

# FLOWTIN+ TC Ge300ppm

Micro Alloyed Lead-Free Solder for Electronic Application

## DESCRIPTION

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Stannol Flowtin+ TC Ge300ppm is a solder alloy on basis of tin/copper Sn99.3Cu0.7 and has been developed to minimize dross formation on solder bath surfaces when operated in air. It has been designed for higher solder bath operating temperatures. As soldering under nitrogen is also not completely free from oxygen, the surface of the liquid solder stays longer clean with Flowtin+ TC Ge300ppm.

## CHARACTERISTICS

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Flowtin TC Ge300ppm offers the following advantages:

- **Advanced solder for wave, selective and dip soldering**
- **Less dross formation at higher operating temperatures**
- **Less solder bath maintenance**
- **Reduces tin oxide related soldering defects**
- **Eutectic solder (melting point at 227 °C)**
- **Lowest operating temperature at 260-270°C, can be used up to 400°C**

## APPLICATION

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Switching from any lead-free solder to Flowtin+ Ge300ppm all operating conditions can be set to the same level as it would be appropriate for tin-copper solder. Physical main properties are not changing by adding micro-alloying elements to prevent copper dissolution and additives for dross prevention. As the Germanium as an antioxidant will be consumed after some operating time, we recommend to add Sn99Ge1 anti-oxidation-pellets to maintain the low dross formation. The time and amount of adding these pellets is very strong depending on your process details like operating temperature, solder consumption and some more. We recommend adding appropriate amounts of pellets, if operating conditions have been noticeably changed.

**There are some differences between common Ecoloy TC and the advanced Flowtin+ TC Ge300ppm:**

- **Solidification of the solder joint with finer micro grain structure**
- **Smooth and shiny surface after solidification**
- **Reduced copper dissolution**
- **Prolonged lifetime of solder bath**
- **Flowtin+ TC Ge300ppm reduces dross formation**
- **Less soldering defects**
- **Less maintenance of soldering equipment**

## PHYSICAL PROPERTIES AND DATA

GENERAL PROPERTIES	S-Sn63Pb37*	STANNOL ECOLOY TC (S-Sn99Cu1)*	STANNOL FLOWTIN TC (Sn99Cu1)**	STANNOL FLOWTIN+ TC Ge300ppm (Sn99Cu1)**
<b>Melting Point, °C:</b>	183	227	227	<b>227</b>
<b>Electrical Conductivity, %IACS:</b>	11,9	---	15,6	<b>15,6</b>
<b>Electrical Resistivity, <math>\mu\Omega\text{cm}</math>:</b>	14,5	---	12,6	<b>12,6</b>
<b>Brinell Hardness, HB:</b>	17	---	9	<b>9</b>
<b>Density, g/cm<sup>3</sup>:</b>	8,4	7,3	7,3	<b>7,3</b>

\* in compliance with ISO 9453:2006

\*\* in compliance with ISO 9453:2006 with micro additives <0,07%

## RECOMMENDED CONDITIONS OF USE

**Wave soldering:** The recommended operation conditions for Flowtin+ TC Ge300ppm in wave soldering are the same like standard tin copper (Ecoloy TC), as the melting point (227°C) remains the same. Operating temperatures start at 265°C minimum while the optimum effectiveness of Flowtin+TC Ge300ppm TC is at higher temperatures up to 400°C.

## PURITY

Like S-Sn99Cu1 according to DIN EN 61190-1-3 and ISO 9453:2006, but with micro-additives of <500ppm and 300ppm desoxidation-additive.

## SUPPLY FORMS

Triangular bars, Kg-bars, Ingots with hanging hole

## NOTICE

The above values are typical and represent no form of specification. The Data Sheet serves for information purposes. Any verbal or written advise is not binding for the company, whether such information originates from the company offices or from a sales representative. This is also in respect of any protection rights of third parties, and does not release the customer from the responsibility of verifying the products of the company for suitability of use for the intended process or purpose. Should any liability on the part of the company arise, the company will only indemnify for loss or damage to the same extent as for defects in quality.