



No clean solder paste DP 5505

INTERFLUX®
ELECTRONICS N.V.



Technical data DP 5505

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No-clean, Halide free, Lead free solder paste

Description

DP 5505 is a halide free, lead-free solder paste for SnAgCu, SnCu and SnAg alloys.

This solder paste has been designed to minimize the 'hidden pillow' defect on bga's. It has high resistance against moisture and elevated temperatures.

DP5505 is suitable for vapour phase soldering.

The solder paste has excellent slump and hot slump properties, minimising the risk on bridging, solder beading and solder balling in reflow.

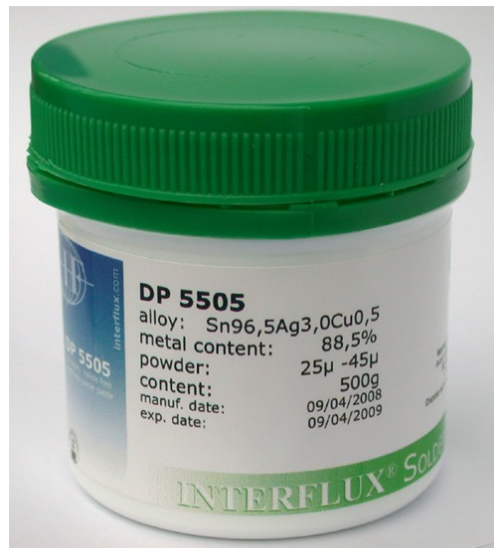
DP 5505 shows excellent wetting and spreading on many board finishes including OSP.

The solder paste 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.

The **90%** metal content version is designed especially to leave the lowest possible post reflow residue.



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Key advantages:

- High stability / High abandon time
- Optimised formula to prevent the 'hidden pillow' defect on bga's
- Wide process window
- Suitable for vapour phase soldering
- Good slump resistance
- Good wetting on HASL, Ni/Au, OSP Cu, I-Sn, I-Ag
- Low voiding
- Low residue after reflow
- Halogen free

Availability

alloy	metal content	powder size	packaging
Sn96,5Ag3Cu0,5			
Sn95,5Ag3,8Cu0,7	printing: 88,5-90%	Standard type 3 (25— 45µ)	500g jar
Sn95,5Ag4Cu0,5			1kg—1,2kg—1,3kg in 12 Oz. cartridge
Sn99Ag0,3Cu0,7	dispensing: 85%	Type 4 and type 5 available for certain alloys	5cc— 10cc— 30cc syringe
Sn96,5Ag3,5			Other packaging upon request
Sn95,8Ag4,2			
Sn99,3Cu0,7			



Reflow profile for SAC, SnCu and SnAg alloys

General

In general 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 solder 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.

Profile recommendations (SnAgCu, SnCu and SnAg type alloys)

Preheat

From room temperature until about 200°C at a rate of 1-3°C/seconds. Higher heating rates could result in component cracking due to absorbed moisture.

Soak

From 180°C to about 200°C at a rate of

0,5-1°C/seconds.

In some cases a temperature holding soak zone is used to level out differences on a board. It is often used on high mix boards or to reduce voids in certain lead free processes. To reduce voids a 30 to 90 sec. soak between 180°C and

200°C is recommended.

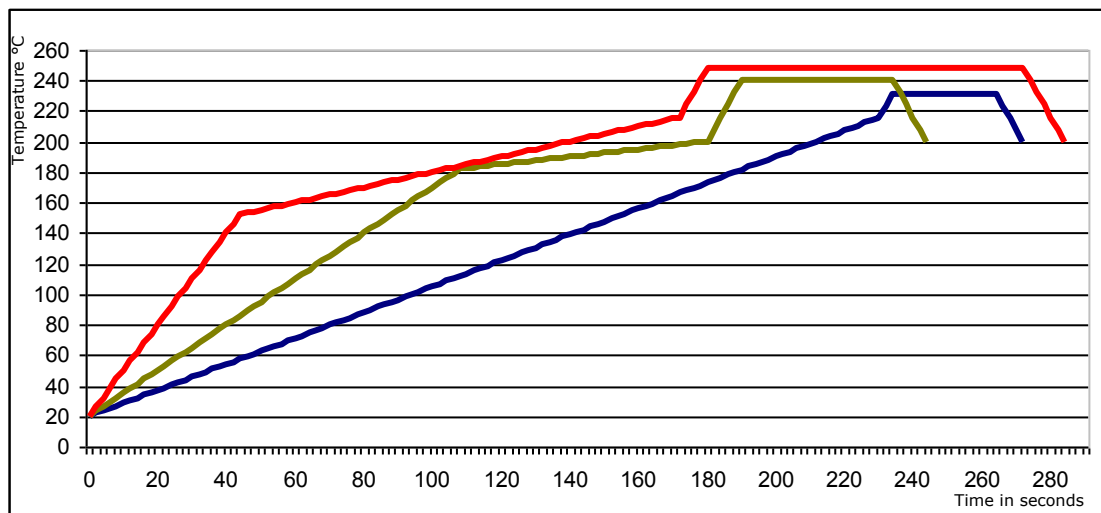
Reflow

Peak temperature used is related to component specifications. Minimum 10°C over alloy melting point is advised. In general between 235°C and 250°C. The time in liquidus

(over melting point of the alloy used) between 45 seconds and 90 seconds.

Cooling

Cooling rate around -4°C/ second because of differences in thermal expansion of different materials.





Handling

Storage

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

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. 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

Do not mix used and fresh paste. Do not put packages back

into refrigeration when already opened. Store used paste in a separate jar at room temperature.

Reflow

Consult profile on page 2

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	0,0%	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 LO	J-STD-004A IPC-TM-650 2.3.28.1
Environmental		
SIR test	pass	J-STD-004A IPC-TM-650 2.6.3.3

Property	Result	Method
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



Operating parameter recommendations

Printing

speed: 20—150 mm/sec
squeegee pressure: 250g—350g/cm length
U.S.C. interval: every 10 boards
temperature range: 15 to 25°C
humidity range: 40% to 75% r.H.

Mounting

tack time: >8 hours
mounting to reflow: >72 hours

Reflow

reflow profile: linear and soak
heating type: convection, vapour phase, etc

I.C.T

flying probe testable
pin-bed testable

Viscosity

- Brookfield (T-spindle 5 rpm@20°C): 700 000 - 1 000 000 cPs
(88,5% metal content)

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