

ALPHA[®] PV-72

Low-Solids, No-Clean Multi-Purpose Liquid Flux

DESCRIPTION

ALPHA PV-72 is a zero rosin and halogen, halide free, no-clean flux specifically designed to meet the demanding requirements of the Photovoltaic industry when higher pull strength is deemed necessary. This flux has shown to work well in manual, dip or spray applications as a tabbing and stringing flux. **ALPHA PV-72** is a low solids formula employing a unique proprietary activator system which provides excellent soldering in standard module assembly processes & methods that are widely used (preheat and soldering).

ALPHA PV-72 is an alcohol based formulation delivering reliability in both Pb-free and SnPb applications. Additionally, it also provides excellent solder joint cosmetics with practically no residues left after soldering. This product is suitable for assembly processes which use multiple machine models, ribbon and cell suppliers.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Tack-free residues
- Excellent Peel Strength
- Fast wetting
- High reliability
- Defect-free soldering
- Applicable for both spray or dipping application methods
- Effective in manual soldering operations
- Long shelf life at 2 years from manufacturing date
- Suitable for high throughput and low soldering temperature requirements

APPLICATION GUIDELINES

ALPHA PV-72 flux is engineered to support most standard solar module assembly applications, such as non-contact high speed soldering systems including manual contact soldering. This flux has a wide process window and works well with standard reflow process. Care should be taken to ensure flux is applied only on soldering area to avoid overspray which will result in excessive loading. This is a no-clean flux, no cleaning is needed.

ALPHA PV-72 flux can be maintained by titration. Assistance in controlling the flux by this method can be obtained through our Customer Technical Service department. Acid number should be controlled between 11.0 to 15.0.

TECHNICAL DATA

| Parameter | Typical Value | Parameter | Typical Values |
|----------------------------------|------------------------|-----------------------------|----------------|
| Appearance | Clear colorless liquid | pH, (5% solution) | 2.7 to 4.2 |
| Solids Content, wt/wt | 1.45% (+/- 0.2%) | Flash Point (T.C.C.) | 11.7 °C |
| Specific Gravity @ 25 °C (77 °F) | 0.780 to 0.820 | Shelf Life (from Mfg. Date) | 2 Years |
| Acid Number (mg KOH/g) | 11.0 to 15.0 | IPC J-STD-004A Designation | ORL0 |

CORROSION AND ELECTRICAL TESTING
Corrosion Test

| Test | Requirement | Results |
|--|-------------------------------|---------|
| Silver Chromate Paper IPC-TM 650 Test Method 2.3.33 | No detection of halide | PASS |
| Copper Mirror Test IPC-TM 650 Test Method 2.6.15 | No complete removal of copper | PASS |
| Copper Corrosion Test IPC-TM 650 Test Method 2.3.32 | No evidence of corrosion | PASS |

J-STD-004A Surface Insulation Resistance

| Test | Conditions | Requirements | Results |
|--|----------------------|---------------------------|---------|
| "Comb-Down" - Uncleaned | 85 °C/85% RH, 7 days | > 1.0 x 10 ⁸ Ω | PASS |
| "Comb-Up" - Uncleaned | 85 °C/85% RH, 7 days | > 1.0 x 10 ⁸ Ω | PASS |
| IPC J-STD-004A - Control Boards | 85 °C/85% RH, 7 days | > 1.0 x 10 ⁹ Ω | PASS |
| IPC Test Condition (per J-STD-004A): 85 °C/85%RH/7days/-50V, measurement @ 100V/IPC B-24 board (0.4mm lines, 0.5mm spacing). All values in ohms. | | | |

Bellcore Electromigration

| Test | SIR (Initial) | SIR (Final) | Requirement | Result | Visual Result |
|--|------------------------------|------------------------------|--------------------------------|--------|---------------|
| "Comb-Up" Un-cleaned | $2.13 \times 10^{11} \Omega$ | $2.43 \times 10^{11} \Omega$ | SIR (Initial)/SIR (Final) < 10 | PASS | PASS |
| "Comb-Down" Un-cleaned | $4.15 \times 10^8 \Omega$ | $1.89 \times 10^9 \Omega$ | SIR (Initial)/SIR (Final) < 10 | PASS | PASS |
| Bellcore Test Condition (per GR-78 CORE Issue 1): 65 °C/85%RH/500 Hours/10V, measurement @ 100V/IPC B-25 B Pattern (12.5 mil lines, 12.5 mil spacing) | | | | | |

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 or [link here](#).



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 at MacdermidAlpha.com/assembly-solutions/knowledge-base.**

STORAGE

Recommend to store ALPHA PV-72 at temperatures between 6 to 43 °C. An unopened container stored under this condition has a storage up to 2 years.

CONTACT INFORMATION

To confirm this document is the most recent version, please contact Assembly@MacDermidAlpha.com

www.macdermidalpha.com

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| <p>North America 109 Corporate Blvd. South Plainfield, NJ 07080, USA 1.800.367.5460</p> | <p>Europe Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 44.01483.758400</p> | <p>Asia 8/F., Paul Y. Centre 51 Hung To Road Kwun Tong, Kowloon, Hong Kong 852.3190.3100</p> |
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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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