

Electronic **BALVER ZINN[®]**

Technical Data Sheet

BALVER ZINN SOLDER

SN100CS+(SnCu0.7Ni0.05Ge0.025)

SN100CeS+(SnNi0.05Ge0.025)

General Information

BALVER ZINN Solder SN100CS+ (Ge 250 ppm)!! Germanium boosted SN100C[®] (Ge 55 ppm)!!

BALVER ZINN SN100CS+ is a new variant of the unique and highly regarded lead-free solder BALVER ZINN SN100C[®] with a content of 250ppm (0.025%) of germanium. In the BALVER ZINN SN100C[®] formulation, Ge plays the role of antioxidant, preferentially reacting with oxygen to protect the solder from the oxidation that results in the formation of dross. Due to the bigger amount of germanium, BALVER ZINN SOLDER SN100CS+ is especially suitable for applications without nitrogen.

BALVER ZINN SN100CS+ has all the other advantages that have made BALVER ZINN SN100C[®] so popular, including substantially reduced copper dissolution. The lower surface tension of the solder surface deoxidized with Ge means better wetting and flow. BALVER ZINN SN100CS+ should be used for the first fill and the top up of a solder pot when it is expected that it might be difficult to maintain Ge at the level required for effective oxidation control.

This additive BALVER ZINN DESOXY RSN should be used if the Ge level is found to have fallen substantially below 0.0100% in order to keep the Ge level under 0.0350%.

BALVER ZINN SOLDER SN100CS+ does not contain hazardous substances beyond the limits prescribed by EU Directive 2011/65/EU ("RoHS II")

Further information are 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 Product Range

The BALVER ZINN product range includes, in addition to solder bars, solder pastes, solder wires and soldering fluxes. Besides the SN100C BALVER ZINN offers a full range of patented and unpatented solders for wave soldering, reflow soldering and rework.

General Process Information

- The critical solder bath value for Germanium is between 100- 350 ppm!
- When the copper content of a working SN100C[®] wave solder pot exceeds 0.85% there is likely to be an increase in soldering defects, particularly bridging. To help you keep the copper content in the right range BALVER ZINN offer a prompt and complimentary solder bath analysis service
- Due to its special stabilization, SN100C[®] and SN100CS+ affects pots and pumps far less than tin silver copper solders. In special cases SN100CS+ 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 offers regular solder bath analyses to determine the customer-specific bath top-up schedule and avoid problems caused by a too high level of impurities.

Process Conditions for Wave Soldering

- Solder bath temperature is 260-270°C. Please note that it is not the solder temperature but the temperature measured on the components that determine that thermal stress to which the component is subjected!
- Before entering in the wave, the printed circuit boards should have about 110-135°C, measured on the top surface, Here, the old rule applies: "Do not try to use the wave for preheating"!
- No difference in contact time between SN100C[®] and SN100CS+

Information on Patent Situation

BALVER ZINN SOLDER SN100C[®] and SN100CS+ are 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 **SN100CS+** in comparison with tin-lead

	SN100CS+ SnCu0.7Ni0.05Ge0.025	Sn63Pb3 7
Melting point °C	227	183
Specific Gravity g/cm ³	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
Pellets		12 x 25		

Composition of the Alloy

Element	SN100CS+ SnCu0.7Ni0.05Ge0.025 in Gew.-%	SN100CeS+ SnNi0.05Ge0.025 in Gew.-%	SN100C® SnCu0.7Ni0.05Ge in weight-%	Critical values in working solder bath*
Sn	Remainder	Remainder	Remainder	Remainder
Cu	0.6 - 0.7	max 0.2	0.6 - 0.7	< 0.4 > 0.85
Ge	0.02 - 0.03	0.02 - 0.03	0.005 - 0.007	> 0.1
Ni	0.04 - 0.06	0.04 - 0.06	0.04 - 0.06	< 0.01 > 0.1
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. 0.03	max. 0.03	max. 0.03	n. i.
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. 0.03	max. 0.03	max. 0.03	n. i.
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

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

Storage Conditions / Durability

Dry storage at room temperatures

Safety Advice

Before use please refer to the appropriate Safety Data Sheet.

Although the information in this data sheet is considered accurate, the measured values do not represent assured properties or delivery specifications. Because of the wide range of potential materials and applications, and with respect to possible protective rights and third parties, Balver Zinn Josef Jost GmbH & Co. KG **cannot** accept any liability.

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