



SOLDER ECOLOY TSC0307

Lead-free solder alloy for electronic application

DESCRIPTION

Stannol Ecoloy TSC0307 (S-Sn99Cu0.7Ag0.3) is a lead free alloy according to DIN EN ISO 9453 (alloy no. 501). The use of Ecoloy TSC0307 guarantees that lead-free assemblies can be produced according to WEEE and RoHS. Ecoloy TSC0307 is the second generation lead-free alloy. It provides an improved lead-free soldering process compared with SnCu and SnCuNi-alloys. Ecoloy TSC0307 reduces the metal costs compared with standard alloys like TSC/SAC305 and TSC/SAC387 by more than 30%.

CHARACTERISTICS

Stannol Ecoloy TSC0307 offers the following advantages:

- **tin-silver-copper alloy (melting range at 217-227°C)**
- **low silver content, saves costs compared with conventional tin/silver/copper alloys**
- **good wetting performance better than Sn-Cu base alloy**
- **extended operating conditions compared with Ecoloy TC (S-Sn99.3Cu0.7)**

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.

There are differences between Ecoloy TC (S-Sn99.3Cu0.7) and Ecoloy TSC0307 (S-Sn99Cu0.7Ag0.3):

- **better wetting of component leads and pads**
- **improved process performance, soldering defects will be reduced**
- **longer service life of solder bath by less contamination**
- **decrease of melting range (solidus 217°C)**

PHYSICAL AND MECHANICAL CHARACTERISTICS OF ECOLOY SOLDERS IN COMPARISON WITH S-Sn63Pb37

GENERAL PROPERTIES	S-Sn63Pb37***	Stannol Ecoloy TSC (S- Sn95.5Ag3.8Cu0.7)***	Stannol Ecoloy TC (S-Sn99.3Cu0.7)***	Stannol Ecoloy TSC0307 (S-Sn99Cu0.7Ag0.3)***
Melting Point / Range, °C:	183	217	227	217-227
Electrical Conductivity, %IACS:	11.9	13	15.6	14
Electrical Resistivity, $\mu\Omega\text{cm}$:	14.5	13	12.6	12.6
Brinell Hardness, HB:	17	15	9	11
Density, g/cm³:	8.4	7.5	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 0.1mm⁻¹, 20°C:	23	27	27	**
at 0.1mm⁻¹, 100°C:	14	17	17	**
Creep Resistance* N mm⁻² 20°C:	3.3	13.0	8.6	9
100°C:	1.0	5.0	2.1	3

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

** Interim data comparable to Ecoloy TC (S-Sn99.3Cu0.7)

*** Complying with DIN EN ISO 9453

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 depending on the thermal demand of the components.

SUPPLY FORMS

Triangular bars
Kg-bars
Ingots with suspension eye
Pellets

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.