

SOLDER FLOWTIN TSC0307

New Lead-Free Solder Alloy for Electronic Application

DESCRIPTION

Stannol Flowtin TSC0307 (Sn99Ag0.3Cu0.7) is a lead free alloy of the system tin/silver/copper. RoHS compliant.

Flowtin TSC0307 is the second generation lead-free alloy. It provides an improved lead-free soldering process compared with SnCu and SnCuNi-alloys.

Flowtin TSC0307 reduces the metal costs compared with standard alloys like TSC/SAC305 and TSC/SAC387 above more than 30%.

CHARACTERISTICS

This product offers the following advantages:

- Tin-Silver-Copper alloy (melting range at 217-226°C)
- Low silver content, saves costs compared with conventional tin/silver/copper alloys
- Good wetting performance better than Sn-Cu base alloy
- Fine grain surface, no shrinking holes
- Reduced dissolution of substrate metal compared with **Flowtin TC**

APPLICATION

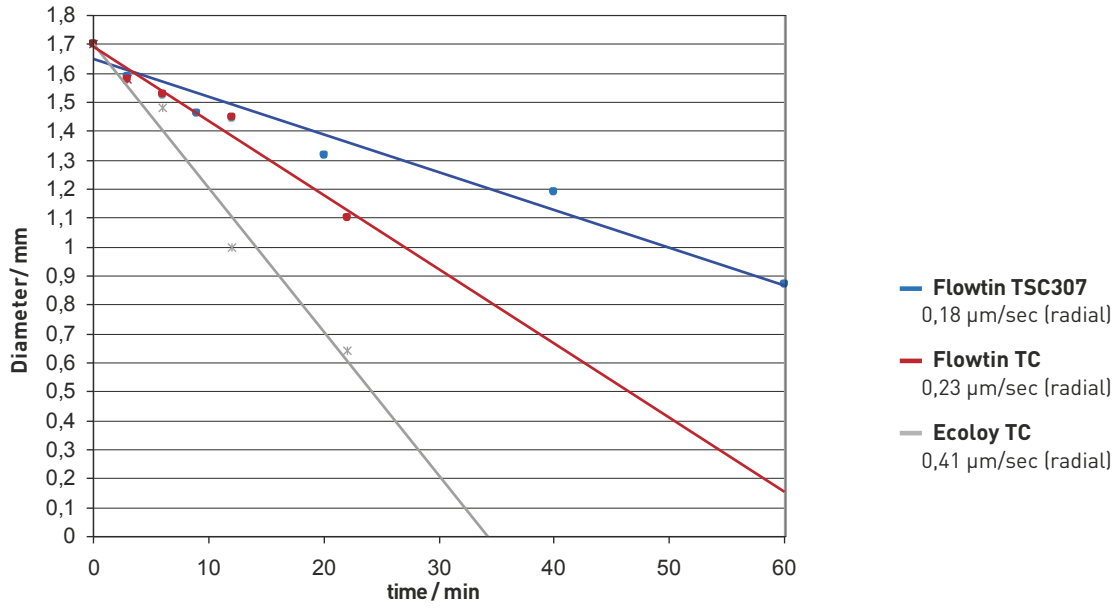
It is necessary to adjust machine settings, temperature profiles, and other parameters to the requirements of a lead free process.

The properties of the solder joints are at least comparable or even better than conventional lead free solder joints.

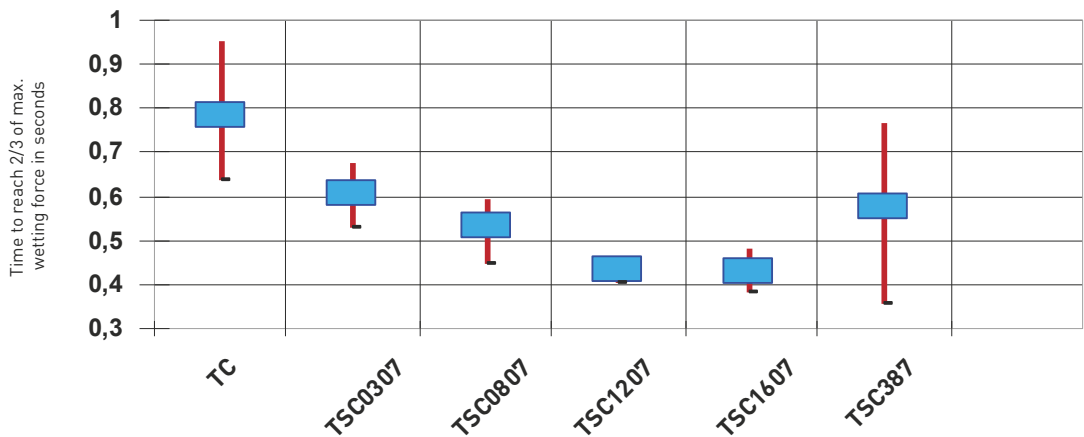
The physical properties do not change by adding micro additives. There are differences between **Flowtin TC** and **Flowtin TSC0307**:

- **Better wetting of component leads and pads**
- **Improved process performance, soldering defects will be reduced**
- **Lower dissolution rate of substrate metal (copper)**
- **Longer service life of solder bath by less contamination**
- **Decrease of melting range (solidus 217°C)**

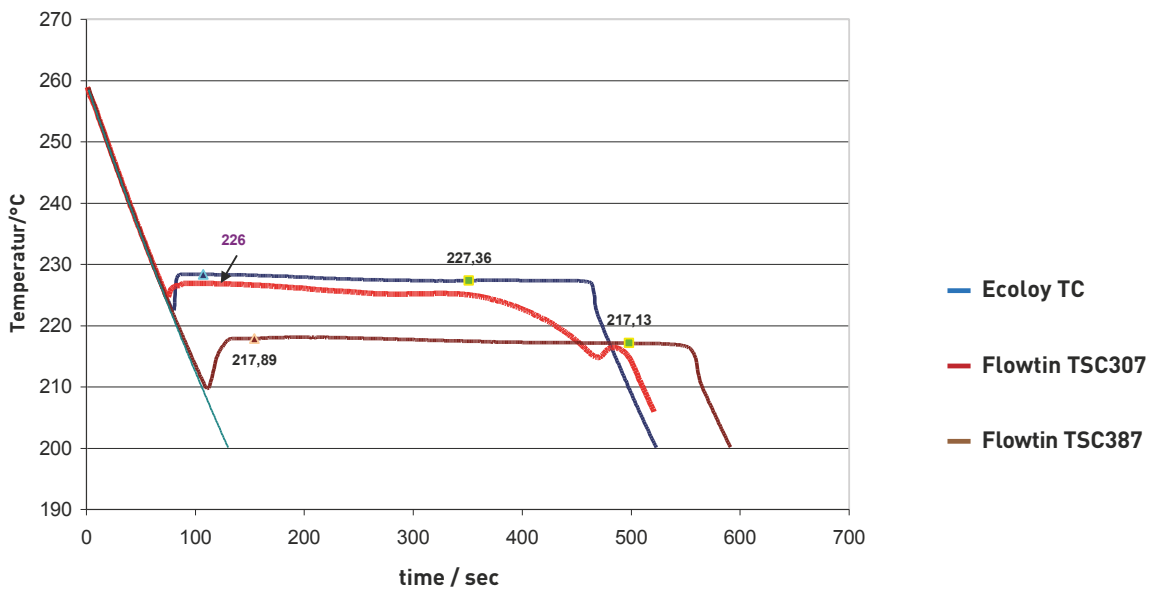
Dissolution EcologyTC- FlowtinTC - FlowtinTSC0307



Wetting test Minimelf



Cooling curve TC-TSC



PHYSICAL PROPERTIES AND DATA OF ECOLOY AND FLOWTIN SOLDERS COMPARED TO S-Sn63Pb37

Properties	S-Sn63Pb37***	Stannol Ecoloy TSC (S-Sn95.5Ag3.8Cu0.7)***	Stannol Ecoloy TC (S-Sn99.3Cu0.7)***	Stannol Flowtin TC (S-Sn99.3Cu0.7)****	Stannol Flowtin TSC0307 (S-Sn99Cu0.7Ag0.3)****
Melting Point, °C Melting Range, °C	183	217	227	227	217-226
Electrical Conductivity %IACS	11.9	13	15.6	15.6	14
Electrical Resistivity, $\mu\Omega\text{cm}$	11.9	13	15.6	15.6	14
Brinell Hardness, HB	17	15	9	9	11
Density, g/cm^3	8.4	7.5	7.3	7.3	7.3
Tensile Strength, (20°C) / N mm^{-2} at 0.004 s^{-1} Shear Rate	40	48	48		48
Shear Strength N mm^{-2} at 0.1 mm^{-1} , 20°C at 0.1 mm^{-1} , 100°C	23 14	27 17	23 16	23** 16**	25 17
Creep Resistance* N mm^{-2} 20°C 100°C	3.3 1.0	13.0 5.0	8.6 2.1	8.6** 2.1**	9 3

* Shear Stress for 10³ h time to failure, References: IDEALS

** Interim data comparable to Ecoloy® TC-alloy

*** Complying with DIN EN ISO 9453

**** Complying with DIN EN ISO 9453 with micro additives <0.1%.

RECOMMENDED CONDITIONS OF USE

Wave soldering: The recommended operation conditions for wave soldering are the same like normal **Ecoloy TC** and **Flowtin TC** solders. Soldering bath temperatures from 255-270°C are possible, on selective soldering process higher temperatures may be applicable.

PURITY

Like Sn99Cu.7Ag.3 according to DIN EN 61190-1-3 and S-Sn99Cu0.7Ag0.3 according to DIN EN ISO 9453 (No. 501), but with micro-additives <0.1%.

SUPPLY FORMS

Solder Wire (solid and flux cored)
Triangular bars
Kg-bars
Ingots with hanging hole

HEALTH AND SAFETY

Before using please read the material safety data sheet carefully and observe the safety precautions described.

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.