Technical Data Sheet

STANNOL® Solder FLOWTIN® TSC

New Lead-Free Solder Alloy for Electronic Application

- Eutectic Solder (melting point at 217°C)
- Good wetting performance
- Fine grain and smooth surface better than **ECOLOY® TSC** (S-Sn95Ag4Cu1)
- Reduced dissolution of substrate metal compared with **ECOLOY® TSC** (S-Sn95Ag4Cu1)
- Easy disposal – no lead containing waste

Description

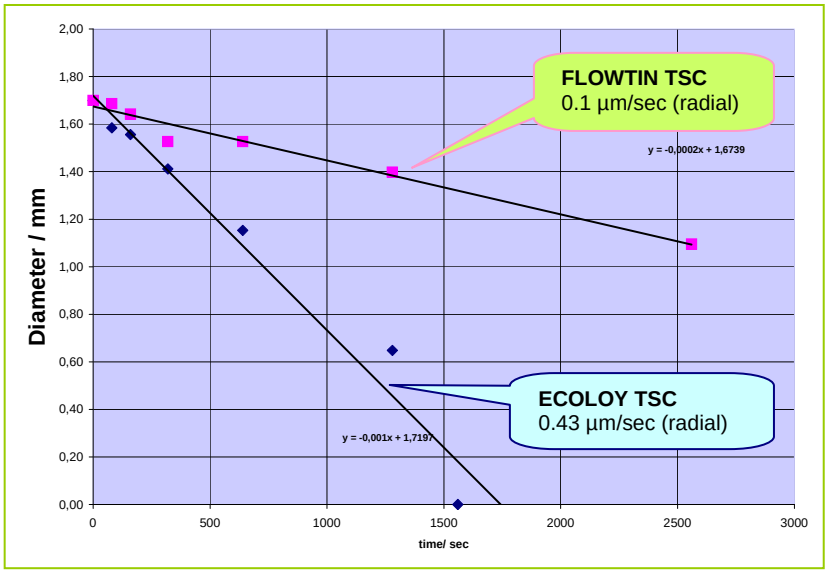
STANNOL® FLOWTIN® TSC was designed to eliminate the use of lead containing solders in electric and electronics manufacturing.

Application

Like with **ECOLOY® TSC** solder it is necessary to adjust machine settings, temperature profiles, and other parameters to the requirements of a lead free process. But there is nothing to do when switching from **ECOLOY® TSC** to **FLOWTIN® TSC**, all settings and parameters remain the same. The properties of the solder joints are at least comparable or even better than tin/lead.

The physical properties of **FLOWTIN® TSC** do not change compared to common tin/silver/copper solder. But there are differences between **ECOLOY® TSC** and **FLOWTIN® TSC** with micro additives.

- The solder joint solidifies as fine grain metal; therefore the surface is shinier
- The dissolution of substrate metal is reduced
- The service life of solder baths is extended due to smaller copper enrichment



Radial dissolution of copper wire in FLOWTIN® TSC solder bath @300°C

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

Properties	S-Sn63Pb37*	STANNOL® ECOLOY TSC (S-Sn95Ag4Cu1)*	STANNOL® ECOLOY® TS (S-Sn96Ag4)*	STANNOL® ECOLOY® TC (S-Sn99Cu1)*	STANNOL® FLOWTIN® TSC (S-Sn95Ag4Cu1)**
Melting Point, ℃	183	217	221	227	**217**
Electrical Conductivity %IACS	11.9	13	14	15,6	**-**
Electrical Resistivity, µΩcm	14.5	13	12.3	12,6	**-**
Brinell Hardness, HB	17	15	15	9	**-**
Density, g/cm^3	8.4	7.5	7.5	7.3	**7.5**
Tensile Strength, (20℃) / N mm^{-2} at 0.004 s^{-1} Shear Rate	40	48	58	48	**-**
Shear Strength N mm^{-2} at 0.1mm^{-1}, 20℃ at 0.1mm^{-1}, 100℃	23 14	27 17	27 17	23 16	**27** **16**
Creep Resistance* N mm^{-2} 20℃ 100℃	3.3 1.0	13.0 5.0	13.7 5.0	13.7 5.0	**13** **5.0**

Complying with ISO 9453:2006** * Complying with ISO 9453:2006 with micro additives <0.05%.**

Recommended Conditions of Use

Wave soldering

The recommended operation conditions for wave soldering are the same like normal **ECOLOY® TSC** solders, since the melting point remains the same.

Purity

Sn95.5Ag3.8Cu0.7 like S-Sn95Ag4Cu1 according to DIN EN 61190-1-3 and ISO 9453:2006, but with micro-additive <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.

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