



**STANNOL**



SOLDER WIRES	<b>SOLDER PASTES</b>	FLUXES	SOLDER BARS
SOLDERING EQUIPMENT	MEASUREMENT AND TESTING SYSTEMS	CONFORMAL COATINGS	ACCESSORIES

# SOLDER PASTES

FOR ELECTRONICS MANUFACTURING



## **WE HAVE THE RIGHT SOLDER PASTE FOR EVERY APPLICATION.**

BOTH LEADED AND LEAD-FREE SOLDER PASTES ARE USED IN ELECTRONICS – FOR REFLOW SOLDERING AND REWORK SOLDERING PROCESSES.

Stannol supplies both lead containing and lead-free solder pastes in various particle sizes and packaging (e.g. jars and cartridges) for a wide range of application. We offer eutectic silver containing, low-silver and silver-free solder pastes specifically developed for lead-free applications.

This brochure features some popular solder pastes, as well as several new developments for use in SMT manufacturing. Please do not hesitate to contact us for further details about additional solder pastes in our portfolio.

## LEAD-FREE SOLDER PASTES

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The No-Clean solder pastes **SP2100** and **SP2200** were developed for use with lead-free alloys in stencil printing. In addition to the long open time, even after long printer down times, both pastes immediately show a perfect print definition. Due to activation as a type L1 flux, SP2100 solder paste is more suitable for use on surfaces that are difficult to solder. This paste achieves good wetting and soldering results.

No-Clean SP2200 solder paste, by contrast, is activated to type L0. This activation ensures good wetting combined with a high level of electrical safety on all surfaces used in electronics today. Both solder pastes leave only small amounts of residues after the reflow process, which are bright and transparent and do not have to be removed.

**SP2300** solder paste is completely halogen-free activated. Despite this low level of activation, the solder paste ensures wetting on most known solderable surfaces in electronics manufacturing. A large process window is guaranteed during nitrogen processing.



The following packaging sizes are available as standard:  
6 oz, 12 oz, 10 cm<sup>3</sup>, 30 cm<sup>3</sup>, 500 g jar.

The established **SP318** solder paste can be used for stencil printing and a variety of dispensing processes. This L0-type activated flux meets all requirements for good wetting on all common surfaces in electronics manufacturing. The paste demonstrates great resistance to high humidity during application in the printer. Due to the large process window, it can be reflowed in both air and nitrogen. The soft and clear flux residues are suitable for in-circuit testing.

## SOLDER PASTES FOR DISPENSING

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For dispensing we offer the **SP15** in the lead containing alloy Sn62Pb36Ag2 and in the lead-free alloy Sn95.5Ag3.8Cu0.7. The **SP318** for dispensing is only available in lead-free alloys. These pastes can be used in both manual and automatic dispensing processes and can be stably processed with an

internal needle diameter of up to 0.4 mm. The flux medium of the SP15 is classified according to J-STD-004 as ROL1 and the SP318 as ROL0. Due to the balanced activity, both pastes have a large process window for reflow and leave only small amounts of residues.

### ANTI-TOMBSTONE

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The tombstone effect describes the uplift of smaller components in the reflow process. Due to specially developed solder pastes, adjusted temperature profiles and optimised pad geometry, this effect can be significantly reduced.

### VOIDS

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The term voids refers to the appearance of gaseous inclusions in the solder, or among large surface area components (e.g. QFN, BGA). These inclusions can be reduced by suitable solder pastes, adjusted temperature profiles and special stencil apertures.

## NEW SP2400 SOLDER PASTE

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The lead-free **SP2400** solder paste was developed to meet various requirements of our customers today and in future. During the development of this No-Clean solder paste, special emphasis was placed on the following features: very low void formation, long open time in the printer, high print-to-print consistency, minimum residues, compatibility with low silver content alloys, maximum tackiness and high electrical safety of the residues. The development also focused on safe wetting on the widest variety of surfaces and its varying supply qualities. The result is a solder paste that effectively combines these features and can thus meet the quality standards required in electronics manufacturing with an optimum price-performance ratio. For present and future needs, it is available in different particle sizes and low silver containing alloys.



SP2400 solder paste achieves low residues and good wetting.

## LEAD CONTAINING SOLDER PASTES

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**SP1100** and **SP1200** solder pastes are only available with lead containing alloys. These pastes are distinguished by their classification and hence by their different wetting behaviour. While the SP1100 as a highly activated ROM1 solder paste can also achieve good soldering results on surfaces that are difficult to solder, the SP1200 as a ROL1 solder paste is designed for showing best results on good solderable surfaces. The residues of these two No-Clean solder pastes do not have to be removed.

Two further leaded solder pastes, **SP15 63S4** and **SP1300** allow us to offer solutions to eliminate tombstones. By using combinations of alloys or a particular alloy in these solder pastes, different approaches are selected in order to reduce the number of raised components. The choice of solder paste is only one aspect of removing defects. Layout, solder paste quantity and other manufacturing parameters are just as important to reduce tombstones. Nevertheless, the use of a suitable solder paste can support the safe overall reduction of defects, especially in increasingly smaller components.

### OPEN TIME

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The open time of a solder paste is made up of two parts: The useful time of the solder paste in the printer during the printing process and the open time of the printed circuit board between print, pick-and-place and reflow.

### STORAGE

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Stannol solder pastes have to be stored at 5–10°C and brought to room temperature at least two hours prior to use. This is due to the risk of condensation of moisture on the cold surface of the solder paste, which can cause thickening of the solder paste.

## SOLDER PASTES OVERVIEW

NAME	ALLOY	CLASS <sup>1</sup>	MELTING RANGE	PARTICLE SIZE	METAL CONTENT	APPLICATION	PACKAGING SIZES <sup>3</sup>	ART.-NO.
SP15	Sn62.8Pb36.8Ag0.4 <sup>2</sup>	ROL1	179-183°C	3/5 (10-45 µm)	89.5%	stencil printing	500 g jar	690015
SP15	Sn62.8Pb36.8Ag0.4 <sup>2</sup>	ROL1	179-183°C	3/5 (10-45 µm)	89.5%	stencil printing	12 oz Semco	690017
SP318	Sn95.5Ag3.8Cu0.7	ROL0	217°C	3 (25-45 µm)	88.5%	stencil printing	500 g jar	690036
SP318	Sn95.5Ag3.8Cu0.7	ROL0	217°C	3 (25-45 µm)	88.5%	stencil printing	12 oz Semco	690037
SP1100	Sn62Pb36Ag2	ROM1	179°C	3 (25-45 µm)	90%	stencil printing	500 g jar	691100
SP1200	Sn62Pb36Ag2	REL1	179°C	3 (25-45 µm)	90%	stencil printing	500 g jar	691200
SP1300	Sn63Pb37 <sup>2</sup>	REL0	183°C	3 (25-45 µm)	90%	stencil printing	500 g jar	691300
SP2100	Sn95.5Ag4Cu0.5	REL1	217-223°C	3 (25-45 µm)	88%	stencil printing	500 g jar	692100
SP2200	Sn95.5Ag4Cu0.5	REL0	217-223°C	3 (25-45 µm)	89%	stencil printing	500 g jar	692200
SP2200	Sn96.5Ag3Cu0.5	REL0	217-220°C	3 (25-45 µm)	89%	stencil printing	500 g jar	692210
SP2200	Sn96.5Ag3Cu0.5	REL0	217-220°C	4 (20-38 µm)	89%	stencil printing	500 g jar	692250
SP2200	Sn96.5Ag3Cu0.5	REL0	217-220°C	4 (20-38 µm)	89%	stencil printing	12 oz Semco	692252
SP2200	Sn99Cu0.7Ag0.3	REL0	217-227°C	3 (25-45 µm)	89%	stencil printing	500 g jar	692220
SP2300	Sn96.5Ag3Cu0.5	REL0	217-220°C	4 (20-38 µm)	89%	stencil printing	500 g jar	692350
SP2400	Sn96.5Ag3Cu0.5	REL0	217-220°C	3 (25-45 µm)	89%	stencil printing	500 g jar	692400
SP2400	Sn96.5Ag3Cu0.5	REL0	217-220°C	4 (20-38 µm)	89%	stencil printing	500 g jar	692450
SP2400	Sn98.5Ag1Cu0.5	REL0	217-220°C	3 (25-45 µm)	89%	stencil printing	500 g jar	692410
SP2400	Sn98.5Ag1Cu0.5	REL0	217-220°C	4 (20-38 µm)	89%	stencil printing	500 g jar	692460

### SOLDER PASTES FOR DISPENSING

SP15	Sn62Pb36Ag2	ROL1	179°C	3 (25-45 µm)	85%	man. dispensing	25 g/10 cm <sup>3</sup> syringe	690024
SP15	Sn62Pb36Ag2	ROL1	179°C	3 (25-45 µm)	85%	autom. dispensing	25 g/10 cm <sup>3</sup> cartridge	690044
SP15	Sn62Pb36Ag2	ROL1	179°C	3 (25-45 µm)	85%	autom. dispensing	75 g/30 cm <sup>3</sup> cartridge	690025
SP15	Sn95.5Ag3.8Cu0.7	ROL1	217°C	3 (25-45 µm)	84%	man. dispensing	25 g/10 cm <sup>3</sup> syringe	690028
SP15	Sn95.5Ag3.8Cu0.7	ROL1	217°C	3 (25-45 µm)	84%	autom. dispensing	25 g/10 cm <sup>3</sup> cartridge	690045
SP15	Sn95.5Ag3.8Cu0.7	ROL1	217°C	3 (25-45 µm)	84%	autom. dispensing	75 g/30 cm <sup>3</sup> cartridge	690029
SP318	Sn95.5Ag3.8Cu0.7	ROL0	217°C	3 (25-45 µm)	84%	man. dispensing	25 g/10 cm <sup>3</sup> syringe	690038
SP318	Sn95.5Ag3.8Cu0.7	ROL0	217°C	3 (25-45 µm)	84%	autom. dispensing	25 g/10 cm <sup>3</sup> cartridge	690046
SP318	Sn95.5Ag3.8Cu0.7	ROL0	217°C	3 (25-45 µm)	84%	autom. dispensing	75 g/30 cm <sup>3</sup> cartridge	690039

<sup>1</sup> According to J-STD-004

<sup>2</sup> Optimized against Tombstone-Effect

<sup>3</sup> Other packaging sizes are available on request

## OUR SERVICE FOR YOU

**SERVICE-HOTLINE**  
+49 202 585 - 585



This brochure only shows a limited selection of solder pastes and has therefore focused on our top sellers. Other pastes, as well as our new and innovative product selector, can be

found at [www.stannol.de](http://www.stannol.de). By selecting the category "Products", you can find the matching solder pastes according to many different criteria.

### PARTICLE SIZE

Solder pastes contain metals in the form of spheric solder powder with a precisely defined diameter. The required diameter of the particles is determined by the size of the stencil. Standard solder pastes are generally available in particle sizes 3 (25-45 µm) and 4 (20-38 µm). Finer particle sizes, such as type 5 (15-25 µm) are only available in selected solder pastes.

### CLASSIFICATION

The standards J-STD-004 and DIN EN 61190-1 are used to classify flux according to its composition. Fluxes are referred to, for example ROL0 or REL1. They are also rated according to the reliability and influence of the flux residues on the PCB during its life time. The difference between the two standards depends on the allowed amount of halogen within the flux, which determines the various classifications.



# STANNOL

## TRADITION AND INNOVATION

SOLDERING TECHNOLOGY SINCE 1879 – MADE IN GERMANY



**STANNOL®**  
Legierung  
**Sn95Ag4Cu1**  
FLOWTIP  
Art.-Nr. 810853  
Durchmesser 1,0 mm  
Gewicht 500 g  
Typ **Kristall 511**  
Fg. 3,0%  
IEC61190  
REM1  
Charge 65586/480  
Barcode: 4 006062 108537  
Oskarstr. 3-7 · Wuppertal · Made in Germany



SOLDER WIRES



FLUXES



SOLDERING IRONS



SOLDER PASTES



ACCESSORIES



SOLDER BARS



# STANNOL

STANNOL GmbH  
Oskarstr. 3-7, D-42283 Wuppertal  
Tel: +49 202 585 -0, Fax: +49 202 585 -111  
info@stannol.de, www.stannol.de