MULTICORE

TECHNICAL DATA SHEET
FEBRUARY 2023

LF 318RWF

LF 318RWF is a halide free tacky flux designed for use in a wide range of electronics assembly and rework processes on assemblies built with LF 318 solder pastes and other lead-free materials. LF 318RWF is based on a blend of carefully selected solvents, activators and modified resin. It has a mild characteristic rosin odour and leaves a very pale residue.

FEATURES AND BENEFITS

- Sufficient activity to deal with difficult surface finishes
- Supplied in syringes or cartridges for application by dispensing
- Good tack force to assist flip chip attach
- Designed for lead-free rework processes
- Compatible with LF 318 solder pastes
- Clear residues
- Low colour residue

TYPICAL PROPERTIES

Property	Value
Halide Content (% Cl)	<0.005
Acid Value (mgKOH/g)	107
Brookfield Viscosity (cP)	545,000
Tack Force (gmm^{-2})	1.1
Colour	Pale yellow

Reliability:

Test	Specification	Test Method	Results
Copper Plate Corrosion*	IPC/J-STD-004A	2.6.15C	Pass
Copper Mirror Corrosion	IPC/J-STD-004A	2.3.32D	Pass
Chlorides & Bromides	IPC/J-STD-004A	2.3.33	Pass
Surface Insulation Resistance (SIR) (without cleaning) *	IPC/J-STD-004A Telcordia GR-78-Core	2.6.3.7 13.1.3	Pass Pass
Electromigration (ECM) * (without cleaning)	Telcordia GR-78-Core	13.1.4	Pass
Flux Activity Classification (without cleaning)	IPC/J-STD-004A		ROL0

* tested with suitable alloy

RECOMMENDED OPERATING CONDITIONS

There are many applications for this product and users may find that their own process requires particular conditions. The following information can therefore be for guidance only.

REWORK: The main function of LF 318RWF is threefold:

- It provides a thermal pathway from the heat source to the workpiece, ensuring that it is evenly heated.
- The viscous fluid protects metal surfaces from rapid oxidation at soldering temperature.
- It breaks down surface contaminants to allow solder spread. On tin plated surfaces, this may be a purely physical effect causing oxide skins to flow away from the molten coating but chemical dissolution may also be required.

Where a component is to be soldered into place for the first time, the alloy for the fillet may be provided by the fusible coating on the PCB and to some extent, on the component termination. The PCB may be of conventional design or it can be specially fabricated with a flat, thick solder coating (Solid Solder Deposition, SSD). In either case, LF 318RWF is suitable and will provide a sufficiently tacky surface to hold the component in place.

When a component is to be soldered to a board having little or no fusible coating, LF 318RWF will clean the surface to be joined. Solder for the joint is supplied by solid or flux cored wire. If flux cored wire is used, it is recommended that the halogen free C 400 is selected since the residues are minimal and totally compatible with LF 318RWF.

Where components have been removed from a PCB, it is important to prepare the site for the replacement device in order that the resoldering process can be carried out efficiently. Excess solder should be removed from the PCB with HARIMA No Clean De-soldering Wick. Areas showing abnormally high levels of oxidation may benefit from pre-tinning with a suitable LOCTITE no clean flux cored solder wire.
In all cases, a variety of heating methods may be used to produce a solder joint with this product. These include soldering irons, hot gas and hot bar devices, condensation reflow and IR/convection reflow. Specialist tools and workstations are available to assist the operator but training will often be required to adapt these to particular situations. LF 318RWF is tolerant of a wide range of temperature profiles and any residues left after reflow will be hard, clear and non-tacky.

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DCA: LF 318RWF is ideal for direct chip attach applications, for example flip chip. In this case LF 318RWF should be doctor bladed into a reservoir of appropriate depth and the chip presented to coat the solder bumps prior to placement. The tack associated with LF 318RWF will then hold the chip in place ready for reflow, although care should always be taken when handling fragile assemblies such as these. The reservoir depth will be governed by many process considerations, but especially the bump diameter: good results have been obtained with 100µm bumps by using a depth of 35µm.

Cleaning:

LF 318RWF is designed as a no-clean flux, however some applications may require board cleaning for which MCF 800 cleaner may be used. For a completely no-clean process, use HARIMA no-clean cored solder wire, liquid flux and/or no clean solder paste. These products also generate low levels of VOC emissions due to their low flux content and heat stable resins. Soldering iron tips should be kept clean with TTC-LF Tip Tinner/Cleaner (data sheet available).

Storage:

It is recommended to store LF 318RWF in a dry environment at 0 to 10°C tightly sealed in the original container.

Shelf Life:

Provided LF 318RWF is stored as recommended above a shelf life of 6 months can be expected.

GENERAL INFORMATION
For safe handling information on this product consult the relevant Safety Data Sheet (SDS)

JAPAN:
Harima Chemicals, Inc (Head Office)
3-8-4 Nihonbashi, Chuo-ku, Tokyo 103-0027
TEL +81-3-5205-3040

EUROPE:
Harimatec Czech, s.r.o. (Head Office/Plant)
PointPark Prague D8, Hala DC03, Zdibsko 614, Klecany 25067, Czech Republic
TEL +420-284-688-922

APAC:
Harimatec Malaysia Sdn.Bhd. (Head Office/Plant)
Lot 62049,
Jalan Portland Tasek Industrial Estate, 31400 Ipoh, Perak, Malaysia
TEL +60-5-546-4427

CHINA:
Harimatec Hangzhou Co., Ltd. (Head Office/Plant)
No.15 Gaoxin 5 Road, Hongda Road, Qiaonan-Qu, Xiaoshan Economic and Technological Development Zone, Hangzhou, Zhejiang 311231, China
TEL +86-571-2286-8518

AMERICAS:
Harimatec Inc. (Head Office/Plant)
1965 Evergreen Blvd, Suite 400, Duluth, GA 30096, U.S.A.
TEL +1-678-325-2926

UK:
HARIMA UK.LTD (R&D)
Wood Lane End, Hemel Hempstead, Herts, HP2 4RQ, UK
TEL +44-1442-962-464