Product Data Sheet

RM89 SOLDER PASTE

September 2007

RMA DISPENSING SOLDER PASTE

Multicore RM89 dispensing solder pastes have been formulated as RMA type products showing superior resistance to preheat slump during reflow processes.

- **No needle clogging**
- **Excellent resistance to preheat slump**
- **Good tack performance**
- **Good wettability**
- **Residues may be left uncleaned**

PRODUCT RANGE

Multicore RM89 dispensing solder pastes may be supplied with powder made from most solder alloys in the Multicore Product Range. The most common alloys used are Sn62, Sn63, 2.5S and the lead-free alloys 96SC and 96S conforming to the purity requirements of J-STD-006 and/or EN 29453. Minimum order requirements may apply to certain alloys and powder particle sizes.

RECOMMENDED OPERATING CONDITIONS

Application: Multicore RM89 dispensing solder pastes have been specially formulated for application by machine or hand dispensing and they should not be thinned before or during use.

The correct choice of powder size in RM89 solder pastes depends on the application equipment, particularly the dispensing needle. The smallest powder size for RM89 normally recommended is Type 3 (Multicore code AGS).

Multicore RM89 dispensing pastes are not suitable for printing.

Reflow: Any of the available methods of heating to cause reflow may be used including IR, convection, hot belt, vapour phase hot gas and laser soldering. Ideal reflow temperature profiles depend on many factors including the design of the assembly therefore it is not practicable to recommend an ideal profile for all situations.

Multicore RM89 dispensing solder pastes have been specially formulated to show a marked resistance to preheat slump. They can tolerate the longer preheat times often required for large surface mounted devices or densely populated boards. Furthermore, Multicore RM89 dispensing solder pastes are less liable to char during reflow at the elevated temperatures required for some solder alloys.

Cleaning: The residues from Multicore RM89 dispensing solder pastes may be left on the PCB in many applications since they do not pose a hazard to long term reliability. However, should there be a specific requirement for residue removal, this may be achieved using conventional cleaning processes based on solvents such as Multicore MCF800.

TECHNICAL SPECIFICATIONS

Solder Powder: The solder powder for Multicore RM89 dispensing solder pastes is produced by atomising alloys conforming to the purity requirements of J-STD-006, EN 29453 or other national and international standards where relevant.

Careful control of production processes ensures that the solder powder is at least 97% spherical (aspect ratio < 1.5) and contains less than the minimum level of contaminants that would adversely affect solder paste performance. A typical maximum oxide contamination level of 80 ppm (expressed as oxygen in the solder) is regularly achieved or bettered.

Solder Paste Medium: The flux for Multicore RM89 solder pastes is a RMA type showing the following characteristics. Test reports are available on request.

<table>
<tr><th>Test</th><th>Specification</th><th>Results</th></tr>
<tr><td>Corrosion</td><td>DTD 599A
IPC-SF-818
BS5625</td><td>Pass</td></tr>
<tr><td>Copper Mirror Corrosion</td><td rowspan="2">IPC-SF-818
J-STD-004
Bellcore
TR-NWT-000078</td><td rowspan="2">Pass</td></tr>
<tr><td>Chlorides and Bromides</td></tr>
<tr><td>Spread Test</td><td>QQ-S-571E</td><td>Pass</td></tr>
<tr><td>Surface Insulation Resistance (without cleaning)</td><td>IPC-SP-819
Bellcore
TR-NWT-000078</td><td>Pass</td></tr>
<tr><td>Electromigration (without cleaning)</td><td>Bellcore
TR-NWT-000078</td><td>Pass</td></tr>
<tr><td rowspan="3">Flux Activity Classification</td><td>IPC-SF-818</td><td>LR3CN</td></tr>
<tr><td>J-STD-004</td><td>RO LO</td></tr>
<tr><td>EN 29454</td><td>1.1.2</td></tr>
</table>

NOT FOR PRODUCT SPECIFICATIONS
THE TECHNICAL INFORMATION CONTAINED HEREIN IS INTENDED FOR REFERENCE ONLY. PLEASE CONTACT HENKEL TECHNOLOGIES TECHNICAL SERVICE FOR ASSISTANCE AND RECOMMENDATIONS ON SPECIFICATIONS FOR THIS PRODUCT.

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Solder Paste: The properties of a solder paste depend in part on the metal content, the solder alloy and the solder powder particle size range. The following are typical properties for Sn62, Sn63, 2.5S and lead free solder alloys:

Alloy		Sn62, Sn63		96SC, 96S	2.5S
Metal Content %		85		85	90
Powder particle size	µm	53-38	45-20	45-20	75-25
	code	AAS	AGS	AGS	BCS
Viscosity, 25°C					
Brookfield, cP (1)		450,000	500,000	550,000	600,000
Malcom viscosity, P (2)		830	1,100		
Thixotropic index (3)		0.63	0.65		
Slump,(4) IIW test method, mm					
1 hour, room temp.					
0.7mm pads		0.4	0.3	0.3	
1.5mm pads		0.4	0.3	0.3	
80°C, 20 minutes					
0.7mm pads		0.7	0.6	0.6	
1.5mm pads		0.9	0.9	0.9	
Tack (5)					
Tack force, $g.mm^{-2}$		>1.0		>1.0	>1.0
Useful open time		>100		>100	>100

(1) Measured at 25°C, TF spindle at 5rpm after 2 minutes.
(2) Measured at 25°C and a shear rate of $6s^{-1}$
(3) The Thixotropic Index (TI) is defined as: TI=log (viscosity at $1.8s^{-1}$/viscosity at $18s^{-1}$)
(4) The slump data are expressed as the minimum spacing between pads of the size shown that does not allow bridging.
(5) Tack data are derived from comparative laboratory tests and do not necessarily relate directly to particular user conditions.

PACKAGING

Containers: Multicore RM89 dispensing solder pastes are supplied in a wide range of syringe and cartridge types to suit most dispensing equipment. The products may be supplied in bulk packaging formats (500g plastic jars or 1kg vacuum filled cartridges) for the user to fill smaller dispensing cartridges. However, users should note that poor refilling will inevitably lead to dispensing difficulties.

Shelf Life: Providing Multicore RM89 dispensing solder pastes are stored at 5-10°C in the original container, a minimum shelf life of 6 months can be expected. (NB. Cartridges should be stored tip down to prevent the formation of air pockets).

GENERAL INFORMATION

For safe handling information on this product, consult the Material Safety Data Sheet, (MSDS).

Note

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