



# TIN SOLDER TSCX (0307, 0807, 0300, 0800)

Lead-free alloy for electronics

## DESCRIPTION

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The solder alloys of the type TSCX are lead-free and reduced silver content solders.

Special alloy ingredients give rise to characteristics that in many areas also result in the TSCX solders having similar characteristics to a TSC 305 solder. In comparison with TSC 305, the TSCX solders are of course significantly cheaper due to their low silver content. The TSCX 0300 and TSCX 0800 variants are copper-free replenishment solders that are used to correct increased copper contents in solder baths. TSCX solders are, of course, compatible with equivalent products.

## CHARACTERISTICS

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This product offers the following advantages:

- Long-term established with positive results in electronics production
- Excellent wetting characteristics and scratch reduction
- Improved hole filling and mechanical reliability
- Higher cost effectiveness due to low silver content

## APPLICATION

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The liquidus is altered by increase of the copper content and the tendency to soldering defects increases. Therefore, regular analytical monitoring is necessary so that the limit of approx. 1% Cu is not exceeded. Our technical application team is pleased to define your individual process window depending on your soldering equipment, alloy and soldering materials.

## PHYSICAL AND MECHANICAL CHARACTERISTICS

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CHARACTERISTICS	TSCX 0307	TSCX 0807
<b>Melting point and/or melting range, °C:</b>	217-228	216-225
<b>Vickers hardness, HV:</b>	14.1	16.4
<b>Density, g/cm³:</b>	7.3	7.4

## RECOMMENDED OPERATING CONDITIONS

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**Wave soldering:** The lower Cu content is beneficial for wave soldering as longer service lives of the wave solder bath are achieved. Due to dissolution of copper from the circuit board and components, the copper content increases which, among other things, is responsible for solder bridges and defective hole filling. The micro-alloy ingredients produce a significant delay here of the time effect until the critical factor of 1.0% Cu is reached.

The use of TSCX 0307/0807 as wave solder requires a solder bath temperature of approx. 255-265°C. The optimum in the process must be determined depending on circuit board type and component range. The use of inert gas means a significant extension of the process window. The wetting of the solder is made easier and on exit from the wave, no excess solder remains attached to the components. The dross formation is also considerably reduced. TSCX also provides increased mechanical reliability which, particularly in the area of consumer electronics, increases the durability of the end products as well as savings on the involved production resources.

**Wave solder flux:** The conventional fluxes such as Stannol EF350 are basically suitable for the lead-free soldering process. The solid content should not be too low as better activity or temperature stability is of enormous benefit also with increased preheating and wave temperature. The use of VOC-free fluxes such as Stannol WF300S provides a complete ecological solution. Here, due to the solvent (water), the process requirements must be adapted to the specific characteristics of this flux and the suitability of the system must be checked.

## CHANGEOVER FROM OTHER ALLOYS

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Simple, time-saving, minimal costs. TSCX is generally compatible with appropriate, non-patented equivalent alloys. A changeover from common commercially available standard solders can usually be realised within a very short time by appropriate removal / addition of the calculated materials. Alternatively, exchange methods of the complete solder bath filling are also available if required which can be remunerated at current market value after performing analysis.

## SUPPLY FORMS

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- **Wire (solid and filled with flux)**
- **Triangular bars**
- **Kg bars**
- **Bars with suspension eye**

## HEALTH AND SAFETY

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Before using please read the material safety data sheet carefully and observe the safety precautions described.

## NOTICE

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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.