



## LMPA™ - Q6

### Low melting point lead-free, halide free solder paste

#### Description

**LMPA™ - Q6** is a no-clean, absolutely halide free and lead-free solder paste with the patent pending LMPA™ low melting point alloys.

The LMPA™ alloys have increased mechanical properties compared to the SnBi(Ag) alloys.

Moreover they are suitable for wave soldering and selective soldering.

This makes them the perfect drop-in alloys for many electronic applications that are today being soldered with Sn(Ag)Cu alloys

The low melting point allows for lower and shorter reflow profiles.

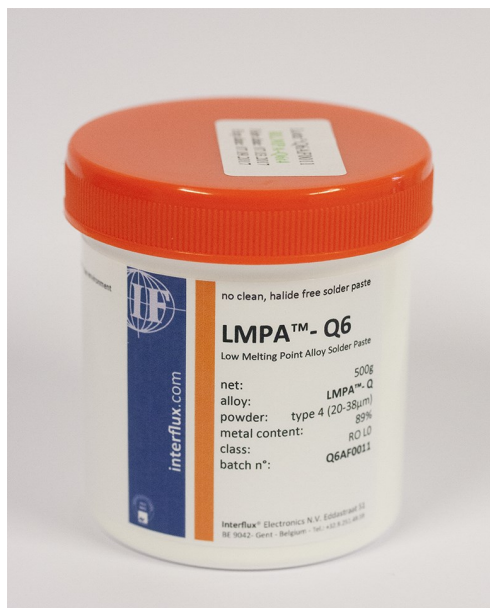
This will result in reduced energy consumption, lower costs and increased line capacity and production speeds.

Board and components will experience less stress, resulting in less ageing and longer life time of the electronic unit.

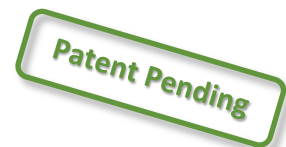
**LMPA™ - Q6** substantially reduces the tombstone phenomenon and exhibits extremely low voiding after reflow.

**LMPA™ - Q6** has improved printing stability, stencil life and a more transparent residue compared to DP 5600 LMPA™- Q.

The solder paste is classified as RO L0 according IPC and EN standards.



Products pictured may differ from the product delivered



#### Key properties

- Transparent residue
- Anti-tombstone
- Extremely low voiding
- Absolutely halogen free
- Increased mechanical reliability
- Alloy suitable for wave and selective soldering
- Reduced cost of production
- Increased line capacity
- Lower thermal stress on electronic unit
- Longer life time of the electronic unit

#### Availability

alloy	metal content	melting T°	powder size	packaging
LMPA™ - Q	printing: 89%	139°C-176°C	Type 3 / Type 4	jars: 500g





- ✓ Low temp soldering alloy
- ✓ Higher reliability
- ✓ Environmentally friendly

## Technical data LMPA<sup>™</sup> - Q6

### Profile recommendations for LMPA<sup>™</sup> alloys

**LMPA<sup>™</sup> - Q6** allows for lower and shorter reflow profiles compared to Sn(Ag)Cu– alloys. This drastically reduces the risk of overheating temperature sensitive components. However it is always advisable to measure a thermal profile with thermocouples on a variety of components and locations to get a good thermal mapping of the board. 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.

In general a ramp profile is used but a soak is also possible.

#### Preheat

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

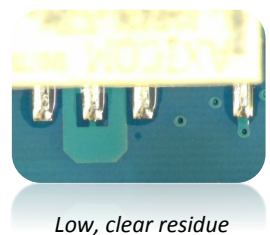
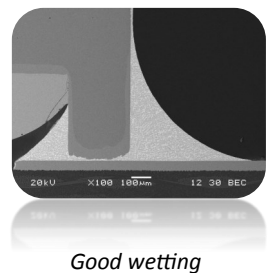
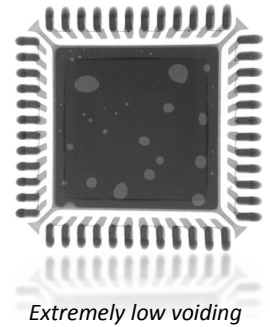
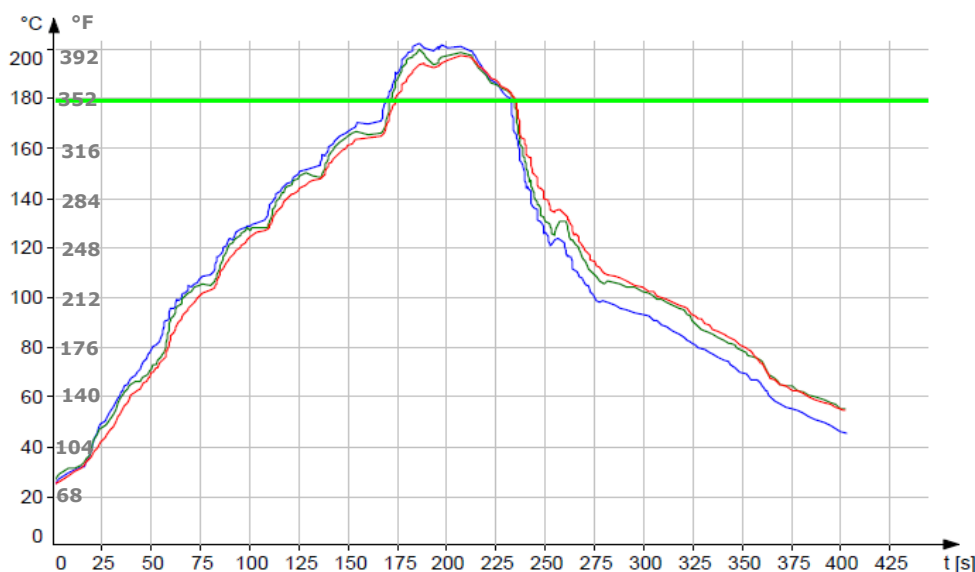
Keep a steady heating rate till about 180°C. At this point, the alloy will totally liquid.

#### Reflow

Peak temperature between 190°C and 210°C. Higher temperatures are possible. The time over liquidus (where the alloy is entirely in liquid phase) can 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.





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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 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-004B/J-STD-005

Property	Result	Method
<b>Chemical</b>		
qualitative copper mirror	<b>pass</b>	J-STD-004A IPC-TM-650 2.3.32D
silver chromate (Cl, Br)	<b>pass</b>	J-STD-004B IPC-TM-650 2.3.33D
fluoride spot test	<b>pass</b>	J-STD-004B IPC-TM-650 2.3.35.1
corrosion test	<b>pass</b>	J-STD-004B IPC-TM-650 2.6.15
flux classification	<b>RO LO</b>	J-STD-004B
spread test	<b>99,89 mm<sup>2</sup></b>	J-STD-004B IPC-TM 650 2.4.46



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### Test results (cont.)

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

Property	Result	Method
<b>Environmental</b>		
SIR test	pass	J-STD-004B IPC-TM-650 2.6.3.7
<b>Mechanical</b>		
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 100°C	pass	IF SLMP LMPA



- ✔ Low temp soldering alloy
- ✔ Higher reliability
- ✔ Environmentally friendly

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### Health and safety

Please always consult the safety datasheet of the product.

### Operating parameter recommendations

#### Printing

speed:	10—100 mm/sec
squeegee pressure:	250g—350g/cm length
stencil life:	>24 hours
U.S.C. interval:	every 5-7 boards
temperature range:	15 to 25°C
humidity range:	40% to 75% r.H.

#### Mounting

tack time: > 8 hours

#### Reflow

reflow profile:	linear and soak
heating type:	convection, ...

#### I.C.T

flying probe testable  
pin-bed testable

#### Cleaning

Cleaning of the paste from stencils and tools is recommended with Interflux<sup>®</sup> **ISC 8020**.

The post reflow residues of LMPA<sup>™</sup> - Q6 are highly reliable and do not need to be cleaned, however they can be cleaned if desired.

Trade name : LMPA<sup>™</sup> - Q6 Low Melting Point Solder Paste

#### Note

LMPA<sup>™</sup> is a trade mark of Interflux<sup>®</sup> Electronics N.V.

LMPA<sup>™</sup> alloys are patent pending and intellectual property Interflux<sup>®</sup> Electronics N.V.

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