



WS200 Solder Paste

February 2009

WATER-WASHABLE SOLDER PASTE

PRODUCT DESCRIPTION

Multicore WS200 solder paste is a water washable product for printing and reflow in air or nitrogen atmospheres where process yield is critical. It offers excellent open time, and good soldering activity over a wide range of reflow profiles and surface finishes. Multicore WS200 solder paste is available with Sn62 & Sn63 alloys. Other alloys may be available on request.

FEATURES AND BENEFITS

- Effective over a wide range of printer cycle times and print speeds
- Excellent printer open time and between print abandon time
- Long component tack time
- Excellent slump resistance
- Effective over a wide range of reflow profiles in air or nitrogen
- Residues removed with deionised water rinse

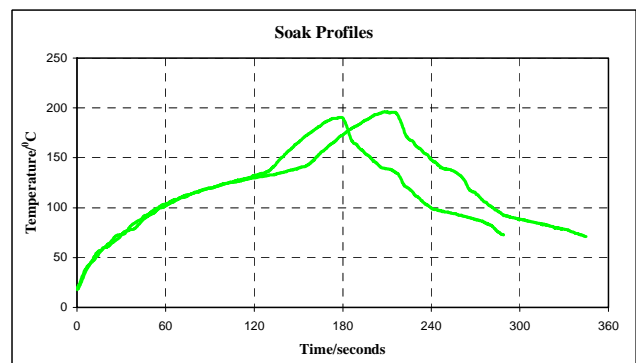
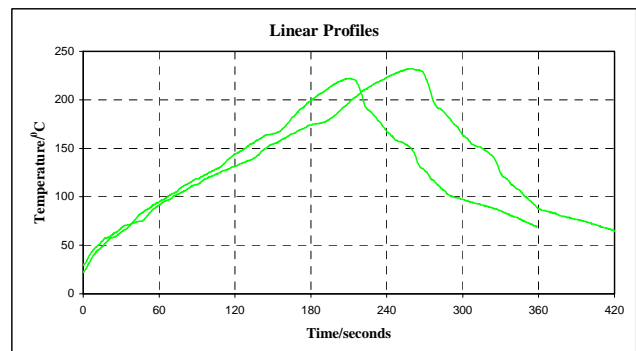
TYPICAL PROPERTIES

Alloy Code	Sn62	Sn63
Alloy Melting Range, °C	179	183
Multicore Code	AGS	
ANSI/J-STD-005	Type 3	
Nominal Size Range, µm	45-20	
Metal Content, wt%	88.5	
Viscosity		
Brookfield, cP ⁽¹⁾	780000	
Malcom, P ⁽²⁾ at 6 s ⁻¹	1550	
Thixotropic Index ⁽³⁾	0.68	
Slump to J-STD-005 ⁽⁴⁾ , A21 pattern	Pass	
15 mins at room temperature		
0.33 x 2.03 mm pads	0.15	
0.63 x 2.03 mm pads	0.33	
15 mins at 150°C		
0.33 x 2.03 mm pads	0.15	
0.63 x 2.03 mm pads	0.33	
Tack to J-STD-005 ⁽⁵⁾		
Initial tack force, g F	38.5	
Useful open time, hours	>24	

1. Measured at 25°C, TF spindle at 5 rpm after 2 minutes.
2. Measured at 25°C
3. Log (viscosity at 1.8s⁻¹/viscosity at 18s⁻¹)
4. The slump data are expressed as the minimum spacing between pads of size shown that does not bridge.
5. Tack data are derived from laboratory tests, and do not necessarily relate to particular user conditions.

Solder Powder: Careful control of the atomisation process for production of solder powders for WS200 solder pastes ensures that the solder powder is produced to a quality level that exceeds IPC/J-STD006 & EN29453 requirements for sphericity, size distribution, impurities and oxide levels. Minimum order requirements may apply to certain alloys and powder particle sizes. For availability with other alloys and powder sizes, contact your local technical service helpdesk.

Reflow Profile: Multicore WS200 solder paste has been formulated for reflow in air over a wide range of temperature profiles. The diagrams below show example reflow profiles that have been used successfully. Other profiles may also give good results, depending on board design factors.



High airflow rates give as even a temperature distribution as possible. However, across the board, this may contribute to exhaustion of paste activity. WS200 combines excellent printing characteristics with tolerance of hot profiles and high air flow rates, although extreme (long & hot) profiles may still give sub-optimal reflow and cleaning in some oven types.

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.



As with all solder pastes, reflow may be carried out in nitrogen if this is installed and this is likely to lessen the effects of long hot profiles and high gas circulation rates.

Cleaning: WS200 residues are designed to be removed from assemblies in an aqueous cleaner without the use of any additional chemistries and/or saponifiers. Incomplete removal of the residues can lead to reduced reliability of the device. Hot deionised water is the preferred cleaning agent. Residues are easily removed in batch and in-line aqueous cleaners even up to three days after reflow. Cleaning of some assemblies is best conducted in an ultrasonic bath. Tap water is not recommended for rinsing since ionic impurities present in tap water can lead to reduced reliability of the assembly.

RELIABILITY PROPERTIES

WS200 medium contains a stable resin system and includes solvents with high boiling ranges.

The flux has been tested to the requirements of the J-STD-004 and Telcordia (formerly known as Bellcore) specifications.

Test	Specification	Results
Surface Insulation Resistance (cleaned)	J-STD-004 Telcordia GR-78-CORE	Pass Pass
Electromigration (cleaned)	Telcordia GR-78-CORE	Pass

DIRECTIONS FOR USE

Application: Multicore WS200 lead-free solder paste is designed for high volume stencil printing applications with component lead pitches down to 0.4mm with the AGS (Type 3) powder size. Conventional metal blade squeegees may be used with a contact angle of 60° and sweep speeds of 20mm sec⁻¹ up to 100mm sec⁻¹. The best printing performance will be obtained under these conditions. The product can in some cases tolerate slow print cycle times because the material resists drying on the stencil and therefore blocking the stencil apertures. There are various methods for testing the ability of a paste to perform after an extended idle time on the stencil and each can produce different times before printing deteriorates. In a real process environment, the paste has been left idle for more than 1 hour and still produced a perfect first print.

Component Placement: The paste shows good tack behaviour and is capable of holding components in place before reflow. Components may be placed several hours after printing, although this is naturally dependent on the ambient conditions.

PACKAGING

Containers: Multicore WS200 solder paste is supplied in

- 500g plastic jars with an air seal insert

Americas
Henkel Corporation
15350 Barranca Parkway
Irvine, CA 92618 U.S.A.
949.789.2500

Europe
Henkel Loctite Adhesives Ltd
Technologies House, Wood Lane End
Hemel Hempstead
Hertfordshire HP2 4RQ, United Kingdom
+44 (0) 1442 278 000

Asia
Henkel Loctite (China) Co. Ltd
No. 90 Zhujiang Road
Yantai Development Zone
Shandong, China 264006
+86 535 6399820

- 650 and 1300 g Semco cartridges

Other forms of packaging are available on request.

Shelf life: Provided that Multicore WS200 solder paste is stored at 0-10°C tightly sealed in the original container, a minimum shelf life of six months is anticipated. Air shipment is recommended to minimise the time the containers are exposed to higher temperatures.

Multicore WS200 solder paste has been formulated to reduce separation on storage to a minimum but should it occur, gentle stirring for 15 seconds will return the product to its correct rheological performance.

DATA RANGES

The data contained herein may be reported as a typical value and/or range. Values are based on actual test data and are verified on a periodic basis.

GENERAL INFORMATION

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

Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

