Tin Intermediates and Catalysts

Extensive and long-standing experience in tin intermediates

SONGWON makes use of its expertise in alkyl tin oxides to refine processes for producing organotin compounds based on butyl and octyl oxide (DBTO and DOTO). Applications include electrodeposition coatings, tin catalysts and stabilizers for PVC.

Butyl and octyl oxides are the main catalysts used in electrodeposition coating technology, which is applied extensively in the global automotive industry.

Tin catalysts based on butyl, methyl and octyl derivates support various chemical reactions such as esterification.

Tin stabilizers prevent degradation of PVC resins, which require particularly high heat resistance.

Customers can select from a wide range of SONGWON’s tin intermediates, depending on applications and requirements.
# Product range selection guide

## Butyltin Compounds
- **SONGCAT™ DBTO**
- **SONGCAT™ MBTC**
- **SONGCAT™ TBT**

## Octyltin Compounds
- **SONGCAT™ DOTO**
- **SONGCAT™ DOTC**
- **SONGCAT™ TOT**

## Methyltin Compounds
- **SONGCAT™ DMTC**
- **SONGCAT™ MTW-50**
- **SONGCAT™ MTM-70**

The table includes columns for Electrodeposition, Urethanes, Electrical conductive films, Glass coatings, Saturated polyesters, Unsaturated polyesters, PVC stabilization, Acryl acid esters, Silicones, Dense coatings, Organic chemistry, and Drug. The symbols represent recommended (black) and suitable (gray) applications for each compound.
## Tin Intermediates

<table>
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<tr>
<th>Product</th>
<th>Molecular Weight</th>
<th>Sn Content (%)</th>
<th>Specific Gravity</th>
<th>Bulk Density at 20°C</th>
<th>Applications</th>
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</table>
| **SONGCAT™ DBTO** | (C\(_6\)H\(_{13}\)) \(_2\) – Sn = O | 248.9          | 47.5 ± 0.5       | –                    | • Intermediate for outstanding heat-resistant and weatherable butyltin PVC stabilizers  
                   |                  |                |                  | approx. 0.6 g/ml (PW) approx. 0.8 g/ml (DF)                                | • Catalyst for electrodeposition paints  
                   |                  |                |                  |                                      | • Catalyst for esterification and trans-esterification reaction  
                   |                  |                |                  |                                      | • Raw material for polyurethane catalysts |
| **SONGCAT™ MBTC**| C\(_6\)H\(_{13}\) – Sn – Cl\(_3\) | 282.2          | > 41.0           | 1.70 – 1.75 g/ml (at 25°C) | • Intermediate for butyltin PVC stabilizers  
                   |                  |                |                  |                                    | • Protection against damage caused by extraneous contact on glass surfaces  
                   |                  |                |                  |                                    | • Humidity reduces stability |
| **SONGCAT™ TBT** | (C\(_6\)H\(_{13}\)) \(_4\) – Sn | 347.1          | > 33.0           | 1.06 – 1.09 g/ml (at 20°C) | • Intermediate for non-toxic FDA-approved butylin PVC stabilizers  
                   |                  |                |                  |                                    | • Raw material for manufacturing organotin compounds |
| **SONGCAT™ DOTO**| (C\(_8\)H\(_{17}\)) \(_2\) – Sn = O | 361.1          | 32.7 ± 0.5       | –                    | • Intermediate for non-toxic FDA-approved octyltin PVC stabilizers  
                   |                  |                |                  | approx. 0.6 g/ml (PW) approx. 0.6 g/ml (DF) approx. 0.2 g/ml (FPW)   | • Catalyst for electrodeposition paints  
                   |                  |                |                  |                                    | • Raw material for polyurethane catalysts |
| **SONGCAT™ DOTC**| (C\(_8\)H\(_{17}\)) \(_2\) – Sn – Cl\(_2\) | 416.1          | 28.0 ± 1.0       | 1.15 – 1.18 g/ml (at 50°C) | • Intermediate for non-toxic FDA-approved octyltin PVC stabilizers  
                   |                  |                |                  |                                    | • Raw material for manufacturing organotin compounds |
| **SONGCAT™ TOT** | (C\(_8\)H\(_{17}\)) \(_4\) – Sn | 571.6          | > 20.0           | 0.92 – 0.99 g/ml (at 20°C) | • Intermediate for non-toxic FDA-approved octyltin PVC stabilizers  
                   |                  |                |                  |                                    | • Raw material for manufacturing organotin compounds |
| **SONGCAT™ DMTC**| (CH\(_3\)) \(_2\) – Sn – Cl\(_2\) | 219.7          | > 53.0           | –                    | • Intermediate for methyltin PVC stabilizers  
                   |                  |                |                  |                                    | • Raw material for polyurethane catalysts  
                   |                  |                |                  |                                    | • Coating material for glass and protection against damage on glass surfaces  
                   |                  |                |                  |                                    | • Sourcing material for developing electrically conductive thin film |
| **SONGCAT™ MTW-50**| (CH\(_3\)) \(_2\) – Sn – Cl\(_2\) | 219.7          | > 53.0           | 1.39 – 1.43 g/ml (at 25°C) | • Used for manufacturing of organotin compounds  
                   |                  |                |                  |                                    | • Intermediate for methyltin PVC stabilizers  
                   |                  |                |                  |                                    | • Coating material for glass and protection against damage on glass surfaces  
                   |                  |                |                  |                                    | • Sourcing material for developing electrically conductive thin film |
| **SONGCAT™ MTM-70**| (CH\(_3\)) \(_2\) – Sn – Cl\(_2\) | 219.7          | > 53.0           | 1.40 – 1.48 g/ml (at 25°C) | • Suitable for manufacturing organotin compounds  
                   |                  |                |                  |                                    | • Suitable for polyurethane form baking for carpet |
# Tin Catalysts

<table>
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<tr>
<th>SONGSTAB™ TL-100</th>
<th>Dosage (PHR)</th>
<th>Characteristics</th>
<th>Applications</th>
</tr>
</thead>
</table>
| Dibutyltin dilaurate LQ | (100 – 2000 ppm for Catalyst) 0.5 – 1.5 | • Pure dibutyltin dilaurate  
• Slow cure catalyst for RTV (room temperature vulcanizing) silicone systems and PU foams and elastomers  
• Excellent initial lubricity and weatherability  
• Initial colorless products are obtainable when used in combination with other organotin, liquid organic stabilizers | • Catalyst for polyurethanes and silicone RTV  
• Rigid, flexible PVC calenderings and extrudings |
| SONGSTAB™ TL-190 | (100 – 2000 ppm for Catalyst) 0.5 – 1.5 | • Dibutyltin dilaurate  
• Slow cure catalyst for RTV (room temperature vulcanizing) silicone systems and PU foams and elastomers  
• Much lower freezing temperature than TL-100  
• Excellent initial lubricity and weatherability  
• Initial colorless products are obtainable when used in combination with other organotin, liquid organic stabilizers | • Catalyst for polyurethanes and silicone RTV  
• Rigid, flexible PVC calenderings and extrudings |
| SONGSTAB™ BT-300 | 100 – 2,000 ppm | • Catalyst has a moderate activity that allows a longer pot life for silicone emulsions and adhesives that cure at room temperature | • Catalyst for polyesters and silicone RTV |
| SONGSTAB™ TL-710 | 100 – 2000 ppm | • Slow cure catalyst for RTV (room temperature vulcanizing) silicone systems and PU foams and elastomers  
• Less moisture sensitivity and higher activation temperature than conventional dibutyltin dilaurate | • Catalyst for polyurethanes and silicone RTV |
| SONGSTAB™ TL-720 | 100 – 2000 ppm | • Slow cure catalyst for RTV (room temperature vulcanizing) silicone systems and PU foams and elastomers  
• Less moisture sensitivity and higher activation temperature than conventional dibutyltin dilaurate  
• Much lower freezing temperature than TL-710 | • Catalyst for polyurethanes and silicone RTV |
| SONGSTAB™ T-320 | 100 – 2000 ppm | • Slow cure catalyst for RTV (room temperature vulcanizing) silicone systems and PU foams and elastomers  
• Less moisture sensitivity and higher activation temperature than conventional dibutyltin dilaurate | • Catalyst for polyurethanes and silicone RTV |
| SONGSTAB™ MT-710 | 100 – 2000 ppm | • Moderate to rapid cure catalyst for RTV (room temperature vulcanizing) silicone systems and PU foams and elastomers  
• When evaluating MT-710 in comparison to dibutyltin dilaurate (TL-100), an initial amount of one third is recommended | • Catalyst for polyurethanes and silicone RTV |
Standard Packaging

- **DBTO, DOTO, Solids:** 20 kg Paper Bag
- **MBTC, Liquids:**
  - 45 kg PE Drum
  - 50 kg Steel Drum
- **DOTC, MTW-50, MTM-70, Liquids:**
  - 220 kg Steel Drum
- **TOT, Liquids:**
  - 200 kg Steel Drum

Key to Abbreviations of Physical Forms

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

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 the 2nd 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
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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