Seacole Specialty Chemical

Technical Data Sheet

ENVIRO/Flow HO-10

A Low Foaming, Water Soluble, Hot Oil Fusing Fluid

Product Description

ENVIRO/Flow HO-10 (HO-10) is a low foaming, water-soluble, non-petroleum based, heat transfer fluid for use in immersion fusing of tin-lead plated printed wiring boards. It exhibits high temperature stability, thermal conductivity, and excellent water solubility for improved rinsing. HO-10 will produce a uniform and highly solderable finish on single-sided, double-sided, and plated through hole printed wiring boards.

Additionally, spent HO-10 can be beneficially reused as a secondary fuel, eliminating in-house waste treatment or expensive off-site hazardous waste land filling.

Performance Features

- Excellent thermal stability and conductivity for consistent performance and improved operating life.
- Excellent rinseability, even at ambient rinse water temperatures, initially, and as the product ages.
- Recyclable and when spent can be reused as a secondary fuel eliminating in-house waste treatment or expensive off-site hazardous waste land filling.

Physical Specifications

Physical State	Liquid
Appearance	Transparent - Viscous Liquid
Odor	Mild
Freeze/Thaw Stability	Protect From Freezing
Specific Gravity	1.06
Flash Point	>600°F (ASTM D-92)
pH (Neat)	5-7

Equipment Requirements

ENVIRO/Flow HO-10 is compatible with all types of plastic, elastomers, and stainless steel racks and tongs employed during standard fusing. Fusing tanks should be constructed of 316 stainless steel or other suitable alloys, which can withstand temperatures of at least 600°F.

Product Make-Up

ENVIRO/Flow HO-10 should be used as received. Do not dilute with water or alcohol or other additives prior to use.

Operating Parameters

HO-10 is heated to 390 - 420°F and the printed wiring board immersed in the solution for 10 - 30 seconds. A recommended fusing process would include:

Procedure

1. Application of a solder conditioner (cleaner and deoxidizer such as Seacole's ENVIRO/Bright series of solder conditioners) followed by an adequate rinse/forced air dry to remove post etch tin and lead oxides from the surface of the tin/lead electroplate.
2. Application of a hot oil fusing flux (such as one of Seacole's HOF-Series fusing fluxes) to clean the tin-lead deposit and exposed copper sidewalls, thereby enhancing solder wet ting during the fusing process.
3. Immersion in a pre-heated fusing fluid at 240 - 260°F such as Seacole's ENVIRO/ Flow HO Series fluid for 10 - 20 seconds.
4. Immersion in a full temp fusing fluid at 390 - 420°F for 15 - 20 seconds or until the tin-lead deposit is mirror bright indicating the solder alloy has formed.
5. Immersion in a cool down fusing fluid or return to the pre-heated fusing fluid for 10 - 20 seconds or until the solder freezes.
6. Rinse and dry - hand spray or conveyorized hot deionized water spray rinse to remove oil residue followed by a forced air drying cycle. For certain applications, it may be recommended a mild deter gent scrub be incorporated after initial dead rinse, followed by a typical hand spray or conveyorized hot deionized water spray rinse.

Control and Replenishment

As the HO-10 ages, the average molecular weight of the hydrocarbon chains decreases reducing thermal stability (increasing the coefficient of thermal expansion). This can be observed as gassing which is the va- porization of the fractured hydrocarbon chains. When gassing is first observed, special attention should be given to the quality of the reflow. The bath can be operated until gassing becomes too severe or the quality of reflow diminishes.

Safety and Handling

Read and understand this products MSDS before use.

Waste Treatment

Individual users should verify the nature of spent solutions to assure compliance with local, state, and fed- eral regulations. Contact Seacole for specific details and/or further waste treatment recommendations.

Ordering Information

ENVIRO/Flow HO-10 is available in 5 gallon pails and 55 gallon drums.

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