



SOLDER BARS

SOLDER BARS AND SOLID SOLDER WIRES ARE USED IN DIFFERENT ALLOYS AS BASE AND REFILL SOLDERS FOR WAVE AND SELECTIVE SOLDERING IN ELECTRONICS MANUFACTURING. STANNOL SOLDERS FOR PRINTED CIRCUIT BOARDS ARE PRODUCED FROM VIRGIN METALS ONLY. TO ACHIEVE THE EXPECTED HIGH QUALITY WE ONLY USE TIN WITH A PURITY CONTENT OF AT LEAST 99.9%.

For lead-containing and lead-free applications, Stannol manufactures many different high purity solders for electronics manufacturing. These solders are produced to international standards or with special properties such as minimised dross formation and minimised copper dissolution. The ongoing development of solders for the electronic industry has highest priority at Stannol. We would like to introduce some of these optimised solders in this catalogue, as well as the most important solders for use in electronics manufacturing.

We would be pleased to present our complete portfolio, including optional special alloys and special dimensions, during a personal meeting.

ECOLOY – LEAD-FREE SOLDERS BY STANNOL

Lead-free solders, based on pure tin with an addition of silver and/or copper, are suitable for all lead-free applications in electronics manufacturing.

For the production of electronics, **ECOLOY TSC** alloys (Tin, Silver, Copper) are a reliable lead-free option. TSC alloys are available in different compositions and vary by the ratio of tin, silver and copper. The eutectic alloy TSC with Sn95.5Ag3.8Cu0.7 should be highlighted due to its low melting point of 217°C and excellent wetting properties.

The alloy **TSC305** (Sn96.5Ag3.0Cu0.5) with a lower silver content has become an industrial standard alloy over the last years. Lower silver reduces the price and a lower copper content ensures less maintenance.

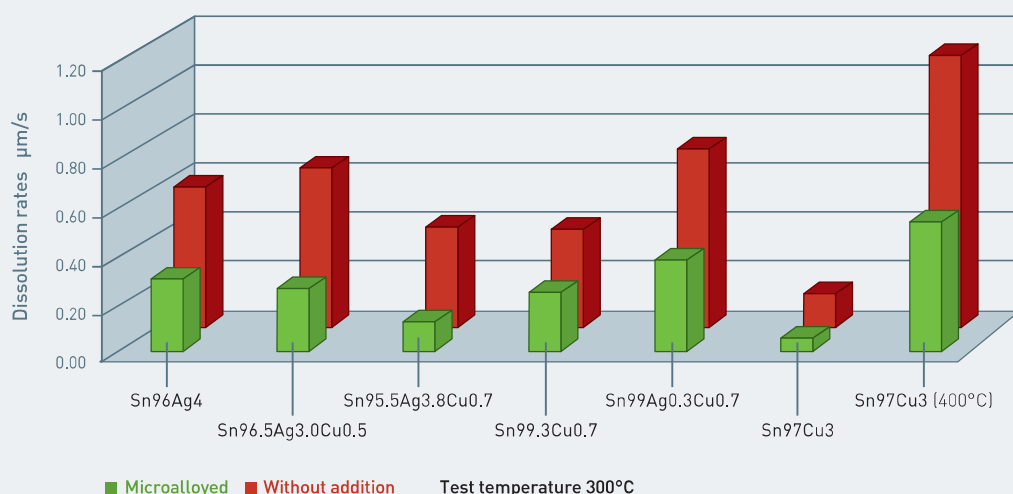
Even more favourable is the alloy **TSC0307**, which has a composition of 99% tin and only 0.3% silver and 0.7% copper. Up to 90% of the expensive silver can be reduced, although the properties are virtually the same during the soldering process.

The **TC** alloy (S-Sn99.3Cu0.7) is a lead-free solder, which replaces eutectic or almost eutectic tin-lead alloys at the lowest possible cost. The main advantage of the product is that it contains no silver, which leads to extensive cost savings, as well as a defined melting point of 227°C and good wetting properties.

FLOWTIN – DEVELOPED BY STANNOL

For manufacturing sites where a low dissolution rate of copper and iron is an important issue for a reliable soldering process, microalloyed solders have been developed in our laboratory. Due to the addition of small amounts of metal dopants like Co and Ni, the solders have a considerably lower copper and iron dissolution. This results in less control and maintenance of the

soldering equipment. **FLOWTIN** solders by Stannol are patent pending. FLOWTIN solders show a finer grain structure which leads to an optimised shiny surface of the solder joint. This is an additional advantage compared to conventional lead-free solders.



Different dissolution rates in comparison

SN100C® – SILVER-FREE INDUSTRIAL STANDARD

SN100C® is another silver-free microalloyed solder with unique properties. Due to its acceptance and usage in many thousand different wave- and selective soldering equipment, it has become a worldwide accepted industrial standard. It is also well established solder for HASL-equipment in the PCB manufacturing. Based on S99.3Cu0.7 with additions of Ni and Ge this solder has economic advantages due to the missing expensive silver. The addition of nickel and germanium ensures a highly reduced dissolution rate of copper. Additionally the dross formation is much lower than with standard solders.

This alloy is worldwide patented by the company Nihon Superior (e.g. patent no. EP0985486) and licensed by Stannol. Therefore we can offer our customers SN100C® and its variations in the expected Stannol quality! Different solder wires are available in SN100C® to ensure our customers the usage of one alloy all over the whole manufacturing process.

SOLDER ANALYSIS

We offer our customers the option of a periodic monitoring of the solder quality and composition of their soldering machines. This analysis and evaluation of impurities is performed in our laboratory. Further details can be found on our website: www.stannol.de/en/service/test-analysis-service/

SOLID SOLDER WIRE

Solid solder wires are used, e.g. for the refill of solder baths in selective solder machines. Stannol offers all common alloys, diameters and reel sizes.

RECYCLING

Used solder and dross contain valuable metals. Stannol offers an appropriate recycling with financial compensation calculated according to the current metal prices of the LME (London Metal Exchange). All solders must be sorted by type (lead containing and lead-free solders) for remuneration purposes. We provide appropriate material containers free of charge.

Further details about this process can be found on our website: www.stannol.de/en/service/environment-disposal/



COMPOSITION OF SOLDERS

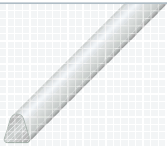

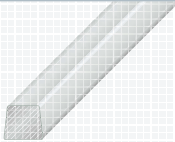

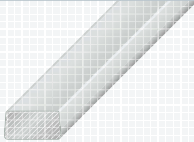

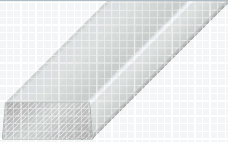



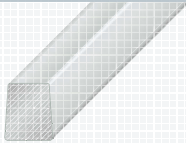



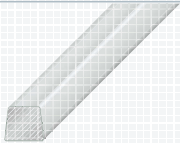

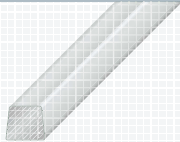

ALLOY NAME	ALLOY NUMBER ²	ALLOY COMPOSITION	INTERNAL NAME Tin Silver Copper Bismuth	ROHS	MELTING POINT MELTING RANGE (approximate values)
Sn99.9 ¹	---	Sn99.9	ECOLLOY T	lead-free	232°C
S-Sn99.3Cu0.7 ²	401	Sn99.3Cu0.7	ECOLLOY TC	lead-free	227°C
S-Sn97Cu3 ²	402	Sn97Cu3	ECOLLOY TC300	lead-free	227–310°C
S-Sn96.3Ag3.7 ²	701	Sn96.3Ag3.7	ECOLLOY TS	lead-free	221°C
S-Sn95.5Ag3.8Cu0.7 ²	713	Sn95.5Ag3.8Cu0.7	ECOLLOY TSC	lead-free	217°C
S-Sn96.5Ag3.0Cu0.5 ²	711	Sn96.5Ag3Cu0.5	ECOLLOY TSC305	lead-free	217–220°C
Sn97.1Ag2.6Cu0.3 ³	---	Sn97.1Ag2.6Cu0.3	ECOLLOY TSC263	lead-free	217–224°C
S-Sn99Cu0.7Ag0.3 ²	501	Sn99Cu0.7Ag0.3	ECOLLOY TSC0307	lead-free	217–227°C
S-Bi58Sn42 ²	301	Bi58Sn42	ECOLLOY TB	lead-free	139°C
Bi57Sn42Ag1 ³	---	Bi57Sn42Ag1	ECOLLOY TBS	lead-free	139–142°C
FLOWTIN Sn99.3Cu0.7 ⁴	---	Sn99.3Cu0.7 + FLOWTIN	FLOWTIN TC	lead-free	227°C
FLOWTIN Sn99.6Cu0.4 ⁴	---	Sn99.6Cu0.4 + FLOWTIN	FLOWTIN TC04	lead-free	227°C
FLOWTIN Sn97Cu3 ⁴	---	Sn97Cu3 + FLOWTIN	FLOWTIN TC300	lead-free	227–310°C
FLOWTIN Sn96Ag4 ⁴	---	Sn96Ag4 + FLOWTIN	FLOWTIN TS	lead-free	221°C
FLOWTIN Sn95.5Ag3.8Cu0.7 ⁴	---	Sn95.5Ag3.8Cu0.7 + FLOWTIN	FLOWTIN TSC	lead-free	217°C
FLOWTIN Sn96.5Ag3.0Cu0.5 ⁴	---	Sn96.5Ag3.0Cu0.5 + FLOWTIN	FLOWTIN TSC305	lead-free	217–220°C
FLOWTIN Sn97.1Ag2.6Cu0.3 ⁴	---	Sn97.1Ag2.6Cu0.3 + FLOWTIN	FLOWTIN TSC263	lead-free	217–224°C
FLOWTIN Sn98.5Ag0.8Cu0.7 ⁴	---	Sn98.5Ag0.8Cu0.7 + FLOWTIN	FLOWTIN TSC0807	lead-free	217–226°C
FLOWTIN Sn99Ag0.3Cu0.7 ⁴	---	Sn99Ag0.3Cu0.7 + FLOWTIN	FLOWTIN TSC0307	lead-free	217–227°C
FLOWTIN+ Sn99.3Cu0.7 ⁵	---	Sn99.3Cu0.7 + FLOWTIN+	FLOWTIN+ TC	lead-free	227°C
TSCX0307 ³	---	Sn99Ag0.3Cu0.7+X	TSCX0307	lead-free	217–227°C
SN100C ⁶	403	Sn99.3Cu0.7NiGe	SN100C	lead-free	227°C
SN100Ce ⁶	---	Sn99.9NiGe	SN100Ce	lead-free	227–232°C
SN100CS ⁶	---	Sn99.3Cu0.7NiGe	SN100CS	lead-free	227°C
SN100CeS ⁶	---	Sn99.9NiGe	SN100CeS	lead-free	227–232°C
SN100CS+ ⁶	---	Sn99.3Cu0.7NiGe	SN100CS+	lead-free	227°C
SN100CeS+ ⁶	---	Sn99.9NiGe	SN100CeS+	lead-free	227–232°C
S-Sn63Pb37E ³	102 ³	Sn63Pb37	STANNOLOY SN63	lead-containing	183°C
S-Sn63Pb37E ³	102 ³	Sn63Pb37	STRATOLOY SN63	lead-containing	183°C
Sn63Pb37 ³	---	Sn63Pb37P	WSL3 SN63	lead-containing	183°C
S-Sn62Pb36Ag2 ²	171	Sn62Pb36Ag2	SN62	lead-containing	179°C
S-Sn60Pb40 ²	103	Sn60Pb40	SN60	lead-containing	183–190°C
S-Pb93Sn5Ag2 ²	191	Pb93Sn5Ag2	HMP (high melting point)	lead-containing	296–301°C

¹ According to DIN EN 61190-1-3 | ² According to ISO EN 9453:2014 | ³ According to ISO EN 9453:2014 and internal specification based on ISO EN 9453:2014 | ⁴ Analogous to ISO EN 9453:2014 or internal specification + FLOWTIN addition | ⁵ Analogous to ISO EN 9453:2014 or internal specification + FLOWTIN and desoxidation addition

⁶ Variations in the SN100C® solders are mainly based on different Ni and Ge contents. Further details can be found in the technical datasheet or you may ask our team of application engineers about the best option for your application.

All the above mentioned lead-free alloys are available as copper-free versions, too. The copper-free versions can be required to maintain the copper content or reduce higher copper contents during the usage of the solder in the soldering equipment. The above listed alloys represent only a small selection; other alloys are available on request. Some alloys are subject to production-related MOQs.

AVAILABLE DELIVERY FORMS OF STANNOL SOLDER

TRIANGULAR BAR¹ Dimensions (LxWxH) 443 x 11.5 x 14.5 mm approx. 0.36 kg ² bei Sn99Cu1		
FORMBLOCK 330¹ (kg-Stange) Dimensions (LxWxH) 328 x 20 x 20 mm approx. 1 kg ² bei Sn63Pb37		
FORMBLOCK 325 E Dimensions (LxWxH) 325 x 30 x 15 mm approx. 0.88 kg ² bei SN100C®		
FORMBLOCK NR. 7¹ Dimensions (LxWxH) 540 x 48 x 20 mm approx. 3.7 kg ² bei Sn63Pb37		
FORMBLOCK NR. 8 Dimensions (LxWxH) 540 x 48 x 20 mm approx. 3.7 kg ² bei Sn63Pb37		
FORMBLOCK 300 (Poka Yoke) Dimensions (LxWxH) 300 x 25 x 28.5 mm approx. 1.6 kg ² bei Sn63Pb37		
FORMBLOCK 300 LF (Poka Yoke) Dimensions (LxWxH) 300 x 22 x 40 mm approx. 1.6 kg ² bei Sn99Cu1		
FORMBLOCK 160 E Dimensions (LxWxH) 164 x 24 x 20 mm approx. 0.54 kg ² bei Sn63Pb37		
FORMBLOCK 330 E Dimensions (LxWxH) 330 x 21 x 20 mm approx. 1 kg ² bei Sn96.5Ag3.5		

Other sizes and delivery forms are available upon request. The dimensions specified in the catalogue may vary due to production techniques.

1 Preferred bar form / 2 Average weight of the specified alloy.

FAIRTIN FROM STANNOL FOR SUSTAINABLE TIN MINING

With FAIRTIN, Stannol was the first solder manufacturer to develop a series of fair solder bars and solder wires for industrial production. Manufacturers can use these to make their products socially and environmentally more sustainable

Until now there were only two important purchasing criteria for solder: QUALITY and PRICE. In many mining areas, there are disastrous working and living conditions due to the growing demand for raw materials. The environment also suffers greatly from the uncontrolled extraction of minerals.

FAIRTIN goes much further than the current efforts of the industry to avoid the financing of armed conflicts in the Congo (see Dodd-Frank-Act, section 1502). Tin for FAIRTIN comes only from suppliers who take care for the environment, respect national and international legislation and fulfill their social responsibilities.



FAIR ZUR UMWELT
FAIR TO THE ENVIRONMENT



FAIR ZU DEN MITARBEITERN
FAIR TO THE EMPLOYEES



FAIR DURCH TRANSPARENZ
FAIR THROUGH TRANSPARENCY

For FAIRTIN we only use tin from suppliers who meet the following criteria:

- take care about the environment
- take social responsibility for employees and local population
- act transparently beyond the legal minimum and adhere to fair trade

Currently, there is no tin mining that is certified as fair. With FAIRTIN you buy the fairest industrially available tin and help to drive the future development forward.

