

ALPHA OM-340 – No Clean Residue, Cleaning Guide

Zero Halogen, Lead Free Solder Paste

No-Clean solder paste technologies are specifically designed to leave inert flux residues after solder reflow that do not negatively affect electronic assembly performance and reliability during expected lifetime use. However, due to increasing density of designs, smaller form factors, higher frequency functioning devices and increasing aesthetic requirements, many manufactures of electronic assemblies may wish to remove these post reflow residues by cleaning.

ALPHA OM-340 solder paste leaves a nonmetallic residue of approximately 5.89% by weight and was designed to leave less post reflow flux residues. ALPHA OM-340's flux residue is also easier to remove than many other solder paste residues while still exceeding the industry's stringent electrical reliability standards.

CLEANING

A variety of equipment and cleaning chemistries have been demonstrated to clean OM-340 post reflow flux residue.

Cleaning Chemistry	Supplier	Percentage	Temperature	Time (minutes)	Equipment	Inspection Method
Vigon A 201	Zestron	10-15%	140°F/60°C	10-12	Aqueous In-Line	Microscope (4 to 60) magnification
Vigon A 201	Zestron	10%	140°F/60°C	2	Aqueous Spray In-Line	Microscope (4 to 60) magnification
Vigon A 250	Zestron	10 -20%	130 - 150°F	8-10	Aqueous Rinse Batch Cleaning	Microscope (4 to 60) magnification
Aquanox A4520	Kyzen	10-15%	140-150°F	2-5	Aqueous In-Line	Microscope (4 to 60) magnification
Aquanox 4625	Kyzen	8-13%	130-140°F	2-5	Aqueous In-Line	Microscope (4 to 60) magnification
Aquanox A4625B	Kyzen	22-25%	150°F	10-15	Aqueous Batch Spray in Air	Microscope (4 to 60) magnification
Aquanox A4651US	Kyzen	25%	145°F	10	Ultrasonic	Microscope (4 to 60) magnification
Aquanox A4241	Kyzen	10-12%	150°F	2-5	Aqueous Batch Spray In Air	Microscope (4 to 60) magnification
Aquanox A4241	Kyzen	10-12%	130-140°F	2-6	Aqueous In-Line	Microscope (4 to 60) magnification
Ionox 3302	Kyzen	100%	150°F	10-15	Spray Under Immersion	Microscope (4 to 60) magnification

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Visual inspection by microscope is often employed but a more quantifiable method such Ion Chromatography is often used during initial cleaning process study and validation.

Ionic Chromatography Results from Vigon A201 Cleaned Assemblies				
Anion Species				
Ionic Species	Maximum Contamination Levels	Board A	Board B	Board C
Fluoride (F ⁻)	3	2.20	1.79	ND
Acetate(C ₂ H ₂ O ₂)	3	0.76	0.38	ND
Formate (CH ₂ O ₂)	3	ND	ND	ND
Chloride (Cl ⁻)	4	ND	ND	ND
Nitrite (NO ₂ ⁻)	3	ND	ND	ND
Bromide (Br ⁻)	10	ND	ND	ND
Nitrate (NO ₃ ⁻)	3	ND	2.10	ND
Phosphate (PO ₄ ²⁻)	3	ND	ND	ND
Sulfate (SO ₄ ²⁻)	3	ND	ND	ND
WOA (Weak Organic Acid)	25	15.24	11.43	7.62
Cation Species				
Lithium (Li)	3	ND	ND	ND
Sodium (Na)	3	2.24	ND	ND
Ammonium (NH ₄)	3	ND	0.04	0.04
Potassium (K)	3	2.19	ND	ND
Magnesium (Mg)	1	ND	ND	ND
Calcium (Ca)	1	ND	ND	ND

All values in µg/in²

ND = Not Detected

Tested per IPC-TM-650 method 2.3.28