

# KESTER® 979VT SOLDERING FLUX

**VOC-Free, No-Clean, Low Solids, Liquid Flux for Leaded and Lead-free Applications**

## DESCRIPTION

Kester 979VT Soldering Flux is a VOC-free, no-clean flux formulation for high quality, low-defect soldering of lead-free electronic circuit board assemblies. This flux's finely tuned activation system offers the best wetting available in VOC-free liquid flux technology and the shiniest solder joints. 979VT also reduces micro-solderballing on glossy and matte laminates and between connector pins. 979VT will not attack properly cured solder masks or FR-4 Epoxy-Glass laminate. It has been specially formulated to accommodate needs of single sided board assemblers. 979VT leaves no haze or visible residue behind, including the white powdery residue associated with use of earlier no-clean formulas.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

## FEATURES & BENEFITS

- Biodegradable at pH of 2.0 or greater
- Chemically compatible with most solder masks and board laminates
- No surface insulation degradation
- No offensive odors
- Bright, shiny solder connections
- Classified as ORL0 under IPC JSTD-004 and ORM0 under IPC JSTD-004B

## ROHS COMPLIANCE

This product meets the requirements of the Restriction of Hazardous Substances (RoHS) Directive, 2011/65/EU for the stated banned substances.

**TECHNICAL DATA**

Category	Results	Procedure/Remarks
<b>Physical Properties</b>		
Specific Gravity	1.014 ± 0.005	Anton Paar DMA 35 @ 25 °C
Percent Solids (Typical)	5%	Tested to J-STD-004, IPC-TM-650, Method 2.3.34
Acid Number	43.0 ± 3.5mg KOH/g of flux	Tested to J-STD-004, IPC-TM-650, Method 2.3.13
pH (5% Solution, Typical)	3.2	Mettler-Toledo MA235 pH/Ions Analyzer@ 25 °C
<b>Reliability Properties</b>		
Copper Mirror Corrosion	No Breakthrough "L"	IPC J-STD-004B, IPC-TM-650, Method 2.3.32
Corrosion Test	No Corrosion "L"	IPC J-STD-004, IPC-TM-650, Method 2.6.15B
	Minor Corrosion "M"	IPC J-STD-004B, IPC-TM-650, Method 2.6.15C
Silver Chromate	Pass	Tested to J-STD-004, IPC-TM-650, Method 2.3.33
Chloride and Bromides	0%	Tested to J-STD-004, IPC-TM-650, Method 2.3.35
Fluorides by Spot Test	Pass	Tested to J-STD-004, IPC-TM-650, Method 2.3.35.1
Surface Insulation Resistance (SIR), IPC (Typical)	Pass	Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3

## FLUX APPLICATION

979VT can be applied to circuit boards by a spray or dip process. It is not designed for a foam application. Flux deposition should be 120 to 240  $\mu\text{gr}$  of solids/cm<sup>2</sup> (750 to 1500  $\mu\text{gr}$  of solids/in<sup>2</sup>).

## PROCESSING GUIDELINES

### Process Considerations

The optimum preheat temperature for most circuit assemblies is 110 to 155 °C (230 to 311 °F), as measured on the top or component side of the assembly. Dwell time in the wave is typically 3 to 5 seconds for Sn63Pb37 and 4 to 8 seconds for lead-free alloys. The wave soldering conveyor speed should be adjusted to accomplish proper contact time for the alloy in the solder pot then the heaters in the preheat section adjusted to meet the requirements for the top side circuit board temperature.

### Flux Control

Acid number is normally the most reliable method to control the flux concentration of low solids, no-clean fluxes. Evaporative loss is minimal because this flux is water-based. To check concentration, a simple acid-base titration should be used. PS-22 Test Kit and procedure are available from Kester. The thinner for this flux is DI water.

### Cleaning

979VT flux residues are non-conductive and do not require removal in most applications. If residue removal is required, plain DI water at 43 to 54 °C (110 to 130 °F) may be used.

### Storage, Handling and Shelf Life

Because this formulation is water-based, it is subject to freezing. A minimum storage temperature of 4 °C (40 °F) is recommended. If frozen, 979VT is easily reconstituted by stirring at room temperature. Shelf life is 1 year from the date of manufacture when handled properly and held at 4 to 25 °C (40 to 77 °F). 979VT will sometimes exhibit fluid darkening while in storage in its original container 8 to 12 weeks or longer after manufacture date. This flux in the container may change from a clear fluid to a light brown fluid. This is a normal change and does not affect the performance of 979VT.

## RECYCLING SERVICES

We provide safe and efficient recycling services to help companies meet their environmental and legislative requirements and at the same time, maximize the value of their waste streams.

Our service collects solder dross, solder scrap, and various forms of solder paste waste. Please contact your local sales representative for recycling capabilities in your area.



## SAFETY & WARNING

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available.**

## CONTACT INFORMATION

[www.macdermidalpha.com](http://www.macdermidalpha.com)

<b>North America</b> 140 Centennial Avenue Piscataway, NJ 08854 1.800.367.5460	<b>Europe</b> Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 44.01483.758400	<b>Asia</b> 8/F., Two Sky Parc 51 Hung To Road Kwun Tong, Kowloon, Hong Kong, SAR China 852.2500.5365
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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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