SOLDER PASTE SP6000D lead-free

No-Clean solder paste

PRODUCT DESCRIPTION

Solder paste SP6000D is part of Stannol's sustainable greenconnect product line. Its special feature: With this solder paste, more than 85 percent of CO_2 emissions can be saved compared to conventional solder pastes, mainly by using recycled solder.

SP6000D has been developed for use with lead-free alloys. The flux system of the solder paste is classified as REL0 according to J-STD-004. Its wetting properties have been optimised for all known lead-free PCBs. The minimal residues after the reflow soldering process are transparent and non-corrosive.

CLASSIFICATION AND PRODUCT PROPERTIES

The product offers the following advantages:

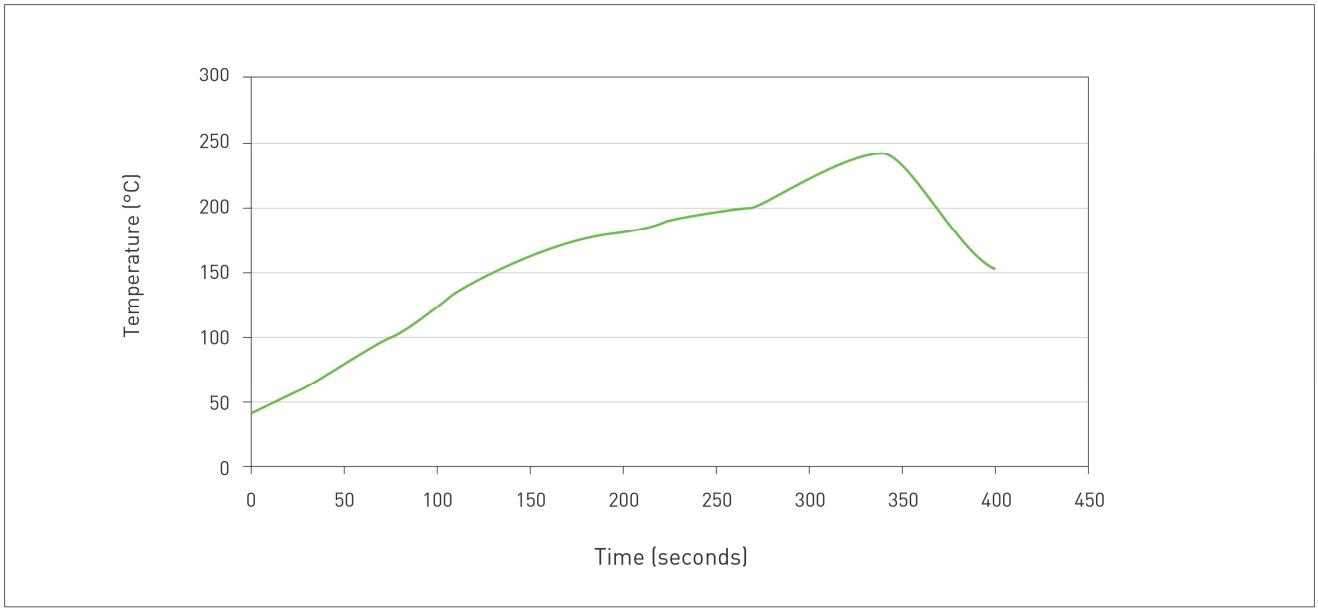
- **solder powder from recycled solder**
- **more than 85 percent CO_2 savings**
- **precise viscosity during application**
- **very suitable for use with alloys with a low silver content (TSC105)**
- **reflow process under air or nitrogen possible**
- **very good wetting on most surfaces**
- **dispensable**
- **RoHS compliant**

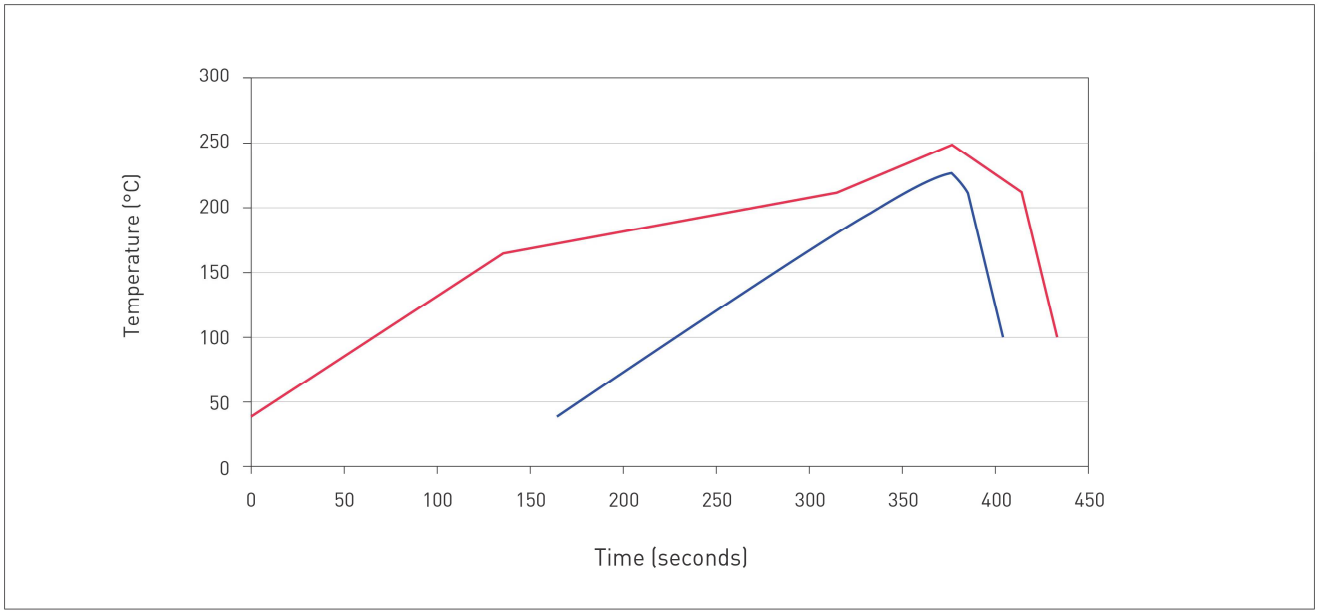
APPLICATION

SP6000D has been especially developed for the dispensing process.
SP6000D can be used on various dispensing devices, e.g. on time/pressure dispensers, pinch valve dispensers or jet dispensers.

With the lead-free alloys TSC105 and TSC305 in particle sizes type 3 and 4 as solder powder, SP6000D can be used on standard dispensing systems. The solder paste has a long open time. During this time, the viscosity is maintained to ensure sufficient tackiness of the components. The exact time for sufficient adhesive strength always depends on the ambient conditions in the respective production environment. If the time between paste application and reflow process exceeds 6 hours, it is recommended to store the assembly in a closed container to prevent the solder paste from drying out. This is particularly the case at a relative humidity of >83 %.

The reflow process can be carried out under air or under nitrogen. The table below shows a typical temperature profile that can be used as a guide for initial production trials with SP6000D. Depending on the soldering task, however, this soldering profile must be adapted accordingly. A linear reflow profile is recommended for SP6000D. When using a saddle profile, the temperature load in the preheater should not exceed 120 seconds at temperatures around 180 °C.





RECOMMENDED PROCESS WINDOW	MAX (RED)	MIN (BLUE)
Peaktemperatur	250 °C	230 °C
T>217 °C	100 sec.	30 sec.
100 °C to 217 °C	260 sec.	130 sec.

For recommendations on the soldering profile for the bismuth-containing solder paste, please refer to the Technical Data Sheet TDS SP6000 TBS04.

CLEANING

Stannol SP6000D was developed as a No-Clean solder paste. This means that it is not obligatory to remove the residues. If cleaning is necessary, the residues can be removed using conventional cleaning processes. We recommend using the Stannol cleaner Flux-Ex Pre before the soldering process and Flux-Ex Post Power to remove residues after the soldering process.

TECHNICAL SPECIFICATIONS

Solder powder: The permitted impurities in this solder powder comply with ANSI/J-STD-006, with a precisely controlled particle size distribution and spherical shape.

GENERAL PROPERTIES	
alloy	Sn98,5Ag1Cu0,5 (Ecoloy TSC105) / Sn96,5 Ag3,0 Cu0,5 (Ecoloy TSC305) Bi57,6Sn42Ag0,4 (TBS04)
melting range, °C	217-223 138-140
metal content, %	86 87
solder powder, µm	25-45 (type 3) / 20-38 (type 4) 20-38 (type 4)
application	automatic and manual dispensing

The values in the table are typical values and do not represent a specification.

Tests	Specification	Result
Copper corrosion:	ANSI/J-STD-004C IPC-TM-650, Method 2.6.15	pass
Copper mirror test:	ANSI/J-STD-004C IPC-TM-650, Method 2.3.32	pass
Surface insulation resistance:	ANSI/J-STD-004C IPC-TM-650, Method 2.6.3.3/2.6.3.7	pass
Silver chromate paper test:	ANSI/J-STD 004 IPC-TM-650, Method 2.3.33	pass
Chlorides:	ANSI/J-STD-004C IPC-TM-650, Method 2.3.35	no addition
Bromides:	ANSI/J-STD-004C IPC-TM-650, Method 2.3.35	no addition
Solder balling:	ANSI/J-STD-005A IPC-TM-650, Method 2.4.43 after 1 h at room temperature after 24 h at room temperature	 pass, class 1 pass, class 1
Wetting test:	ANSI/J-STD-005A, IPC-TM-650 IPC-TM-650, Method 2.4.45	 pass, class 1
Open time:	laboratory internal specification	at least 8 h at 23 °C/65 % rF
Flux activity classification:	J-STD-004	REL0

DELIVERY FORMS

Stannol SP6000D solder paste can be supplied in the following containers:

- 10 cc cartridge
- 30 cc cartridge

Other types of packaging are also available on request. These may be subject to certain minimum purchase quantities.

STORAGE AND SHELF LIFE

At a storage temperature of 2 to 8 °C, the minimum shelf life (from date of manufacture) is 4 months in the unopened original container. Solder paste in cartridges should be stored upright with the cap of the dispensing opening facing downwards. If this is not possible, we recommend turning the cartridges stored horizontally by 180° once a week to prevent separation. Allow the solder paste to slowly warm up to room temperature in the closed original container for approx. 2 to 6 hours before use.

Opened cartridges: Recommended maximum 16 hours at room temperature
Note: Use opened cartridges within 7 days – with appropriate cooling.

HEALTH AND SAFETY

Read the safety data sheet before first use and observe the safety instructions.

DISCLAIMER

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