Technical Data Sheet

Multicore® Cored Solder Wire Flux 309

April 2004

ROSIN BASED CORED SOLDER WIRE FLUX

Properties of Multicore 309 solid flux for cored wires:

- **Rosin based**
- **Fast soldering**
- **Pale residues**
- **Solders difficult surfaces**
- **Good spread on nickel, stainless steel, chromel,monel, constantin, etc.**
- **Heat stable – low fuming**
- **Mild odour**

PRODUCT RANGE

Multicore 309 cored wires are manufactured with a range of flux contents. Although users will normally be using products with a nominal flux content of 3%.
Multicore 309 cored wires are available in a variety of alloys conforming to J-STD-006 and EN 29453 or alloys conforming to similar national or international standards. For details refer to document "Properties of Alloys used in Cored Solder Wires ". A wide range of wire diameters is available.
Alternative flux contents and alloys may be manufactured to special order.

TECHNICAL SPECIFICATION

A full description of test methods and detailed test results are available on request.

Alloys: The alloys used for Multicore flux cored solder wires conform to the purity requirements of the common national and international standards. A wide range of wire diameters is available manufactured to close dimensional tolerances. For details refer to document "Properties of Alloys used in Cored Solder Wires ".

Flux: Multicore 309 solid flux is based on a blend of novel activators and resins. It has a mild characteristic odour and leaves a clear pale residue.

TYPICAL FLUX PROPERTIES	
Test	**309**
Acid value	200mg KOH/g
Halide content	<1.0%
EN 29451-1 Classification	1.1.2
JSTD Classification	ROM1

SPECIAL PROPERTIES

Surface Insulation Resistance: Multicore 309 flux passes the J-STD-004 SIR test and other elements of J-STD-004 test protocols associated with the flux classification ROM1.
Electromigration Test: Multicore 309 passes the Bellcore GR-78-CORE Electromigration test.

RECOMMENDED OPERATING CONDITIONS

Soldering iron: Good results should be obtained using a range of tip temperatures. However, the optimum tip temperature and heat capacity required for a hand soldering process is a function of both soldering iron design and the nature of the task and care should be exercised to avoid unnecessarily high tip temperatures for excessive times. A high tip temperature will increase any tendency to flux spitting and it may produce some residue darkening.

The soldering iron tip should be properly tinned and this may be achieved using Multicore cored wire. Severely contaminated soldering iron tips should first be cleaned and pre-tinned using Multicore Tip Tinner/Cleaner TTC1, then wiped on a clean, damp sponge before re-tinning with Multicore cored wire.

Soldering process: Multicore cored wires contain a careful balance of resins and activators to provide clear residues, maximum activity and high residue reliability, without cleaning in most situations. To achieve the best results from Multicore solder wires, recommended working practices for hand soldering should be observed as follows:

- Apply the soldering iron tip to the work surface, ensuring that it simultaneously contacts the base material and the component termination to heat both surfaces adequately. This process should only take a fraction of a second.
- Apply Multicore flux cored solder wire to a part of the joint surface away from the soldering iron and allow to flow sufficiently to form a sound joint fillet – this should be virtually instantaneous. Do not apply excessive solder or heat to the joint as this may result in dull, gritty fillets and excessive or darkened flux residues.

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- Remove solder wire from the work piece and then remove the iron tip.

The total process will be very rapid, depending upon thermal mass, tip temperature and configuration and the solderability of the surfaces to be joined.

Multicore flux cored solder wires provide fast soldering on copper and brass surfaces as well as solder coated materials. Activity of the halide activated versions on nickel is also good depending on the state of oxidation of the nickel finish. The good thermal stability of Multicore fluxes means they are also well suited to soldering applications requiring high melting temperature alloys.

Cleaning: Multicore 309 flux cored solder wires have been formulated to leave pale flux residues and to resist spilling and fuming.
Cleaning will not be required in most situations but if necessary this is best achieved using Multicore MCF800 Cleaner (see separate technical data sheet). Other proprietary solvent or semi-aqueous processes may be suitable. Saponification may be viable but customers must ensure that the desired level of cleanliness can be achieved by their chosen system.

HEALTH AND SAFETY

Warning: The following information is for guidance only and users must refer to the Material Safety Data Sheet relevant to Multicore 309 before use.

Health Hazards and Precautions: Inhalation of the flux fumes given off during soldering should be avoided. The fumes are irritating to the throat and respiratory system. Prolonged or repeated exposure to rosin or modified rosin based flux fumes may lead to the development of respiratory sensitisation and occupational asthma.
Multicore solder wires must always be used with suitable fume extraction equipment to remove fumes from the breathing zone of operators and the general work environment.
Solder alloys containing lead give off negligible fume at normal soldering temperatures up to 500°C.
Normal handling of lead alloy wires will not cause lead to be absorbed through the skin. The most likely route of entry is through ingestion but this will not be significant if a good standard of personal hygiene is maintained. Eating, drinking and smoking should not be permitted in the working area. Hands should be washed with soap and warm water after handling solder wire.

Waste disposal: Wherever possible, waste solder wire should be recycled for recovery of metal. Otherwise it should be disposed of according to local or national regulations.

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.

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