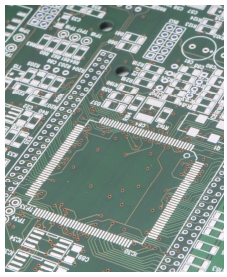
BALVER ZINN
Josef Jost GmbH & Co.KG

Technical Data Sheet

BALVER ZINN SOLDER SN100CL SnCu0.7Ni SN100CLe+ SnNi



Product Description

BALVER ZINN SOLDER SN100CL and CIe+ are a lead-free* alloys specially developed for the LFHASL process. **SN100CL** is chemically identical with SN100C (L stands for levelling) this alloy was rated by the NASA consortia as the most reliable lead-free* alloy in wave soldering. **BALVER ZINN SOLDER SN100CL** is a nickel micro alloyed eutectic tin copper alloy with small traces of germanium to reduce oxidation. **BALVER ZINN** has more than five years experience in producing fine grain solder with unchanging quality. **BALVER ZINN SOLDER SN100CL** excels all other lead-free* alloys in lowest copper dissolution and allow profitable mass production. A further outstanding property is the bright and shiny appearance of the pretined boards without visible difference to conventional tin lead boards. **BALVER ZINN SOLDER SN100CL** is well established since many years in the printed circuit industry. Existing vertical and horizontal hot air levelling machines can be used or adapted for the LF-process. Due to the product specific properties of **BALVER ZINN SOLDER SN100CL** very coplanar and outstanding solderable LFHASL boards are the result. The accurate amount of nickel – covered world wide by patents – cause less stainless steel dissolution than with other lead free alloys.

*__BALVER ZINN SOLDER SN100CL and SN100CLe+__ contain, to our knowledge, no substances in concentrations, which are prohibited by the European legislation 2002/95/EG (“RoHS”).

Further information is available in the **BALVER ZINN TECHNICAL INFORMATION: “LFHASL with BALVER ZINN”**

BALVER ZINN Product program

BALVER ZINN offers in addition solder pastes, fluxes and solder wires. Beside the **SN100C** product family **BALVER ZINN** offers further patent-free and patented lead free alloys for wave soldering, reflow and rework.

Properties of LFHASL boards

- Very good solder ability also after one year storage
- LFHASL boards can be cleaned with alkaline solutions after misprinting solder paste
- **SN100C** surface dissolve slower in wave soldering than immersion tin
- Solder paste spread is better than other lead free surfaces
- **SN100C** HASL boards can be combined with SAC alloys (results from NASA consortia)
- **SN100C** HASL boards are suitable for the lead process (melting point of **SN100C** is lower than pure tin)

Field of application and conditions of processing

Pretinning of printed circuit boards with the HASL process in vertical and horizontal machines.

- Process temperature: 255-280℃
- Dipping time 1.5 – 5.0 sec (related to thickness and thermal mass)
- First filling of the machine with **BALVER ZINN SOLDER SN100CL+**
- Refilling only with **BALVER ZINN SOLDER SN100CLe+** (we recommend in some applications the use of **SN100CLe**)

If the copper content exceed the limit of approximately 1.2% a partially exchange of solder is recommended. In some machines it is praxis to remove copper with the so called “screen-spoon”. More details in the **BALVER ZINN TECHNICAL INFORMATION: ”Process control in LFHASL solder bath”** or contact our technical support.

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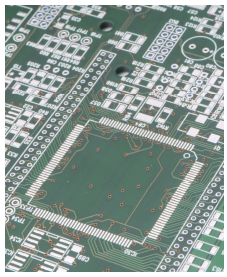

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Physical and mechanical data of SN100CL In comparison to tin lead

	SN100CL SnCu0.7Ni	Sn63Pb37
Melting point ℃	227	183
Density g/cm³	7.4	8.4
Specific heat J/g	61.0	45.0
Electrical resistance µΩm	13.0	14.5
Surface tension mN/m*	542.45	449.02

*by FHG / IZM Berlin

Deliver sizes

Format		L mm	B mm	H mm
Ingots*	1 kg	325	28	15
	4 kg	300	50	40
Ingots with eye	3.7 kg	540	50	20
	6 kg	570	48	35
Bar			400x10x8 400x10x10	
Pellets			12 x 25	
Wire, massive, on reels			Ø 1.0 – 6.0	

*other delivery forms on request.

Composition of alloys

Element	SN100CL SnCu0.7Ni in Gew.-%	SN100CLe SnNi in Gew.-%	SN100CLe+ SnNi0,15 in Gew.-%	critical concentration of impurities*
Sn	Rest	Rest	Rest	Rest
Cu	0,6 ± 0,1	0,2 ± 0,2	0,2 ± 0,2	< 0,4 > 0,85
Ge	0,0055 ± 0,0005	0,0055 ± 0,0005	0,0055 ± 0,0005	> 0,1
Ni	0,05 ± 0,005	0,05 ± 0,005	0,15 ± 0,05	< 0,01 > 0,10
Ag	max. 0,05	max. 0,05	max. 0,05	> 0,1
Al	max. 0,001	max. 0,001	max. 0,001	> 0,002
As	max. 0,03	max. 0,03	max. 0,03	> 0,03
Au	max. 0,05	max. 0,05	max. 0,05	k. A.
Bi	max. 0,03	max. 0,03	max. 0,03	> 0,10
Cd	max. 0,002	max. 0,002	max. 0,002	> 0,002
Fe	max. 0,02	max. 0,02	max. 0,02	> 0,03
In	max. 0,05	max. 0,05	max. 0,05	k. A.
Pb	max. 0,05	max. 0,05	max. 0,05	> 0,1 (RoHS)
Sb	max. 0,05	max. 0,05	max. 0,05	> 0,05
Zn	max. 0,001	max. 0,001	max. 0,001	> 0,005

*critical impurities are not subject of international standards; they are only related to practical experience!

Storage conditions and shelf life Dry, at room temperature for minimum 2 years

Health & Safety Read the material safety data sheet and warning label before use.

OUR GLOBAL PARTNERS FOR LEAD-FREE SOLDERS

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