



**STANNOL**<sup>®</sup>

Wenn's ums Löten geht  
When it's about soldering  
Quand il s'agit du soudage

## Technical Data Sheet

# STANNOL<sup>®</sup> Solder ECOLOY<sup>®</sup> TSC0307

## Lead-Free Solder Alloy for Electronic Application

- 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<sup>®</sup> TC**

### Description

**STANNOL<sup>®</sup> ECOLOY<sup>®</sup> TSC0307** (Sn99Ag0.3Cu0.7) is a lead free alloy of the system tin/silver/copper. RoHS compliant.

**ECOLOY<sup>®</sup> TSC0307** is the second generation lead-free alloy. It provides an improved lead-free soldering process compared with SnCu and SnCuNi-alloys.

**ECOLOY<sup>®</sup> TSC0307** reduces the metal costs compared with standard alloys like TSC/SAC305 and TSC/SAC387 by more than 30%.

### 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<sup>®</sup> TC** and **ECOLOY<sup>®</sup> TSC0307**:

- **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)**

The above values are typical and represent no form of specification. The Data Sheet serves for information purposes. Any verbal or written advice 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.



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## Physical and Mechanical Properties of ECOLOY® solders compared with Sn63Pb37:

Properties	S-Sn63Pb37***	STANNOL® ECOLOY TSC (S-Sn95Ag4Cu1)***	STANNOL® ECOLOY® TC (S-Sn99Cu1)***	STANNOL® ECOLOY® TSC0307 (S-Sn98Cu1Ag)***
Melting Point, °C	183	217	227	217-227
Melting Range, °C				
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/cm <sup>3</sup>	8.4	7.5	7.3	7.3
Tensile Strength, (20°C) / N mm <sup>-2</sup>				
at 0.004 s <sup>-1</sup> Shear Rate	40	48	48	48
Shear Strength N mm <sup>-2</sup> at 0.1mm <sup>-1</sup> , 20°C	23	27	23	25
at 0.1mm <sup>-1</sup> , 100°C	14	17	16	17
Creep Resistance* N mm <sup>-2</sup> 20°C	3.3	13.0	8.6	9
100°C	1.0	5.0	2.1	3

\* Shear Stress for 10<sup>3</sup> h time to failure, References: IDEALS

\*\*\* Complying with ISO 9453:2006

\*\* Interim data comparable to EcoLOY® TC-alloy

## 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.

## Purity

Sn99Ag0.3Cu0.7 as well as S-Sn98Cu1Ag according to ISO 9453:2006 (No. 501)

## 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.

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