



## SOLDER PASTE SP2400

Lead-Free No-Clean Solder Paste with reduced tendency to void formation

### DESCRIPTION

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**Stannol SP2400** Solder Paste series consists of a lead free No-Clean solder pastes that promote outstanding wetting and which can be used in a large process window in order to get perfect soldering performance.

The **Stannol SP2400** flux system is specifically optimized for lead free alloys, e.g. Sn/Ag/Cu. This formulation provides superior performance on a variety of surfaces finishes and leaves behind a clear residue. In comparison to other solder pastes the formation of voids on BGA / QFN components is reduced. The reduction of the number and size of voids requires an optimization of the reflow profile.

The solder pastes of the SP2400 series are available in the alloys TSC 305 and TSC 105, in type 3. Besides the monetary benefit the low silver containing alloy TSC 105 shows a good mechanical shock-resistance. The TSC 305 alloy on the other hand shows higher long term stability with respect to thermal cycling.

### KEY BENEFITS

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- **RELO classified No-Clean solder paste**
- **Outstanding stability of viscosity**
- **Exceptional print to print consistency**
- **Low amount of clear residues**
- **Outstanding wetting in nitrogen and air**
- **Reduced formation of voids and shrink holes**

### APPLICATION

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#### Performance Parameters:

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|----------------------------------|---|
| • Stencil thickness:             | ≤8 mil = ≤200 µm                            |
| • Minimum pitch:                 | 12 mil = 300 µm (stencil thickness: 150 µm) |
| • Minimum pad width:             | 6 mil = 150 µm                              |
| • Print speed:                   | 20-50 mm/s                                  |
| • Tolerated time between prints: | 30-60 minutes                               |

Note: The above data are for information only. Final results depend on different process parameters at the customer.

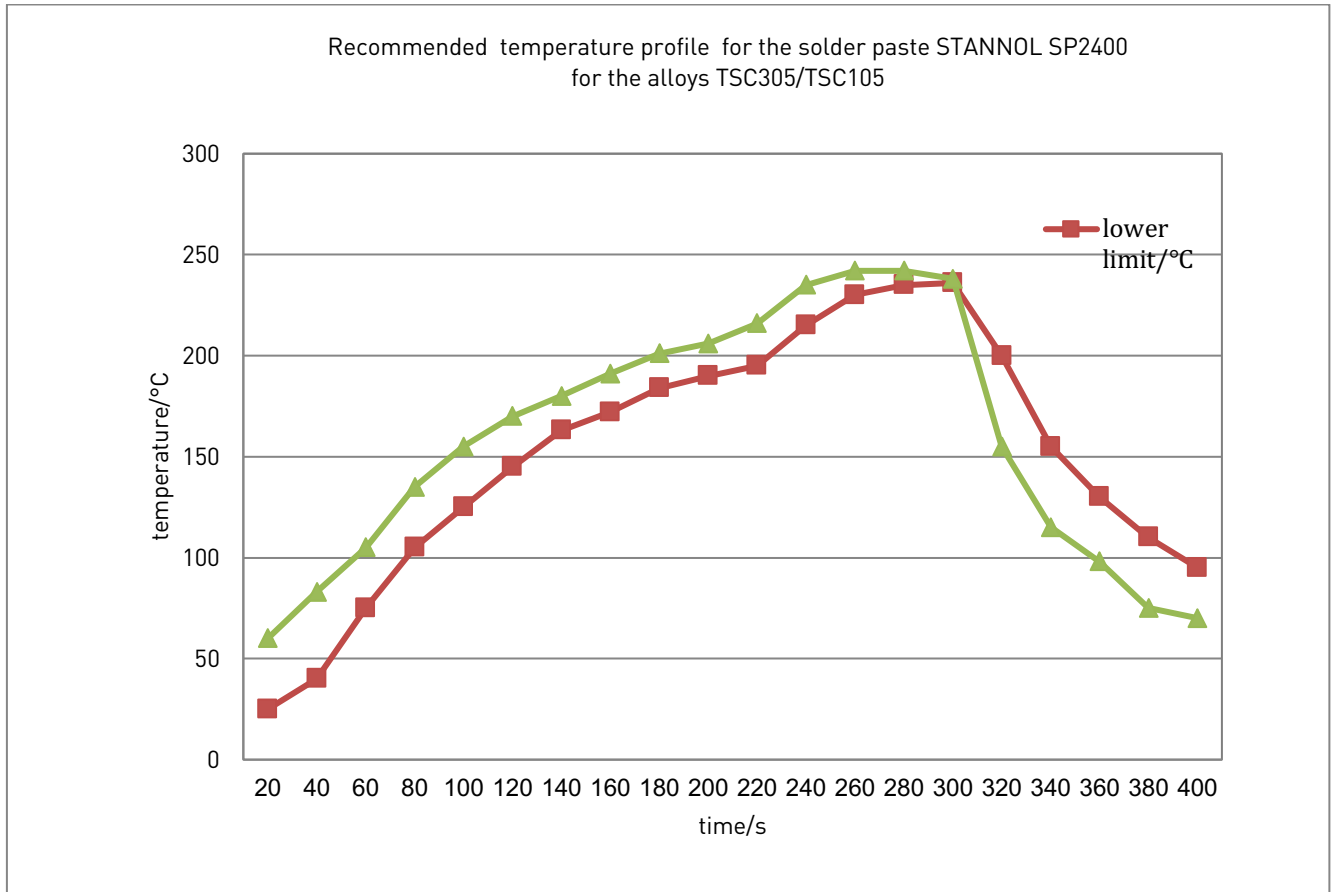
#### Recommendation for solder paste printing:

- Ensure that the paste has reached room temperature before opening to prevent condensation.
- Stir well prior to use.
- The printed solder paste remains tacky up to at least 16 hours, to allow pick and place. The exact time depends on the environmental conditions, components' size and form, and on the accelerations during pick and place.
- If the PCB will be stored for more than 8 hours after population and prior to reflow, it is advisable to store the boards in a tightly closed area. This is especially important if the humidity exceeds 65%. Humidity should be ideally controlled between 45-65%.

**Reflow profile (recommendation):**

- For optimum results, the paste should be reflowed at 20-30°C above the liquidus temperature of the alloy (223°C respectively 224°C). In order to reduce the void formation, the maximum peak temperature should not be higher than 240°C.
- Time above liquidus should be maintained for 30-90 seconds.
- Heating should be uniform across the substrate and components.
- Every industrial established process of heat transfer in air or N<sub>2</sub> can be used.

**Recommended temperature profile:**



**Cleaning:**

- The flux residues may remain on the circuit. If a cleaning is mandatory, please contact our application specialists for further advice on +49-202-585-585 or info@stannol.de.

**TECHNICAL SPECIFICATIONS**

Solder paste type	SP2400 TSC305-89-3 SP2400 TSC105-89-3
<b>Properties</b>	
Alloy	Sn96.5Ag3.0Cu0.5 ( ECOLOY® TSC305) Sn98,5Ag1.0Cu0.5 ( ECOLOY® TSC105)
Melting range, °C	217-223 (TSC 305) 217-224 (TSC 105)
Metal content, %	89 (type 3)
Solder powder, µm	25-45 (type 3)
Application	stencil printing
Flux Activity Classification	RE L0 (J-STD-004B)

## PACKAGING

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**Stannol SP2400** solder paste is supplied in 500g plastic jars.

Other forms of packaging are available on request, probably subject to minimum order quantities.

## STORAGE AND SHELF LIFE

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Providing **SP2400** solder pastes are stored at 2-8°C tightly sealed in the original container, this solder paste has a minimum shelf life (from date of production) of 3 months (TSC105) / 6 months (TSC305).

Avoid exposure to sunlight and high humidity.

Please let the solder paste after storage allow recovering to room temperature before opening the jar for a minimum of 2h.

## 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 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.