

## **HASL solder FELDER-ISO-Tin „Sn99Ag+“®**

### **Lead-free solder for HASL – applications**

**HASL solder FELDER-ISO-Tin „HASL-Sn99Ag+“® Sn99Ag0,3Cu0,7NiGe  
according to Fuji-Pat.-No. DE19816671C2, US6179.935, JP3296289**

Article no.: 551279...

#### **Application**

Lead-free electronic solder for HASL – applications.

#### **Properties**

Beside the well-known advantages of Ni-endowed solders our alloy reaches by adding of silver and germanium improved wetting qualities on copper surfaces in the PCB production and **lowest dross formation** in comparison to all other lead-free solders. A special advantage lies in the extremely low dissolution appearance with copper (in comparison to common SnCu-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 solder joints.

|                         |   |  |
|-------------------------|---|--|
| Metallic composition    | : | 99,0%Sn, 0,3%Ag (+/-0,05), 0,7%Cu (+/-0,1)<br>Endowment: for HASL optimized Ge- and Ni-content<br>Pb-impurities: max. 0,04 % |
| Melting range/point     | : | 217 - 222°C  |
| Electrical conductivity | : | 7,5 m/ mm <sup>2</sup>   |
| Specific weight         | : | 7,33 g/cm <sup>3</sup>   |
| Hardness Hv             | : | 14,1   |
| Recommend tinning tem.  | : | 258 – 270 °C (at a Cu-content of 0,7 – 1,2 %)  |

The FELDER-alloy “HASL-Sn99Ag+“ has been tested intensively within a period of more than 6 months in the company of the market leading machine producer PENTAGAL GmbH, Bochum.

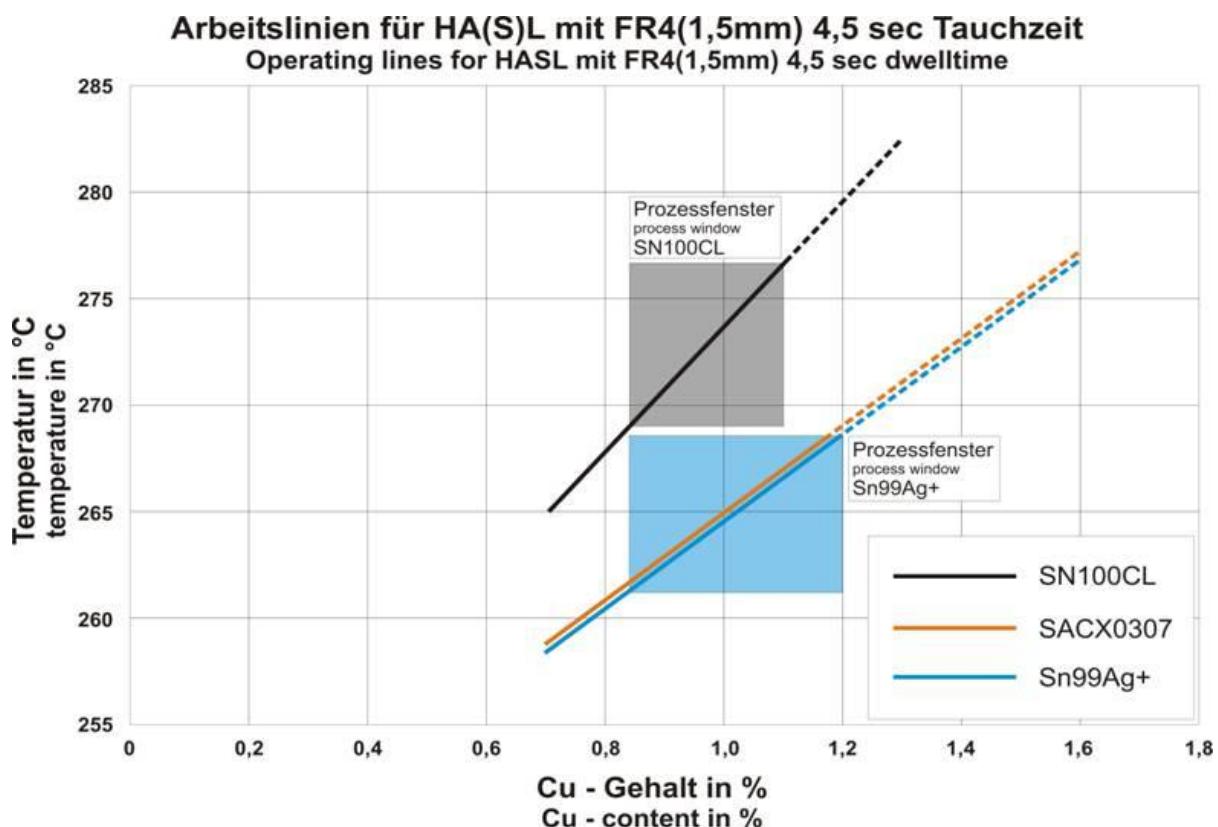
Beside the new FELDER-alloy the solders „Sn100C“ and “SACX0307“ have been integrated parallel in the test. The best results achieved clearly the 5-componentes solder “HASL-Sn99Ag+“ (Sn99Cu0,7Ag0,3NiGe) of FELDER GMBH.

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The most important and significant advantages are:

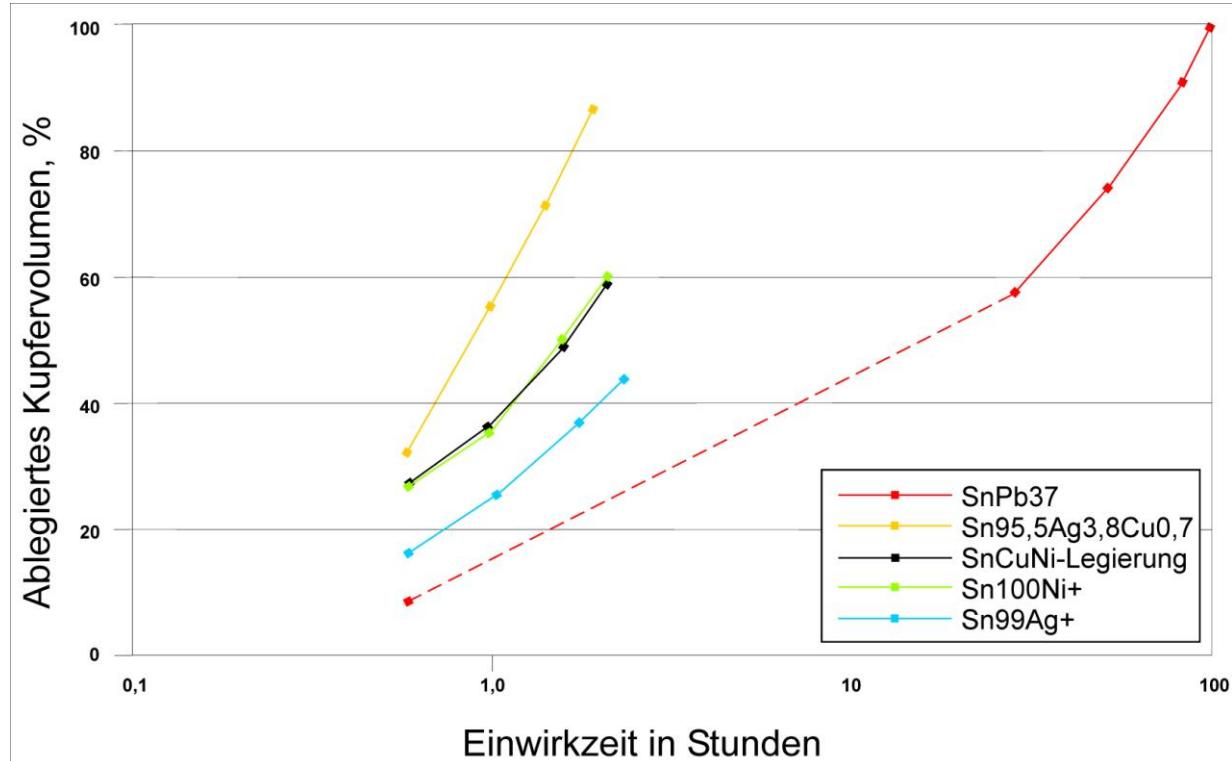
- The lowest process temperatures
- The largest process temperature window (see picture 1)
- The highest yield at the smallest maintenance effort.
- The least Cu-resolution (see picture 2)
- The lowest dross generation

### Picture 1



## HASL solder FELDER-ISO-Tin „Sn99Ag+“®

Picture 2



After production of the first 10.000 P.C.B's the following dross quantities appeared:

|                    |                 |                                |
|--------------------|-----------------|--------------------------------|
| SACX0307 = 15,0 kg | Sn100C = 8,0 kg | <b><u>Sn99Ag+ = 3,0 kg</u></b> |
|--------------------|-----------------|--------------------------------|

### Delivery form

Ca. 400 g rods, 400 mm long,

### Advices

Other HASL – 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.