Activated, lead-free no-clean solder paste

Description:

**IF 9009** is an activated no-clean solder paste that shows good wetting on strongly oxidized surface finishes and surfaces with poor wettability.

**IF 9009** has good tackiness and print definition. It keeps its rheology characteristics during printing, resulting in a stable printing process.

The solder paste does not contain any rosin resulting in less harmful fumes and less oven maintenance. The residues after reflow are clear, they are easy to be penetrated by flying probe- and ICT-test pins. The residues can be cleaned off.

**IF 9009** is hydrophobic and gives no solder balling after reflow.

Availability

<table>
<thead>
<tr>
<th>alloy</th>
<th>metal content</th>
<th>powder size</th>
<th>packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sn96,5Ag3Cu0,5</td>
<td>printing: 88%</td>
<td>Standard type 3 (25—45µ)</td>
<td>jars: 250g/500g, cartridges: 6Oz: 500g/600g/700g, 12Oz: 1kg/1,2kg/1,3kg/1,5kg syringes: 5CC/10CC/30CC, other packaging upon request</td>
</tr>
<tr>
<td>Sn95,5Ag3,8Cu0,7</td>
<td>dispensing: 84%</td>
<td>Type 4 and Type 5 available for certain alloys</td>
<td></td>
</tr>
<tr>
<td>Sn95,5Ag4Cu0,5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sn99Ag0,3Cu0,7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sn98,5Ag0,8Cu0,7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sn95,8Ag4,2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sn99,3Cu0,7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other alloys upon request</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

More information:

- Reflow profile: 2
- Profile recommendations: 2
- Product handling: 3
- Test results: 3
- Operating parameter recommendations: 4

Key advantages:

- Excellent wetting on surfaces with poor wettability
- Excellent wetting on strongly oxidized board finishes
- Clear residues after reflow

**IF 9009** is low in halogens and is classified as RE/L1 according to IPC J-STD-004A.
Reflow profile general

**General**
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 or chain, in the middle of the board and close to, or on heat sinks.

Profile recommendations

**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 215°C at a rate of 0-1°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. A 20-90 sec soak between 200°C and 215°C is often used for this purpose.

**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 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. **IS-C8020** is recommended as cleaning agent in pre saturated wipes and USC liquid.

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

**Safety**
Please always consult the safety datasheet.

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**Test results**

<table>
<thead>
<tr>
<th>Property</th>
<th>Result</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chemical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>qualitative copper mirror</td>
<td>pass</td>
<td>J-STD-004A  IPC-TM-650 2.3.32</td>
</tr>
<tr>
<td>qualitative halide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>silver chromate (Cl, Br)</td>
<td>pass</td>
<td>J-STD-004A  IPC-TM-650 2.3.33</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIR test</td>
<td>pass</td>
<td>J-STD-004A  IPC-TM-650 2.6.3.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Result</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mechanical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>solder ball test after 15min</td>
<td>preferred</td>
<td>J-STD-005  IPC-TM-650 2.4.43</td>
</tr>
<tr>
<td>solder ball test after 4h</td>
<td>acceptable</td>
<td>J-STD-005  IPC-TM-650 2.4.43</td>
</tr>
<tr>
<td>wetting test</td>
<td>pass</td>
<td>J-STD-005  IPC-TM-650 2.4.45</td>
</tr>
<tr>
<td>slump test</td>
<td>pass</td>
<td>J-STD-005  IPC-TM-650 2.4.35</td>
</tr>
<tr>
<td>slump test</td>
<td>pass</td>
<td>J-STD-005  IPC-TM-650 2.4.35</td>
</tr>
<tr>
<td>spread test</td>
<td>137,89 mm²</td>
<td>J-STD-004  IPC-TM-650, 2.4.46</td>
</tr>
</tbody>
</table>
Operating parameter recommendations

Printing
speed: 20—70 mm/sec
squeegee pressure: ±250 g/cm length
U.S.C. interval: every 10 boards
temperature range: 15°C to 25°C

Mounting
tack time: > 4 hours

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

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 residues after reflow of IF9009LT are very reliable and don’t need to be cleaned, however they can be cleaned if desired.

A compatibility list between Interflux® products and Zestron® cleaning products is available at Interflux.

Trade name: IF 9009LT No-Clean, Lead Free Solder Paste

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