Electronic
Technical Data Sheet
BALVER ZINN SOLDER
SN96C (SnAg3.8Cu0.7)
SN96Ce (SnAg3.8)

BALVER ZINN®

General Information

BALVER ZINN SOLDER SN96C (SnAg3.8Cu0.7) is a well known lead free* eutectic solder used extensively in Europe.
BALVER ZINN SOLDER SN96C can be used for wave soldering, selective soldering and dip soldering applications. **BALVER ZINN SOLDER SN96Ce** (SnAg3.8) is a refill alloy with a low copper content, to maintaine the copper content of the solder bath within due process limits. When using silver containing solders, the high copper dissolution may cause problems, particularly at higher process temperatures and small line dimensions. For such applications **BALVER ZINN** recommends to use the highly reliable **BALVER ZINN SOLDER SN100C** to achieve a clear reduction of copper dissolution. **BALVER ZINN SOLDER SN96C** meets the requirements of **J-STD 006B.**

*__BALVER ZINN SOLDER SN96C__ does not contain hazardous substances beyond the limits prescribed by EU Directive 2002/95/EG (“RoHS”)

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 **SN96C** product family, **BALVER ZINN** offers additional unpatented and patented solder alloys for wave soldering, reflow and rework.

General Process Information

To avoid high solder losses by dross, nitrogen hoods can be applied in wave soldering. Like all silver-containing solders with a high amount of tin, **BALVER ZINN SOLDER SN96C** severely affects pots and pumps, which therefore need to be sufficiently coated. Solder joints with **BALVER ZINN SOLDER SN96C** are not bright and shiny as with tin lead alloys. They shows a rough, coarse and dentritic structure, caused by the formation of primary tin crystals during the solidification of the molten metal. In accordance with IPC standards, the typical “micro-cracks” are not quality decreasing characteristics. A differentiation between a good and a “cold” solder joint is not possible. **BALVER ZINN** conducts complimentary, regular solder bath analyses to determine a specific bath top-up schedule and avoid problems caused by an excessive level of impurities.

Conditions for Wave Soldering

- Solder bath temperature 260-275℃.
- Before entering into the wave, the printed circuit boards should be 10–20℃ warmer than for tin-lead applications (Sn63Pb37). Usual conditions are 110-135℃, measured on the top side.
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 lower wetting in comparison with tin lead
- We recommend refilling with **BALVER ZINN SOLDER SN96Ce**, to keep the copper content stable (all PCB surfaces except from NiAu). The copper content should be maintained between 0.4% and 0.85%.

Information on Patent Situation

BALVER ZINN SOLDER SN96C 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 the patents, lead-free tin copper solder **SN96Ce** is also offered with license fees in order to avoid possible patent infringements

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Physical properties of SN96C / SN96Ce in comparison with tin-lead

	SN96C SnAg3.8Cu0.7	SN96Ce SnAg3.8	Sn63Pb37
Melting point ℃	217	221	183
Specific Gravity g/cm³	7.5	7.5	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	SN96C SnAg3.8Cu0.7 in weight-%	SN96Ce SnAg3.8 in weight-%	Critical values in working solder bath*
Sn	Remainder	Remainder	Remainder
Ag	3.8 ± 0.2	3.8 ± 0.2	
Cu	0.7± 0.1	max. 0.4	< 0.4 > 0.85
Ni	max. 0.01	max. 0.01	> 0.1
Al	max. 0.001	max. 0.001	> 0.0002
As	max. 0.03	max. 0.03	> 0.03
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
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
Au	max. 0.05	max. 0.05	> 0.5
In	max. 0.05	max. 0.05	not indicated

*Max. solder bath impurities are not standardized, but are experience values.

Storage Conditions / Durability

Dry storage at room temperature / minimum 2 years

Safety Advice

Before use please refer to the appropriate Material Safety Data Sheet.

OUR GLOBAL PARTNERS FOR LEAD-FREE SOLDERS

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