

**FELDER-ISO-Tin<sup>®</sup> - Lead-free, „Sn99Ag+“**

**Lead-free solder for wave and selective soldering units**

**FELDER-ISO-Tin<sup>®</sup> - Lead-free „Sn99Ag+“ Sn99Ag0,3Cu0,7NiGe**  
according to Fuji-Pat.-No. DE19816671C2, US6179.935, JP3296289

Article no.: 551281...

**Application**

Lead-free solderings in wave and selective soldering units. A usage in older wave soldering units is also possible, whose pots and nozzles are made of V2A and do not have protective gassing. The experience of our customers shows that most applications can be done without inert gas.

**Properties**

Beside the well-known advantages of Ni-endowed solders our alloy reaches by adding of germanium improved wetting qualities on all common surfaces in the electronic production and **lowest dross formation** in comparison to all other lead-free solders. A special advantage lies in the extremely low corrosion appearance with copper (in comparison to common SnAgCu-alloys up to 5 times lower). The low addition of silver of 0,3 % in „Sn99Ag+“ has no negative influence on the corrosion effect on stainless steel parts. Furthermore, this Ag-addition leads in comparison to SnCuNi-alloys, additionally to a lowering of the working temperature and to an improved metal structure of the soldering joint.

<b>Alloy</b>	<b>Sn99Ag+ (Sn99Ag0,3CuNiGe)</b>	<b>Sn99,3Cu0,7</b>
Melting temperature in °C	217 - 227 °C	227 eutektisch
Density in g/cm <sup>3</sup>	7,34	7,31
Tensile strength in N/mm <sup>2</sup>	44	37,4
Extension in %	66	66
Hardness Hv	14,1	11
Steep strength at 80°C and 1200g load	> 3000	>3000
Soldering wave temperature	≥ 260 °C	≥ 270 °C
Elektrische Leitfähigkeit in m	2,5 x 10 <sup>-7</sup>	2,0 x 10 <sup>-7</sup>
Thermal extension coefficient in 1/°C	23,0 x 10 <sup>-6</sup>	21,5 x 10 <sup>-6</sup>

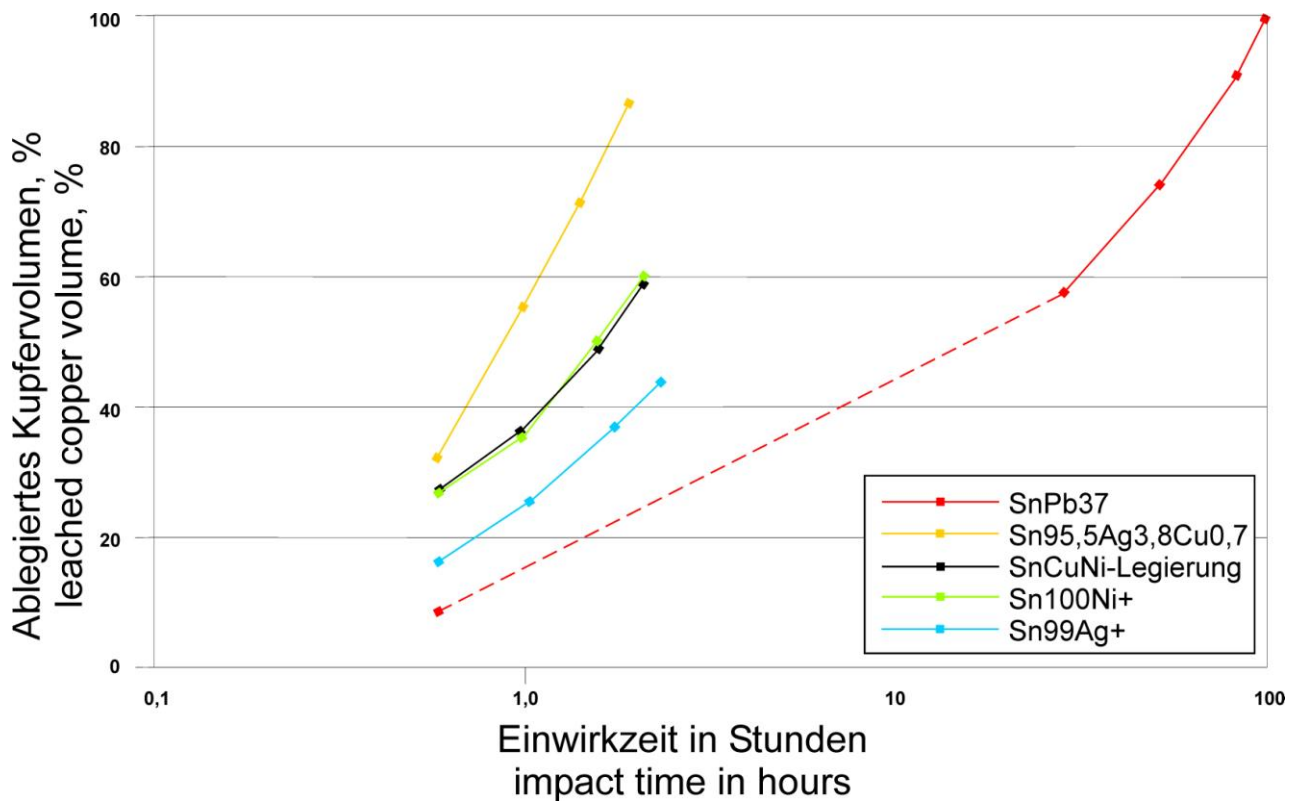
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Analysis / tolerances

Element Content (%)	Sn	Cu	Ag	Ni	Ge	Pb
	99,0±0,5	0,7±0,2	0,3+0,05	0,06	0,01	max. 0,04

Element Content (%)	Al	As	Bi	Cd	Fe	Sb	Zn
	max. 0,001	max. 0,03	max. 0,05	max. 0,002	max. 0,02	max. 0,05	max. 0,001

Copper dealloying in comparison

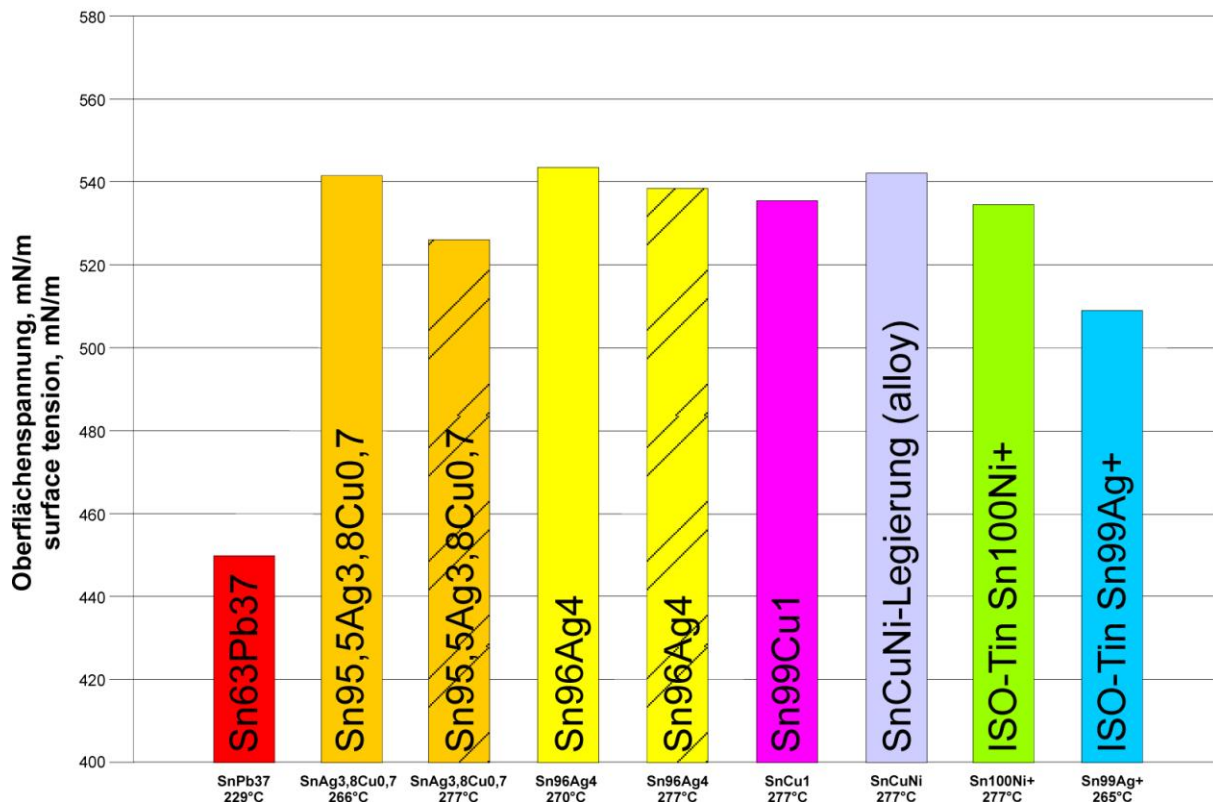


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**Surface tension in comparison**

Due to the low surface tension we obtain the best hole fill wetting force of all lead-free alloys.

**Vergleich der Oberflächenspannungen  
Comparison of surface tensions**



**Delivery form**

400 g pressed rods, 7 x 18 x 400 mm,  
3,5 kg – blocks with hanging hole 545x47x20 mm.

Also deliverable as massive wire on spools and wire cuts for first filling.

**Advice**

Other alloys are included in our standard delivery programme.

All information about our products are the result of our long standing experience, which we would like to pass on to our customers. Since we do not have any influence on the application with our products, please see the warranty claims in our conditions of sale because our liability is limited.