No-clean Wave Soldering Flux - *Rosin Type*

■ Features

1. Excellent solderability for both leaded and surface mounted components.
2. Use of specially selected resins, which can be easily washed out by the solder wave, drastically reducing the flux residue and eliminating test probe contact problems.
3. Excellent long term stability of chemical and electrical properties.

Item		JS-75	JS-64MSS
Appearance		Yellowish transparent liquid	Yellowish transparent liquid
Specific gravity		0.803	0.821
Viscosity (20°C • mPa.s)		3.0	3.7
Solid content (%)		7.2	14.8
Halide content (%)		0.032	0.07
Silver chromate paper test *1		--	No discoloration
Solder spread factor *2 (%)		> 90	> 90
Surface insulation resistance *3 (Ω)	Before humidification	$> 1 \times 10^{14}$	$> 1 \times 10^{13}$
	After humidification	$> 1 \times 10^{13}$	$> 1 \times 10^{12}$
Copper plate corrosion *4		Passed	Passed
Copper mirror corrosion *5		Passed	Passed
Aqueous solution resistivity *6 (Ω • cm)		$> 4 \times 10^{4}$	$> 1 \times 10^{4}$
Ionic residue *7 (μg/ in^2)	Before cleaning	< 10	< 10
	After cleaning	< 2	< 2
Application		Spray • Foam	Foam
Features		• Very low residue • Extremely good solderability. • Matt solder joint surface	• Superior solderability • Good solderability

■ Appendix / Flux test conditions

1. **Silver chromate paper test** (according to IPC-TM-650)

Place one drop of test flux on each piece of silver chromate test paper specified in MIL-F-14256Fand ANSI-J-STD-004. Allow the droplet to remain on each test piece for a minimum of 15 seconds. After 15 seconds, immediately immerse each test paper in clean isopropyl alcohol to remove residual organic materials.

3. **Solder spread factor** (according to JIS Z 3197-1986)

Solder ring : Wind one turn in a ring form solder wire H60A-W1.6 specified in JIS-Z-3282 around a bar with a diameter of 3.2mm to obtain the sample.

Test plate : Use as test plate a phosphor deoxidised copper plate specified in JIS-H-3100, 0.3×50×50mm in size polished by #1500 abrasive paper and washed by alcohol, subject it to oxidising treatment in electric furnace maintained at about 150°C for 1 hour.

Test method : Place the test piece on the test plate and heat it at 250±5°C. Melt it for about 30 sec. After reaching the said temperature, spread the solder over the plate.
After cooling it at ordinary temperature, remove the residual flux with alcohol, and measure the height of solder and calculate the rate of spread from the following formula :

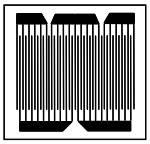
$$S = \frac{D - H}{D} \times 100$$

S : Rate of solder spreading ..... (%)
H : Height of spread solder ..... (mm)
D : Diameter when the solder used is assumed to be as sphere..... (mm)
$D = 1.2407V^{1/3}$
V : Mass / specific gravity

3. **Surface insulation resistance** (according to JIS Z 3197-1986)

Uniformly apply approximately 0.05ml of flux to the comb type electrode of an epoxy resin copper-laminated plate with glass base shown in the drawing at the right. Dry for 30 min. at 100°C and take a specimen. Measure insulation resistance at room temperature. Then, place the specimen in a tank set to a constant temperature of 40±2°C at 90~95%RH for 96 hours. Finally, measure the insulation resistance after 1 min. at 100VDC. In the test the result is shown as the average of four measurements taken between each terminal for one specimen.

Comb electrode type-II



Conductor width	0.318
Conductor interval	0.318
Lamination	15.75

4. **Copper mirror corrosion** (according to IPC-TM-650 and JIS Z 3197-1999)

This test method is designed to determine the removal effect the flux has (if any) on the bright copper mirror film which has been vacuum deposited on clear glass. Apply by vacuum deposition, a film of copper metal on one surface of a cleaned glass sized 1.0×52×76mm specified in JIS-R-3703. Apply a uniform thickness of approximately 50nm and assure that the finished mirror permits 10±5% transmission of normal incident light of nominal wavelength of 500nm. Place one drop of test flux on each copper mirror test panel. Place test panels in a horizontal position in the dust free cabinet at 23±2°C and 50±5% relative humidity for 24 hours. At the end of 24 hour period, remove the test panels and remove the test flux and control standard fluxes (isopropyl alcohol solution of 35wt% WW rosin) by isopropyl alcohol.

5. **Copper plate corrosion** (According to JIS Z 3197-1986)

Polish the surface of a copper plate of 0.3×30×30mm in size with metal abrasive, or polish and remove the oxide film with No. 1500 abrasive paper specified in JIS-R-6252 while bathed in organic solvent such as xylene, and after washing out the soil adhering to the surface with alcohol, etc., leave it in the air to dry completely. Place the sample of approximately 0.1g on the copper plate, melt it by heating for about 5 sec. At 250°C and cool it at room temperature to obtain the test pieces. Put three test pieces in a thermohygrostat of temperature 40°C×95%RH and humidity 95% for 96 hours and compare them with the reference test piece for the evidence of corrosion

6. **Aqueous solution resistivity** (according to MIL-F-14256F and JIS Z 3197-1999)

Extract the flux in purified water and carry out the test on water soluble conductive components in the flux measuring the conductivity of the extracted water at 20°C. Take an amount of 0.1ml flux as the sample into a cleaned and dried 100ml beaker. Put the sample in the beaker with 50ml of purified water, then cover the beaker with a watch glass, heat and boil it for about 5 minutes, and further continue heating for about 1 minute. Cool the beaker for about 10 seconds at room temperature, put it in a water bath of about 20°C to obtain the test solution, and immediately measure the resistivity of this water solution with a conductivity meter. The cell of 0.1 cell constant shall be used.The purified water to use shall have more than 5×10^6 Ω• cm of specific resistance.The test shall be made 3 times and take the mean value.

7. **Ionic residue** (according to IPC-TM-650)

3.1μg/cm^2 or less

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