



SOLDER ECOLOY TSC263

Patent-free alternative for electronics

DESCRIPTION

Stannol Ecoloy TSC263 (Sn97.1Ag2.6Cu0.3) 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.

CHARACTERISTICS

Stannol Ecoloy TSC263 offers the following advantages:

- no licence fees!
- tested with good results in the electronics production
- melting range comparable with Ecoloy TSC305 (S-Sn96.5Ag3Cu0.5)
- characteristics comparable with Ecoloy TSC305 (S-Sn96.5Ag3Cu0.5)
- extended operating time by reduced Copper content
- favourable price by low Silver content

APPLICATION

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

GENERAL PROPERTIES	S-Sn63Pb37*	Stannol Ecoloy TSC (S-Sn95.5Ag3.8Cu0.7)*	Stannol Ecoloy TSC263 (Sn97.1Ag2.6Cu0.3)*
Melting Point / Melting Range, °C:	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/cm³:	8.4	7.5	7.5

*Complying with DIN EN ISO 9453 and/or internal specifications.

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°C. 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°C 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.

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.