Electronic
Technical Data Sheet
BALVER ZINN SOLDER
SN100C® SnCu0.7Ni
SN100Ce® SnNi

General Information

BALVER ZINN SOLDER SN100C® is a nickel-stabilized tin copper eutectic, containing a small amount of germanium to reduce oxidation of the solder. Dependent on soldering procedure and process conditions, Ge - contents under 0.0020 % can increase the formation of oxides. In such cases we recommend the usage of **DESOXY RSN**. **SN100C®** is the trade name for **SnCu0,7Ni**, the lead-free* solder for wave soldering. **BALVER ZINN SOLDER SN100C®** generates bright and shiny solder joints, comparable with lead-containing solders. In 2005, NASA tests found **BALVER ZINN SOLDER SN100C®** to be the most reliable soft solder for wave soldering. More detailed results are available in **BALVER ZINN Technical Information: "Reliability of SN100C® "**. Compared with conventional SnCu solders, **SN100C®** causes substantially less copper dissolution, therefore minimizing the risk of unacceptable reduction of electric and thermal conductivity. The lower copper dissolution makes it easier to maintain the composition of the solder bath within specification and reduces the need to scrap material due to contamination. The soldering results are superior than with standard lead-free* solders and the tendency for bridging is greatly reduced. According to the independent ELFNET study, **BALVER ZINN SOLDER SN100C®** is the most used wave solder in Europe. **BALVER ZINN SOLDER SN100C®**, is specially preferred for the higher process temperatures of selective soldering.

*__BALVER ZINN SOLDER SN100C®__ does not contain hazardous substances beyond the limits prescribed by EU Directive 2011/65/EU ("RoHS II")

Further information is available in the **BALVER ZINN information "Lead free wave soldering."** Technical information and Data Sheets can be found on our website (www.BALVERZINN.com). You can also obtain all information and documents directly from **BALVER ZINN**.

BALVER ZINN Production Programme

The **BALVER ZINN** production programme also includes solder pastes, flux and solder wires. Beside the **SN100C®** product family, **BALVER ZINN** offers additional unpatented and patented solder alloys for wave soldering, reflow and rework.

General Process Information

- With copper content of more than 0.85 %, significantly more soldering defects occur (bridging!). To avoid these, **BALVER ZINN** offers complimentary solder bath analyses. When soldering any printed circuit board - except those with a nickel/gold finish – **SN100Ce® SnNi** should be used for bath top-up to ensure constant process conditions.
- The copper tin crystals precipitating at a copper content of more than 0.9 % (intermetallic joints), have a grinding effect and, due to the low density of the solder, accumulate on the bottom of the solder bath. They **cannot** be removed from the solder surface by a perforated spoon'.
- Due to its special stabilization, **SN100C®** affects pots and pumps far less than tin silver copper solders. In special cases SN100C can be used in soldering machines with plain stainless steel pots.
- In order to reduce solder losses as dross, nitrogen protection is recommended.

BALVER ZINN conducts complimentary, regular solder bath analyses to determine the customer-specific bath top-up schedule and avoid problems caused by excessive impurities.

Process Conditions for Wave Soldering

- Solder bath temperature 260-270°C. Please note that it is not the solder temperature but the temperature measured on the components, which determines the level of thermal stress subjected to the component.
- Before entering the wave, the printed circuit boards should be about 10 – 20 °C warmer than for tin-lead applications (Sn63Pb37). 110-135°C, measured on the top surface, are usual conditions. Here, the old rule applies: "Do not try to use the wave for preheating"!
- The contact time in the wave has to be increased due to slower wetting in comparison with tin lead (Sn63Pb37).

Information on Patent Situation

BALVER ZINN SOLDER SN100C® is protected by patents. **BALVER ZINN** normally offers this alloy with prepaid license fees to protect customers from patent infringements. Since the composition of the solder joint is also covered by patents, the lead-free tin copper solder **SN100Ce®** is also offered with license fees in order to avoid possible patent infringements

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Physical properties of SN100C® / SN100Ce® in comparison with tin-lead

	SN100C® SnCu0.7Ni	Sn63Pb37
Melting point °C	227	183
Specific Gravity g/cm³	7.4	8.4

Delivery sizes

Format		L mm	W mm	H mm
Ingots*	1 kg	325	28	15
	4 kg	300	50	40
Ingots with hole	3,7 kg	540	50	20
	6 kg	570	48	35
Bar			400x10x10	
Pellet			12 x 25	
Wire, solid, on reel			Ø 1.0 – 6.0	

*Other dimensions available on request.

Composition of the Alloy

Element	SN100C® SnCu0.7NiGe in weight-%	SN100Ce® SnNiGe in weight-%	Critical values in working solder bath*
Sn	Remainder	Remainder	Remainder
Cu	0.6 – 0.7	max. 0.2	< 0.4 > 0.85
Ge	0.005 – 0.007	0.005 – 0.007	> 0.1
Ni	0.04 – 0.06	0.04 – 0.06	< 0.01 > 0.1
Ag	max. 0.05	max. 0.05	> 0.1
Al	max. 0.001	max. 0.001	> 0.002
As	max. 0.03	max. 0.03	> 0.03
Au	max. 0.03	max. 0.03	n. i.
Bi	max. 0.03	max. 0.03	> 0.10
Cd	max. 0.002	max. 0.002	> 0.002
Fe	max. 0.02	max. 0.02	> 0.03
In	max. 0.03	max. 0.03	n. i.
Pb	max. 0.05	max. 0.05	> 0.1 (RoHS)
Sb	max. 0.05	max. 0.05	> 0.05
Zn	max. 0.001	max. 0.001	> 0.005

*Max. solder bath impurities are not standardized, but are based on practical experience.

Storage Conditions / Durability

Dry storage at room temperature / minimum 2 years

Safety Advice

Before use please refer to the appropriate Safety Data Sheet.

OUR GLOBAL DISTRIBUTION NETWORK

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