



**DELTA X1  
ZERO-HALOGEN  
NO-CLEAN  
LOW RESIDUE  
PASTE FLUX**

**USA:** 315 Fairbank St. Addison, IL • +1-630-6288083 • FAX +1-630-6286543

**EUROPE:** Unit 9 Apex Ct. Bassendale Rd. Bromborough, Wirral CH62 3RE • +44-151-3340888 • FAX +44-151-3461408

**SINGAPORE:** 6 Tuas South St. 5 Singapore 637790 • +65-67957757 • FAX +1-65-67957767

**PHILIPPINES:** Phase 1 Qualitek Ave. Mariveles, Bataan Philippines C-2106 • +63-47-9354163 • FAX +63-47-5613717

**CHINA:** 3B/F, YiFa Print Bldg. 351 JiHua Rd., Buji Shenzhen, China 518112 • +86-755-28522814 • FAX +86-755-28522787

This data is based on information that the manufacturer believed to be reliable and offered in good faith. Qualitek International, Inc. makes no warranties expressed or implied as to its accuracy and assumes no responsibilities and liabilities arising out of its use by others as conditions and methods of use of the products is beyond the control of Qualitek International, Inc. The user must determine the suitability of the product before using it on a commercial basis. The warranties extend only to the conformity of the product to the physical descriptions. In no event will Qualitek International, Inc. be responsible for special, incidental and consequential damages whether the claim is in contract, negligence or otherwise. Qualitek specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.

**DESCRIPTION**

Delta X1 is a Zero-Halogen, No-Clean flip-chip dipping paste flux especially formulated for extremely low residue. Its unique characteristic delivers better adhesion for underfills, and reduces possible outgassing during curing.

**FEATURES**

- Extremely low residue
- No-Clean
- Zero-Halogen
- Free from air entrapment
- Compatible with underfills

**APPLICATION METHOD**

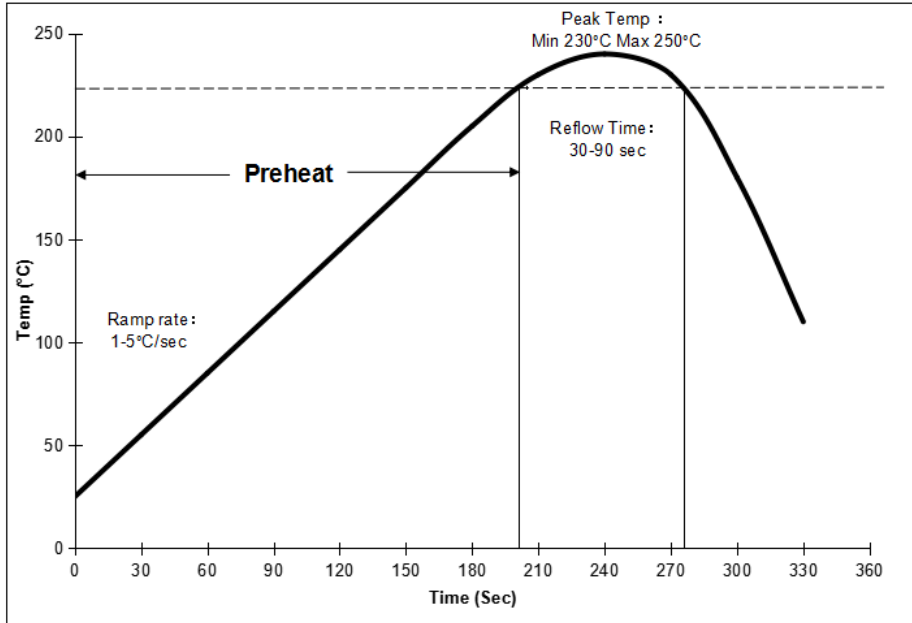
- Dipping

**PHYSICAL AND CHEMICAL PROPERTIES**

PROPERTIES	SPECIFICATIONS	METHOD
Flux Classification	ROLO	IPC-J-STD-004B
Appearance	Light Amber	Visual
pH - 5% Aqueous Solution	6 - 8	QIT
Halide Content	Halide-Free	IPC-TM-650 2.3.33 (Silver Chromate Test)
Halogen Content	Zero-Halogen	EN 14582
Malcom Viscosity (@10rpm)	25 - 55 Pa.s	IPC-TM-650 2.4.34.3 (Modified)
Tack Strength	100 - 200 gf	JIS Z 3284
Surface Insulation Resistance	> 1.0 x 10 <sup>9</sup> ohms	IPC-TM-650 2.6.3.3
Post Reflow Flux Residue	< 10%	TGA Analysis

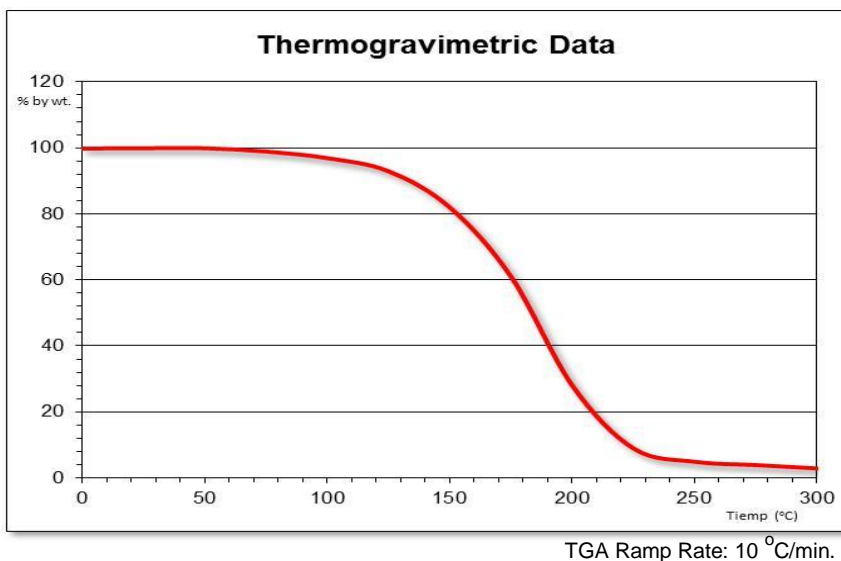
**REFLOW**

The following is a recommended profile for leadfree alloy:



Reflow can be accomplished in a nitrogen controlled atmosphere at  $\leq 100$  ppm oxygen levels. The initial ramp rate should be 1 – 5°C per second to a peak temperature of 230 – 250°C. The time over liquidus temperature should be 30 - 90 seconds. The profile is recommended to the user as reference, and should be optimized by the user to meet individual process needs.

**THERMOGRAVIMETRIC DATA**



**FLUX RESIDUES & CLEANING**

Delta X1 paste flux is a no-clean formulation therefore the residues are non-conductive and non-corrosive. If residue removal is desired, the use of ecofriendly aqueous cleaning chemistries can be used.

**PACKAGING**

Delta X1 paste flux is available in 10g and 30g syringes. Other packaging can be provided upon request.

**STORAGE & HANDLING**

Delta X1 may be stored at ambient temperature or refrigerated. Shelf life of paste flux is 6 month when stored at 2 to 25°C. If refrigerated, allow paste flux to reach ambient temperature prior to use.

**SAFETY DATA SHEET**

Contact Sales for SDS.