INTERFLUX®
ELECTRONICS

# DP 5600

## No-clean, low melting point, lead-free and halide free solder paste

### Description

**DP 5600** is a no-clean, halide free solder paste for low melting point SnBi(Ag) alloys.

The solder paste is typically being used for soldering components and materials with sensitivity to high temperatures, like e.g. LEDs, Elcos, components with plastic bodies, etc... Another field of use is the soldering of shieldings.

DP 5600 provides good wetting and clean soldering results without the typical black spots for SnBi(Ag) alloys. The use of nitrogen during reflow is possible but not necessary.

The paste combines low voiding properties with a high stability on the stencil.

DP 5600 is absolutely halogen free, providing optimal reliability after soldering. The residues after reflow are minimal and clear.

DP 5600 is classified as RO L0 according IPC and EN standards.

*Products pictured may differ from the product delivered*

## Key properties

- For temperature sensitive components and materials
- Low voiding
- High stability / High stencil life
- Clear and minimal residue
- Absolutely halogen free

## Availability

| alloy | Melting point | metal content | powder size | packaging |
|---|---|---|---|---|
| Sn42Bi57Ag1 | 139°C | printing: ~ 90% | type 3 | jars: 500g |
| | | dispensing : ~ 87% | type 4 | syringes: 10CC/30CC |
| | | jetting: ~ 80% | type 5 | |
| other alloys upon request | | | | other packaging upon request |



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## Profile recommendations for DP 5600 SnBi(Ag)

In general a linear profile or a profile with limited soak are advised. Also soak profiles are possible. Due to it's low melting point and it's low voiding properties, the risk on too high temperatures and excessive voiding with DP 5600 are very limited. However, soak profiles may be used when temperature differences across a board, due to a high mix of components or large board sizes, need to be levelled out or when voids, if present, need to be decreased.

It is always important to know the temperature limitations of the components and materials of the electronic unit. To get a good thermal mapping of the board it is advised to use thermocouples and a thermal measuring tool. Measure on small outline, big outline and temperature sensitive components. Measure on the board side near the conveyor chain, in the middle of the board and close to, or on heat sinks.

**Preheat**

To allow absorbed moisture in the components to evaporate slowly and avoid component cracking, keep a steady heating rate between 1-3°C/s until about 120°C(248°F). For that purpose try to avoid a hot air temperature setting in the first heating zone above 150°C(302°F).

**Soak**

A soak zone between 100°C(212°F) and 120°C(248°F) from 0-90s with a rate of 0-1°C/s can be used to level out temperature differences and/or reduce voiding.

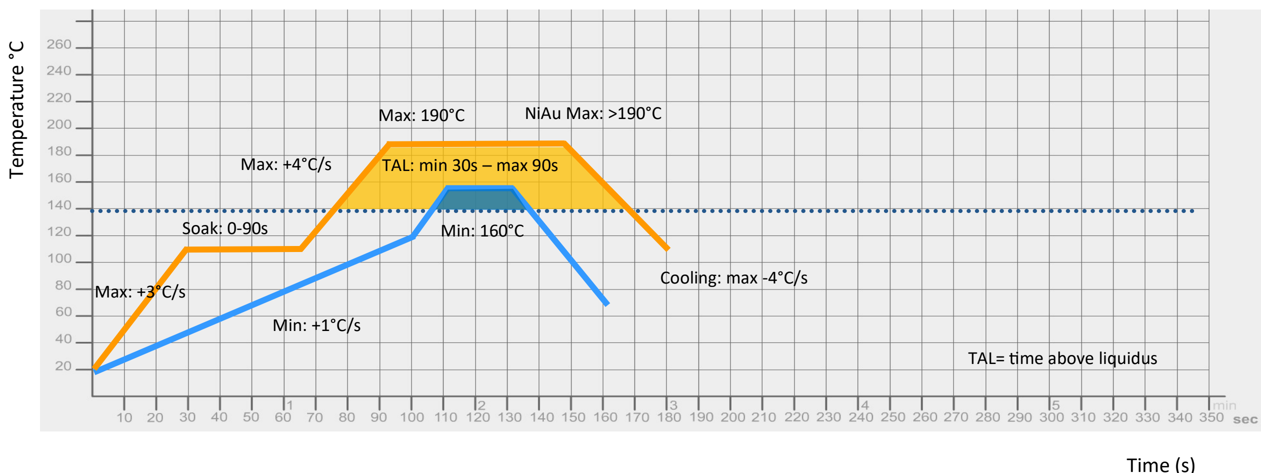
**Reflow**

Peak temperature used is related to component specifications. In general between 160°C(320°F) and 190°C(374°F). The time above liquidus (over melting point of the alloy used) could be between 30s and 90s.

The NiAu (ENIG) surface finish may require a higher peak temperature.

**Cooling**

Faster cooling in general gives stronger solder joints. An active cooling is advisable. It is advisable to cool not faster than -4°C/s because of differences in thermal expansion of different materials (component and boards).







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## Handling

**Storage**

Store the solder paste in the original packaging, tightly sealed at a preferred temperature of 3° to 7°C. Shelf life is 6 months.

**Handling**

Let the solder paste reach room temperature prior to opening the packaging. Stir well before use.

**Printing**

Assure good sealing between PCB and stencil. A negative print gap of 0,2 to 0,4mm is advisable. Apply no more than enough squeegee pressure to get a clean stencil. Apply enough solder paste to the stencil to allow smooth rolling during printing. Regular replenish fresh solder paste.

**Maintenance**

Set an under stencil clean interval which provides continuous printing quality. **ISC8020** is recommended as cleaning agent in pre saturated wipes and USC liquid.

**Reuse**

Avoid mixing used and fresh paste in a jar. Do not put packages back into refrigeration when already opened. Store used paste in a separate jar at room temperature. A test board before reusing in production is advisable.

## Test results

conform IPC J-STD-004A/J-STD-005

| Property | | Result | Method |
|---|---|---|---|
| **Chemical** | | | |
| qualitative copper mirror | | **pass** | J-STD-004A IPC-TM-650 2.3.32 |
| halide content | | **0,00%** | J-STD-004A IPC-TM-650 2.3.28.1 |
| silver chromate (Cl, Br) | | **pass** | J-STD-004A IPC-TM-650 2.3.33 |
| flux classification | | **RO L0** | J-STD-004A |
| **Environmental** | | | |
| SIR test | | **pass** | J-STD-004A IPC-TM-650 2.6.3.3 |
| **Mechanical** | | | |
| solder ball test | after 15min | **pass** | J-STD-005 IPC-TM-650 2.4.43 |
| | after 4h | **pass** | J-STD-005 IPC-TM-650 2.4.43 |
| wetting test | | **pass** | J-STD-005 IPC-TM-650 2.4.45 |
| slump test | after 15min at 25°C | **pass** | J-STD-005 IPC-TM-650 2.4.35 |
| | after 15min at 120°C | **pass** | IF SLMP SnBi(Ag) |




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ISO 9001

## Health and safety

Please always consult the safety datasheet of the product.

## Operating parameter recommendations

**Printing**

| | |
|---|---|
| speed: | 25—100 mm/sec |
| squeegee pressure: | 250g—350g/cm length |
| U.S.C. interval: | every 10 boards |
| Preferred temperature range: | 15 to 25°C |
| Preferred humidity range: | 40% to 75% r.H. |
| Stencil life: | >12hrs |

**Mounting**

| | |
|---|---|
| tack time: | >8 hours |

**Reflow**

| | |
|---|---|
| reflow profile: | linear and soak |
| heating type: | convection, vapour phase,... |

**I.C.T**

flying probe testable
pin-bed testable

**Cleaning**

Cleaning of the paste from stencils and tools is recommended with Interflux® ISC 8020.

The post reflow residues of DP 5600 are highly reliable and do not need to be cleaned, however they can be cleaned if desired.

Trade name : DP 5600 No-Clean, Lead Free Solder Paste

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