STANNOL®

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

Technical Data Sheet

STANNOL® Solder ECOLOY® TSC263

Patent-free alternative for electronics

- **No licence fees!**
- Tested with good results in the electronics production
- Melting range comparable with **ECOLOY® TSC305** (S-Sn96Ag3Cu1)
- Characteristics comparable with **ECOLOY® TSC305** (S-Sn96Ag3Cu1)
- Extended operating time by reduced Copper content
- Favourable price by low Silver content

Description

STANNOL® ECOLOY® TSC263 (Sn97.1Ag**2**.**6**Cu0.**3**) was developed as a new alloy to eliminate the usage of conventional tin/lead alloys in the existing production processes of electronics assembly. All around where lead free PCBs and components are in use, the application of **STANNOL® ECOLOY® TSC263**, assures that lead-free components can be produced according to WEEE and RoHS.

STANNOL® ECOLOY® TSC263 is **patent-free**, and manufactured products are free of claims regarding the composition of the solder. Even if the copper content increases as usual in the wave soldering machine, there won't be any soldered joints which infringe any patent claims.

STANNOL® ECOLOY® TSC263 eliminates the problematic disposal of lead containing waste materials

Applications

During usage of this alloy the temperature profile of this alloy - like for all other lead free alloys, too - must be adjusted to the production line. The resulting solder joints will have comparable or even better characteristics as solder joints, which were made with Sn/Pb solders.

The liquidus will be changed by increase of the copper content. Therefore a regular analytic control is necessary in order to not exceed the limit of approx. 1% Cu.

Physical and mechanical characteristics of ECOLOY® alloys in comparison with Sn63Pb37:

Characteristics	S-Sn63Pb37*	STANNOL® ECOLOY® TSC (S-Sn95Ag4Cu1)*	STANNOL® ECOLOY® TSC263 (Sn97.1Ag2.6Cu0.3)*
Melting Point / Melting Range, ℃	183	217	**217-224**
Electrical Conductivity, %IACS	11.9	13	**13**
Electrical Resistance, µΩcm	14.5	13	**13**
Brinell Hardness, HB	17	15	**15**
Density, g/cm^3	8.4	7.5	**7.5**

***Complying with ISO 9453:2006**

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.

STANNOL GmbH
Oskarstraße 3-7 • 42283 Wuppertal • Tel. +49 (0)202-585-0 • Telefax +49 (0)202-585111 • E-Mail info@stannol.de • Web www.stannol.de

Recommended Conditions of Use

Wave Soldering
The lower copper content is advantageous for wave soldering because longer operating times of the solder bath can be achieved. By de-alloying of copper from the PCB the copper content increases. It takes longer until the critical limit of 1.0% is reached.

The use of **ECOLOY® TSC263** as wave solder requires a bath temperature of approx. 265℃. Depending on PCB type and component spectrum the optimum of the process must be determined. The usage of inert gas brings a considerable extension of the process window. The wetting of the solder will be easier, and there will be no excessive solder on the PCBs when leaving the wave. Moreover the formation of dross will be minimised considerably.

Wave Soldering Fluxes
In general, all conventional fluxes like **STANNOL® EF350** are suitable for the lead free soldering process**.** The solids content should not be too low, because due to the increased preheating and wave temperature a better activity respectively temperature stability is an enormous advantage. As a complete ecological solution VOC free fluxes like **STANNOL® WF300S** can be used. In this case the process requirements must be aligned to the specific characteristics of the flux because of its solvent (water).

Rework und Hand Soldering
Adjusted flux content assures a proper soldering for rework and repair. The temperature profiles, which were made for tin/lead/silver alloys, must be adjusted due to the increase melting point (+ 34℃ compared with Sn/Pb eutectic). In case that components or PCBs have a lead containing coating, the solidus of the new alloy will be reduced to the solidus of the eutectic Sn/Pb/Ag alloy because of the dissolving of lead.

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.

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.

STANNOL GmbH
Oskarstraße 3-7 • 42283 Wuppertal • Tel. +49 (0)202-585-0 • Telefax +49 (0)202-585111 • E-Mail info@stannol.de • Web www.stannol.de