ALPHA® NR205

NO-CLEAN, LOW RESIDUE FLUX

DESCRIPTION

ALPHA NR205 is a halide-free, rosin/resin free, low solids, no-clean flux. It is formulated for wave soldering of through-hole, mixed technology and surface mount assemblies. The flux is particularly effective when soldering in an inert atmosphere. The flux produces a tack-free surface with high surface insulation resistance and very little residue to interfere with electrical testing. ALPHA NR205 fully conforms to the requirements of Bellcore TR-NWT-000078. The flux has been specifically formulated to resist degradation in surface insulation resistance and electromigration, even in situations where the flux does not experience soldering temperatures and when heavy levels of flux have been applied. The residues are non-corrosive and do not cause "greening" when in contact with copper or copper-bearing alloys.

ALPHA NR205 is particularly well-suited for touch-up/rework when supplied in a flux pen. Alpha “WriteFlux” pens make local flux application an easily controlled process.

FEATURES & BENEFITS

- High activity
- Meets bellcore requirements & other critical sir tests
- Very safe residues
- Non-corrosive residues
- Good soldering in air; excellent soldering in nitrogen for low defects
- High reliability assemblies, even when the flux does not experience soldering temperatures
- Excellent for touch-up/rework applications
- Will not cause "greening" on exposed copper/copper alloys

APPLICATION

ALPHA NR205 flux is designed for foam, spray, and wave applications. Topside preheat temperatures of 80 - 105°C (180-220°F) are recommended. Flux solids can be monitored using Alpha's Flux Solids Control Kit #3. If thinning is required, the use of Alpha 493 thinner is recommended. For applications which specify cleaning, a water cleaning step with Alpha 2110 saponifier or Alpha Autoclean 40, after soldering, will remove any slight traces of flux residues.

For application via the flux pen, the nib should be lightly wiped on and around the solder joint to be reworked. Once a suitable amount of flux has been applied the manual soldering operation can be performed.

TECHNICAL DATA

Appearance:	Clear, colorless liquid
Solids Content, wt/wt:	2.15
Specific Gravity @ 25°C (77°F):	0.797 ± 0.002
Acid Number (mg KOH/g):	16.5 ± 1.0
Halides:	NONE
Flash Point (T.C.C.):	13°C (56°F)
Recommended Thinner:	493
Packaging:	20 litre containers and in “Write Flux” flux pens
IPC J-STD-004 Designation	ORL0

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CORROSION & ELECTRICAL TESTING

CORROSION TESTING

Test	Requirement	Results
IPC/Bellcore Copper Mirror Test	No complete removal of copper	Passes
Halide-silver chromate paper method	No detection of halide	Passes
IPC-SF-818 10-day Copper Corrosion Test	No evidence of corrosion	Passes as Type "L"

SURFACE INSULATION RESISTANCE (All Values in Ohms)

Method	Conditions	Requirement	Result
IPC-SF-818,	85°C/85% RH	$1.0x10^8$ min.	$5.6x10^9$
Class 3, Not Cleaned	7 Days		

BELLCORE-TR-NWT-000078, Issue 3

Comb Pattern "Up" (uncleaned)	35°C/85% RH (4 days with bias voltage)	1.0×11^{11} min.	1.3×10^{12}
Comb Pattern "Down" (uncleaned)	35°C/85% RH (4 days with bias voltage)	1.0×10^{11} min.	1.9×10^{12}
Control Boards	35°C/85% RH (4 days with bias voltage)	2.0×10^{11} min.	3.3×10^{12}

ELECTROMIGRATION (Per Bellcore TR-NWT-000078, Issue 3, All Values in ohms)

Method	Conditions	SIR (Init.)*	SIR (Final)*	Visual
Comb Pattern "Up"	85°C/85% RH 500 Hrs. / 10 V. bias	1.2×10^9	5.0×10^9	No dendrites or corrosion
Comb Pattern "Down"	85°C/85% RH 500 Hrs. / 10 V bias	5.4×10^9	3.4×10^9	No dendrites or corrosion

* For passing electromigration, SIR (Init.) / SIR (Final) <10

HEALTH & SAFETY

Observe standard precautions for handling and use. Use in well ventilated areas. DO NOT SMOKE. Avoid prolonged or repeated contact with the skin by the use of solvent resistant gloves. Avoid contact with eyes.

Flammable, keep away from sparks and open flames. Empty containers can still be a flammable hazard from residual vapours.

Remove skin splashes by immediate washing with soap and water.

In order to carry out your full COSHH assessment, consult the product Material Safety Data Sheet (MSDS)