



No-clean, halide free and lead-free solder paste

Description

DP 5505 is a no-clean, halide free and lead-free solder paste that has been designed to minimize the 'hidden pillow' defect on BGAs.

It has high resistance against moisture and elevated temperatures.

The rheology of DP 5505 allows for very fast printing speeds, even on small apertures and is excellent for Pin in Paste applications.

Furthermore, the chemistry of DP 5505 has been designed to minimize void formation. It meets IPC 7095 voiding performance class 3.

DP 5505 is halide free providing optimal reliability after soldering.

The residues after reflow are minimal and clear, they are easy to be penetrated by flying probe- and ICT-test pins.

DP 5505 is classified as RO L0 according IPC and EN standards.



Products pictured may differ from the product delivered

Key properties

- High stability / High abandon time
- Optimised formula to prevent the 'hidden pillow' defect on BGAs
- Wide process window
- Low voiding
- Low residue after re-flow
- Absolutely halogen free

Availability

alloy	melting point	metal content	powder size	packaging
Sn96,5Ag3Cu0,5	~217°C	printing: ~ 88-89%	type 3	jars: 500g
Sn95,5Ag4Cu0,5	~217°C	dispensing: ~ 84-85%	type 4	syringes: 10CC/30CC
Sn99Ag0,3Cu0,7	~217-227°C		type 5 conditional	
other alloys upon request				other packaging upon request





Profile recommendations for DP 5505

In general a profile with limited soak is advised. Also ramp profiles and soak profiles are possible. 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.

When soldering an assembly in a lead-free reflow soldering process, care must be taken not to overheat components especially when using air convection or IR ovens. It is very important to know the temperature limitations of the components used on the board. 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 200°C. For that purpose try to avoid a hot air temperature setting in the first heating zone above 150°C.

Soak

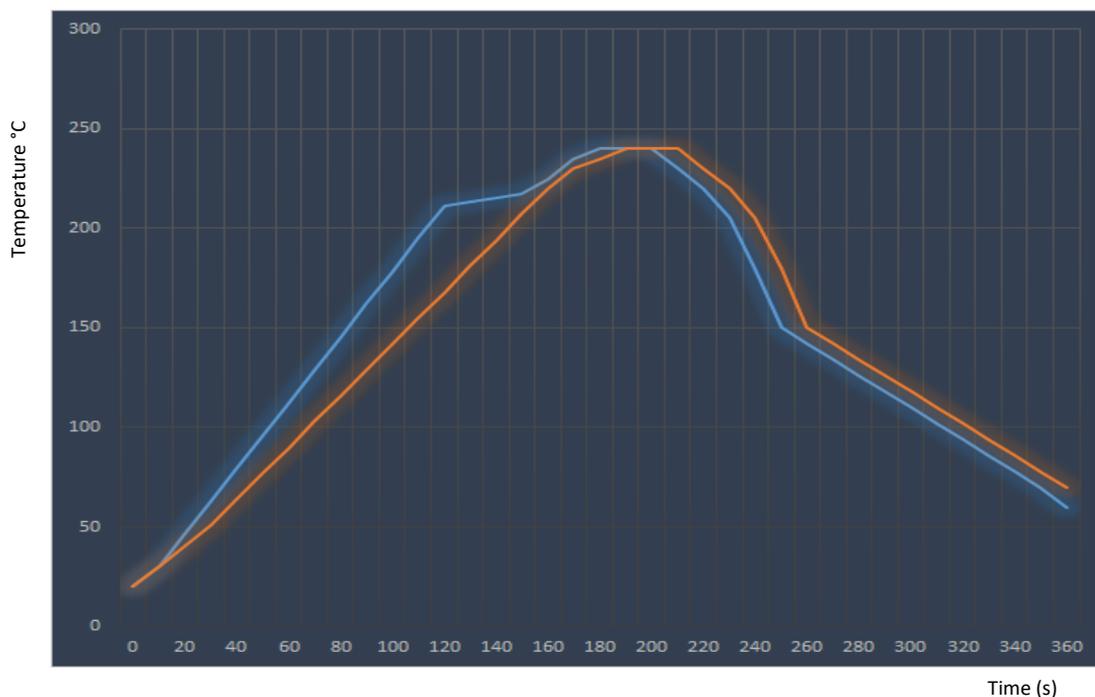
A soak zone between 200°C and 215°C for 0-90s at 0-1°C/s can be used to level out temperature differences and/or reduce voiding.

Reflow

Peak temperature used is related to component specifications. In general between 235°C and 250°C. The time in liquidus (over melting point of the alloy used) could be between 30s and 90s.

Cooling

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





Handling

Storage

Store the solder paste in the original packaging, tightly sealed at a preferred temperature of 3° to 7°C. Shelf life is 9 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

Property	Result	Method
Chemical		
qualitative copper mirror	pass	J-STD-004A IPC-TM-650 2.3.32
quantitative halide	N.D.*	J-STD-004A IPC-TM-650 2.3.35
silver chromate (Cl, Br)	pass	J-STD-004A IPC-TM-650 2.3.33
flux classification	RO LO	J-STD-004A
Environmental		
SIR test	pass	J-STD-004A IPC-TM-650 2.6.3.3
electro migration	pass	Bellcore GR-78-CORE, section 13.1.4
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 10min at 150°C	pass	J-STD-005 IPC-TM-650 2.4.35
tack test	0h: 56,3g / 8h: 55g	J-STD-005 IPC-TM-650 2.4.44

* N.D. = None detected, the detection limit for this test is 100ppm



Health and safety

Please always consult the safety datasheet of the product.

Operating parameter recommendations

Printing

speed: 20—150 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: >24hrs

Mounting

tack time: >8 hrs

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 5505 are highly reliable and do not need to be cleaned, however they can be cleaned if desired.

A compatibility list between Interflux[®] products and some Zestron[®], Kolb and Kyzen cleaning products is available at Interflux.

Trade name : Interflux[®] DP 5505 No-Clean, Halide Free, Lead Free Solder Paste

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