



Solder Paste SP 651M

According to DIN EN 29454-1, 1.1.3.C and ANSI J-STD-004/ -005: RO L0

DESCRIPTION

The SP 651M is characterised by excellent application properties, by minimal residues and very low solder balling. The residues are non-corrosive. The SP 651M meets all common standards and is suitable for SMT board assemblies. Beside the oxide free soft solder powder, the solder paste contains a rosin-based organic bonding system as a homogenous mixture whose outstanding features are superb print and assembly properties, no slump, ability to remain usable for long periods and good temperature stability. The SP 651M is suitable especially for fine-pitch electronics but also for any other kind of electronics manufacturing.

CHARACTERISTICS

Stannol solder paste SP 651M offers the following advantages:

- suitable for fine-pitch
- for stencil- / screen print
- for manual and automatic dispensing equipment
- for lead-free alloys
- no clean
- halogen and halide free

APPLICATION

The SP651M is suited for any reflow system with and without nitrogen and for vapour phase. If soldering without nitrogen, it is necessary to use a short temperature profile. The profile should be linear. The higher the thermal demand of the components is, the more the linear profile should be adapted to a soak profile. The peak temperature on the printed circuit board surface should be around 245°C.

Soldering without nitrogen:

The profile may not take longer than 5 minutes. The peak temperature of about 245° C should be kept for 30-40 seconds. If the surface is dull, the profile needs to be shorter and/or the duration of the peak temperature prolonged.

Soldering with nitrogen atmosphere or vapour phase:

A standard temperature profile (linear or soak) with duration of about 6 minutes can be used.

After removing the paste from the printer, the jars must be carefully closed immediately to prevent premature drying-out. Paste which has already been used must be stored separately.

CLEANING

Due to the low amounts of visible residues of the SP 651M, cleaning is generally not required after soldering. There are some specifications which may require a cleaning process. In such cases the use of our Circu-Conditioner 100B is recommended.

PHYSICAL PROPERTIES AND DATA

Solder alloys	Sn 95.5 Ag 3.8 Cu 0.7	MP: 217 °C
	Sn 96,5 Ag 3,0 Cu 0,5	MP: 217 – 220 °C
Metal content	between 84 % and 87 %, depending on application	

Available powder sizes (DIN 32513-100)		
Class 3	25-45 µm	500 - 325 mesh
Class 4	20-38 µm	635 - 400 mesh

Ultra fine powder pastes can be made available

Viscosity at 10 s ⁻¹ / Pa*s (Physical)	Depending on metal content and grain size	80 – 520 Pa*s
Yield Point Tau 0 (Pa)	Depending on metal content and grain size	50 – 150 Pa
Acid Number of flux (mg KOH / g)		160-210 mg KOH / g

SIR-test according to J-STD 004 Method IPC-TM-650 2.6.3.3

Solder Paste	Climate	96h (50V DC)	168h (50V DC)	Reference 96h (50V DC)	Reference 168h (50VDC)
651 M (89%)	85°C / 85% rH	8,75 x 10 ¹¹	1,21 x 10 ¹²	3,84 x 10 ¹⁰	9,56 x 10 ¹¹

There is no growth of dendrites visible.

Copper-Mirror-Test (J-STD 004 Method IPC-TM-650 2.3.32)

Light brightening, no breakthrough of copper mirror: passed

Copper-Corrosion-Test (J-STD 004 Method IPC-TM-650 2.6.15)

No indication of corrosion: passed

Silverchromate-Paper-Test (J-STD 004 Method IPC-TM-650 2.3.33)

No discoloration: passed

Fluoride-Test (J-STD 004 Method IPC-TM-650 2.3.35.1)

No yellow staining: passed

PACKAGING

This solder paste is available in 500g plastic jars or in 30cm³ cartridges. Other packaging sizes are available upon request.

SHELF LIFE

Refrigerated storage at 5–8°C in sealed jars will ensure a solder paste shelf life to no less than 6 months. Solder paste should reach room temperature in sealed jars in about 8-12 hours, prior to use.

HEALTH AND SAFETY

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

NOTICE

The above values are typical and represent no form of specification. The Data Sheet serves for information purposes. Any verbal or written advise is not binding for the company, whether such information originates from the company offices or from a sales representative. This is also in respect of any protection rights of third parties, and does not release the customer from the responsibility of verifying the products of the company for suitability of use for the intended process or purpose. Should any liability on the part of the company arise, the company will only indemnify for loss or damage to the same extent as for defects in quality.