for automotive, industrial applications and biofuels including aminic, phenolic, phosphite and thioester antioxidants. Close cooperation with customers allows the development of solutions for today and tomorrow, and the range is constantly being expanded to meet market needs.

By improving the performance of lubricants and fuels to ensure that they last longer and help to protect engines and equipment, SONGWON antioxidants also make an important contribution to environmental sustainability.

SONGWON manufactures fuel and lubricant antioxidants at its plant in South Korea, in which it invests continuously in anticipation of new industry requirements. Backward integration of key raw materials and economies of scale help to guarantee availability and reliable supply.

Product range selection guide

type of Antioxidants	Product	Automotive				Industrial				Speciality & fuels					
		Gasoline engine oils	Diesel engine oils	ATF	ETF	Gear & axle oils	Compressor oils	Hydraulic oils	Metallworking fluids	Turbine oils	Greases	Marine Lubricants	Vegetable Base Oils	Fuels	Heavy Petroleum distillates
Aminic	SONGNOX® L570	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	SONGNOX® L575	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	SONGNOX® L670	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Phenolic	SONGNOX® L101					□			□		□		□		
	SONGNOX® L102										□				■
	SONGNOX® L107	□	□					□		□	□		□		
	SONGNOX® L115	□	□								■		□		
	SONGNOX® L126			□	□	□	□	□	■	■	□	□	■	■	□
	SONGNOX® L135	■	■	□	□	□	□	■	□	□	□	□	□	□	
Thioester	SONGNOX® L224	□	□	□	□	□	□	□	□	□					
	SONGNOX® L226	□	□	□	□	□	□	□	□	□					
Phosphite	SONGNOX® L416			□	□	□	□	□	□	□					

ATF: automatic transmission fluid; ETF: electrified transmission fluid. ■ Recommended. □ Suitable.



EXTENDED LIFE

Enhance Efficiency

type of Antioxidants	Product	TGA in air		Solubility* (wt.%) at 20°C					
		% mass loss	°C	Group I	Group II	Group III	Group IV (PAO)	Ester	Water
Aminic	SONGNOX® L570	5%	233	> 10.0	> 10.0	> 10.0	> 10.0	> 10.0	< 0.01
		25%	282						
		50%	308						
Aminic	SONGNOX® L575	5%	235	> 10.0	> 10.0	> 10.0	> 10.0	> 10.0	< 0.01
		25%	290						
		50%	318						
Aminic	SONGNOX® L670	5%	250	> 10.0	> 10.0	> 10.0	> 10.0	> 10.0	< 0.01
		25%	299						
		50%	329						
Phenolic	SONGNOX® L101	5%	328	< 0.3	< 0.2	< 0.2	< 0.1	> 2.0	< 0.01
		25%	365						
		50%	392						
	SONGNOX® L102	5%	301	< 0.05	< 0.05	< 0.05	< 0.05	< 0.3	< 0.01
		25%	331						
		50%	350						
	SONGNOX® L107	5%	297	> 5.0	> 2.0	> 2.0	> 2.0	> 5.0	< 0.01
		25%	332						
		50%	349						
Phenolic	SONGNOX® L115	5%	307	< 1.0	< 1.0	< 1.0	< 1.0	> 5.0	< 0.01
		25%	341						
		50%	356						
Phenolic	SONGNOX® L126	5%	95	> 5.0	> 5.0	> 5.0	> 5.0	> 10.0	< 0.01
		25%	144						
		50%	167						
Phenolic	SONGNOX® L135	5%	244	> 10.0	> 10.0	> 10.0	> 10.0	> 10.0	< 0.01
		25%	291						
		50%	315						
Thioester	SONGNOX® L224	5%	262	> 2.0	> 2.0	> 2.0	> 2.0	> 5.0	< 0.01
		25%	292						
		50%	311						
Thioester	SONGNOX® L226	5%	282	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0	< 0.01
		25%	327						
		50%	348						
Phosphite	SONGNOX® L416	5%	234	> 1.0	< 0.8	< 0.8	< 0.8	> 1.0	< 0.01
		25%	269						
		50%	291						

* Test oils are of ISO 32 viscosity grade or similar

Aminic, Phenolic, Phosphite and Thioester Antioxidants

	Molecular Weight	Melting Range (°C)	Viscosity at 40°C Kinematic (mm ² /s)	Density at 20°C (g/cm ³)	Element Content (%)			NSF / FDA ¹	LuSc List ²	EU REACH	Kosher	Halal		
					S	P	N							
SONGNOX® L570 Mixture of butylated & octylated diphenylamine CAS No: 68411-46-1 LQ		Butyl, octyl diphenylamine antioxidant	–	400	0.98	–	–	4.5	0.5 wt. %	–	Yes	Yes	Yes	
SONGNOX® L575 Mixture of butylated & octylated diphenylamine, DPA < 0.1% CAS NO. 68411-46-1 LQ		Butyl, octyl diphenylamine antioxidant	–	400	0.98	–	–	4.5	–	–	Yes	Yes	Yes	
SONGNOX® L670 Bis(nonylphenyl)amine CAS No: 36878-20-3 LQ		Nonyl diphenylamine antioxidant	–	600	0.95	–	–	3.6	2.0 wt. % (NSF only)	Yes	Yes	Yes	Yes	
SONGNOX® L101 Tetrakis[methylene-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate]methane CAS No: 6683-19-8 PW			1178	110.0 ~ 125.0	Solid	Solid	–	–	–	0.5 wt. %	–	Yes	Yes	Yes
SONGNOX® L102 1,2-bis(3,5-di-tert-butyl-4-hydroxyhydrocinnamoyl)hydrazine CAS NO. 32687-78-8 PW, FF			553	221.0 ~ 232.0	Solid	Solid	–	–	5.1	–	–	Yes	–	–
SONGNOX® L107 Octadecyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate CAS No: 2082-79-3 CP, SB			531	50.0 ~ 55.0	Solid	Solid	–	–	–	–	Yes	Yes	Yes	Yes
SONGNOX® L115 Thiodiethylenebis[3-(3,5-ditert-butyl-4-hydroxyphenyl)propionate] CAS No: 41484-35-9 PW, FF			643	> 65.0	Solid	Solid	5.0	–	0.5 wt. %	Yes	Yes	Yes	Yes	
SONGNOX® L126 2,6-di-tert-butylphenol CAS No: 128-39-2 SL			206	> 34.0	Solid	Solid	–	–	–	–	–	Yes	Yes	Yes
SONGNOX® L135 Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, C7-9-branched alkyl esters CAS No: 125643-61-0 LQ			390	–	125	0.97	–	–	–	–	Yes	Yes	Yes	Yes
SONGNOX® L224 Dilauryl thiodipropionate CAS No: 123-28-4 PW, SB, LQ			515	38.0 ~ 41.0	Solid	Solid	6.2	–	–	–	–	Yes	–	–
SONGNOX® L226 Ditridecyl thiodipropionate CAS No: 10595-72-9 LQ			543	–	27	0.94	5.9	–	–	–	Yes	–	–	
SONGNOX® L416 Tris(2,4-di-tert-butylphenyl) phosphite CAS No: 31570-04-4 PW, FF			647	181.0 ~ 187.0	Solid	Solid	–	4.8	–	0.5 wt. %	–	Yes	Yes	Yes

Specifications overview

Standard Packaging

- **Antioxidants, Solids:** 20 kg PE Bag
- **Antioxidants, Liquids:** 185 kg Steel Drum
190 kg Steel Drum
900 kg IBC
20 MT ISO Tank

Standard pallet size is CP1 and CP3.

Key to Abbreviations of Physical Forms

- | | | | |
|------------------------|-------------------------------|---------------------------------|-----------------------------|
| ▪ PW: Powder | ▪ DW: Dispersion | ▪ BD: Beads | ▪ GR: Granule |
| ▪ SB: Semi Bead | ▪ MB: Micro Beads | ▪ DF: Dust Free Flow | ▪ FG: Fine Grind |
| ▪ SL: Solid | ▪ FC: Fusion Crystal | ▪ CP: Crystalline Powder | ▪ VL: Viscous Liquid |
| ▪ FF: Free Flow | ▪ LQ: Liquid or Molten | ▪ PS: Pastilles | |

Transport and Storage

As a general guideline, we recommend storing the products mentioned in this brochure in their original sealed containers in a cold and dry place. For more detailed information on a specific product, please refer to the corresponding **Technical Data Sheet**.

By law, a number of chemical products must be labeled in respect of transport, storage and handling. Thus corresponding care is a prerequisite for their appropriate handling. Furthermore, local legal regulations may apply.

Detailed information is given in the respective **Safety Data Sheets**.



About SONGWON

A leader in the development, production and supply of specialty chemicals, SONGWON's products touch your life every day, everywhere. Since 1965, we've been driving innovation, partnering for progress and paving the way for a better more sustainable tomorrow with 360° customized solutions.

Headquartered in South Korea, SONGWON is one of the largest manufacturer of polymer stabilizers worldwide. With Group companies and world-class manufacturing facilities across the globe, we are dedicated to providing customers in over 60 countries with high-performance products that meet their individual needs and the best levels of service.

For further information, please go to:
www.songwon.com

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SONGWON provides customers with warranties and representations as to the chemical or technical specifications, compositions and/or the suitability for use for any particular purpose exclusively in individual written agreements.

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