



BOW ELECTRONIC SOLDERS

BOW #445-F LF VOC- Free, No-Clean, Lead-Free Soldering Flux

Product Description

Bow #445-F LF VOC-Free, No-Clean flux is a halide-free, rosin-free, no-residue flux specifically developed for foam fluxing in wave soldering applications for the different high temperature Lead-Free solder alloys used in wave soldering processes on surface mount, mixed technology, and through-hole electronics assemblies. **Bow #445-S LF** is a water-based, non-flammable formulation that eliminates the need for special storage requirements, while dramatically reducing VOC emissions from plants engaged in wave soldering.

Features and Benefits

- VOC-Free, Lead-Free, water-based formulations.
- Excellent wetting and compatibility with Immersion Silver, Gold, and/or Tin; HASL, Palladium-plated or OSP PCBs.
- No residue formulation eliminates post-solder cleaning of boards.
- Increased activity level to compensate for flow and temperature requirements of Lead-Free.
- Conforms to IPC ANSI-J-STD-004, Type ORL0

Applications

Bow #445-F LF Lead-Free, VOC-Free, No-Clean flux is formulated for spray fluxing application in a wave soldering system. The optimum topside PCB preheat temperature recommendation is 200-240°F/93-115°C. Too low a preheat setting is indicated by post-solder residues on PCBs that look like water stains. Solder bath temperature requirements will vary depending on process, board thickness, heat-sinking on PCBs, and the Lead-Free alloy being used. A nitrogen blanket on the wave or entire bath is recommended to ensure wicking, wetting and finished assembly consistency.

The following items are critical when setting the conveyor speeds for VOC-Free fluxes:

1. Conveyor speed and preheat settings should be adjusted to ensure complete water removal from the PCBs before contact is made with the solder wave.
2. In most machines, a conveyor speed of 4-6 ft./minute is acceptable, where the preheat section is a 4 ft. minimum. However, conveyor settings must be established by operators to meet the process needs of PCBs requiring special attention.

The following procedures are recommended for optimum performance:

1. Make certain that the PCB surfaces are free of any oil, grease, or other impurities.
2. Add fresh flux to maintain proper level in flux tank.
3. Regularly clean the fluxing equipment.

Physical Properties

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|--------------------------------|--------------|
| Specific Gravity @ 25°C / 77°F | 1.017 ± 0.01 |
| pH | 2.5 ± 0.5 |
| Acid Value | 37.0 ± 4.0 |
| Percent Solids | 4.0 ± 0.2 |
| Flash Point (TCC) | None |
| Silver Chromate Paper Test | Passes |
| Freeze/Thaw Test | Passes |

Safety and Handling Precautions

Bow #445-S LF Lead-Free, VOC-Free, No-Clean flux is a non-flammable, non-hazardous product. However, it is recommended that standard chemical safety practices be observed when handling this product. Avoid contact with eyes, skin, and mucous membranes. The use of rubber gloves, goggles and, or face shield is recommended. Use with adequate ventilation.

Refer to the Material Safety Data Sheet (MSDS) for additional information.

Bow #445-S LF Lead-Free, VOC-Free, No-Clean flux should be stored in plastic containers away from heat. In the event the flux is exposed to temperatures below 0°C/32°F, the flux may freeze. Freezing will not degrade this product if these steps are followed:

1. Thaw flux until room temperature is reached.
2. Agitate flux to return to proper consistency.

The information contained herein is based on data consideration to be accurate and is intended for use by persons having technical skills at their own discretion and risk. Since conditions of use are outside of Bow Electronics control, we cannot assume liability for results obtained or damage incurred due to misuse, nor can we assume customer liability.

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