TECHNICAL DATA SHEET

SOLDER FAIRTIN SN100C

Lead-free alloy for electronics

DESCRIPTION

Fairtin SN100C is a silver-free, micro-alloyed solder developed and patented by the Japanese company Nihon Superior. The nickel micro-alloying element reduces copper accumulation in the solder bath and enables stable process control. The second micro-alloying element, germanium, reduces the formation of dross and therefore helps to save resources and protect the environment. In addition, the alloy component nickel forms a finer intermetallic phase with tin and copper, resulting in an increased stability of the solder joints. Otherwise, the alloy shows very good wetting behaviour and a reduced tendency to bridge formation.

For Fairtin alloys, we only use tin from manufacturers who pay particular attention to environmental protection in mining and processing, who comply with national and international rights and who fulfil their social responsibility. Alternatively, solders made from high-purity secondary raw materials from European production are used.

CHARACTERISTICS

This product offers the following advantages:

- **micro-alloyed, eutectic alloy (melting point at 227 °C)**
- **reduced dissolution rate in comparison with S-Sn99.3Cu0.7 alloy**
- **reduced dross formation in comparison with S-Sn99.3Cu0.7 alloy**
- **reduced tendency for bridging and icicle formation**
- **shiny solder joints**
- **silver-free – cost-optimized solution**

APPLICATION

As with lead-free standard alloys, it is necessary to adjust the temperature profiles on the production systems when switching from leaded to lead-free processes. When switching from lead-free standard alloys to Fairtin SN100C, the settings remain the same. The properties of the resulting solder joints will be comparable to or better than Sn/Pb solder joints in all respects.

The physical properties are not changed by the micro-alloy additives. The differences between lead-free standard solders and Fairtin SN100C are:

- solidification of the solder joint, which is finer-grained and therefore appears smoother
- reduced leaching, whereby far less copper is removed
- reduced dross formation

Depending on the process control and soldering method, there are two other aspects to consider when using Fairtin SN100C. The germanium can be consumed over time. With a germanium content of less than 20 ppm, increased dross formation can therefore be observed. In these cases, we recommend the addition of our antioxidant additive S-Sn99Ge1 to restore the germanium content to the desired level.

In addition, despite the reduced deposition rate of Fairtin SN100C, the copper content in the solder bath can rise to critical levels. In these cases, we recommend the alloy SN100Ce with a reduced copper content as a subsequent solder. Our laboratory and our application engineers will of course provide you with support in technical questions and in checking the composition of your solder bath.

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PHYSICAL PROPERTIES AND DATA

GENERAL PROPERTIES	FAIRTIN SN100C
melting point, °C:	227
density, g/cm³:	7.4
tensile strength, MPa 10 mm/min at 25 °C:	32
elongation at break, %:	48
electrical conductivity, µΩm:	13
specific melting heat, J/g:	61

RECOMMENDED OPERATING CONDITIONS

Wave soldering and selective soldering systems: The recommended operating conditions are the same as for lead-free SnCu alloys as the melting point remains the same.

SUPPLY FORM

- Wire (solid and flux cored)
- Triangular bars, Kilobars
- Ingots with hanger hole
- Pellets (approx. Ø 5 mm x 30-35 mm)

HEALTH AND SAFETY

Before using please read the material safety data sheet carefully and observe the safety precautions described.

DISCLAIMER

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