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)**

Haberstr. 24 • 42551 Velbert • Tel: +49 (0)2051-3120-0 • Fax: +49 (0)2051-3120-111 • E-Mail: info@stannol.de • www.stannol.de

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, µΩcm:	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

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