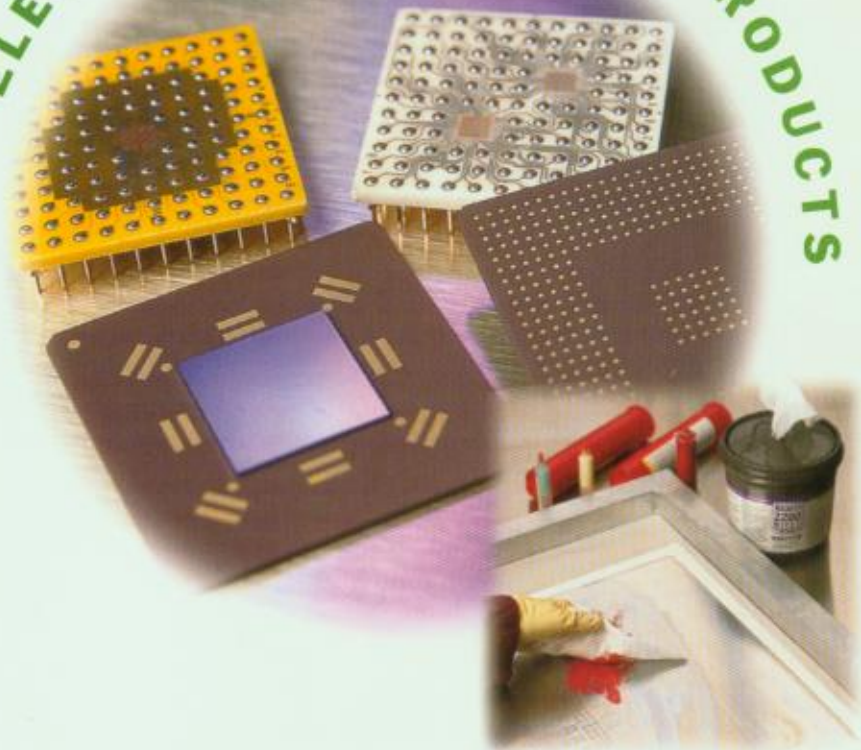


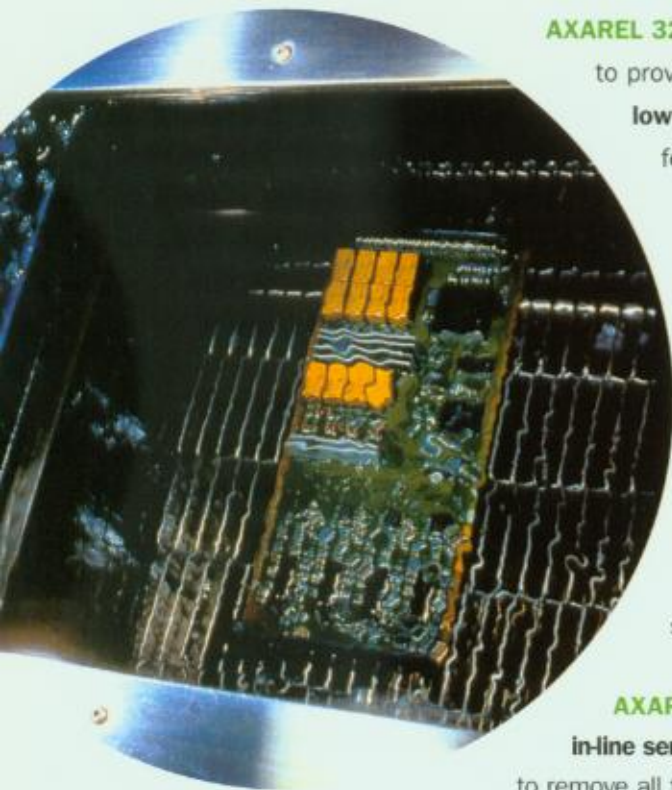
AXAREL

ELECTRONICS CLEANING PRODUCTS



 **Petroferm**

## SEMI-AQUEOUS DEFLUXERS



**AXAREL 32**, the most popular AXAREL semi-aqueous product, was designed to provide the **proper balance of selective solvency, high flash point and low toxicity**. It is a combination of polar and non-polar ingredients formulated to remove residual rosin and ionic contamination from printed wiring assemblies. AXAREL 32 is used in heated in-line and batch semi-aqueous process equipment that utilize an emulsion rinse. The product separates from water, allowing it to be used in most semi-aqueous rinse water recycling systems.

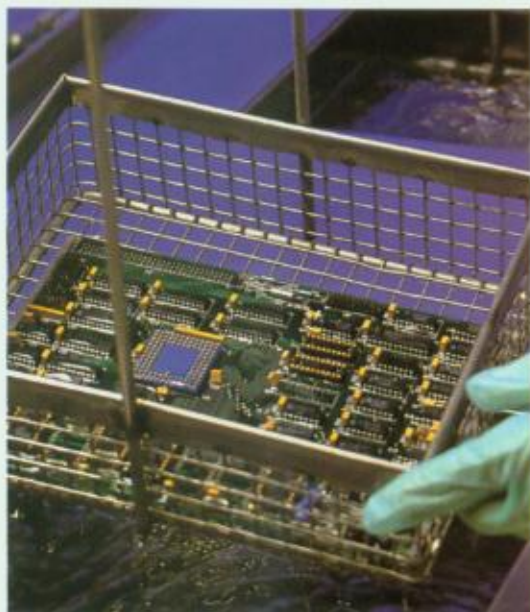
**AXAREL 36** is a blend of aliphatic hydrocarbons and esters developed to separate readily from water for **easy rinse water recycling or disposal**. The product can be used in most semi-aqueous rinse water recycling systems. AXAREL 36 is ideal for batch semi-aqueous cleaning equipment that does not utilize a separate emulsion rinse prior to carbon treatment.

**AXAREL 46** was specifically formulated to **improve rinsing in batch and in-line semi-aqueous equipment**. It may be used concentrated or in an emulsion to remove all types of flux and paste residues. AXAREL 46 is a certified California *Clean Air Solvent* when used in appropriate dilutions in water (contact Petroferm for details).

## AQUEOUS DEFLUXERS

**AXAREL 125** was designed as an alternative to typical organic and inorganic saponifiers, as well as alcohol-derived products, for cleaning electronic circuit assemblies and stencils. Its low foaming formulation makes it ideal for **use in aqueous spray-in-air**

**equipment**. AXAREL 125 is typically diluted 5% to 30% in water for use in aqueous cleaning equipment or it can be used concentrated in semi-aqueous equipment.



**AXAREL 130** was designed as an effective alternative to alcohol-based cleaning chemistries such as tetrahydrofurfuryl alcohol (THFA). This product has a higher flash point, lower odor and better materials compatibility than THFA-based and non-linear alcohol-based products. **AXAREL 130 was formulated specifically for cleaning difficult-to-remove flux residues**. It is designed for use in aqueous and semi-aqueous batch immersion equipment. AXAREL 130 is typically diluted 5% to 30% in water.

## MANUAL DEFLUXERS

**AXAREL 2200** was designed as an alternative to CFC-113, HCFC-141b and IPA in **manual defluxing after touch-up and rework**. The product quickly dissolves most rosin, water-soluble and no-clean solder flux residues, as well as fingerprints and some conformal coatings. It is applied concentrated, at ambient temperature by hand or by aerosol dispensing systems from Micro Care® and Tech Spray™. AXAREL 2200 can also be used in small immersion equipment such as Lockheed-Martin's JetClean® system.



## STENCIL/MISPRINT CLEANERS

**AXAREL 2200** quickly dissolves all types of solder paste compositions from stencils and misprinted assemblies. The product has also proven effective in removing most wet or dried thick film inks from misprinted assemblies. It is compatible with screen emulsions, ceramic and epoxy substrates and most electronic components. AXAREL 2200 is an **ideal replacement or "booster" for IPA in cold cleaning applications**. AXAREL 2200 is available in pre-saturated wipes from Micro Care®.



# TYPICAL PROPERTIES

## SEMI-AQUEOUS DEFLUXERS

Product	Solvent Base	Flash Point (PMCC)	Process	Operating Temperature	Water Separation	Phase 2 Approved
<b>AXAREL 32</b>	Aliphatic hydrocarbons, esters	205°F (96°C)	Heated semi-aqueous and emulsion	120° - 180°F (49° - 82°C)	Good	Yes
<b>AXAREL 36</b>	Aliphatic hydrocarbons, esters	205°F (96°C)	Heated semi-aqueous and emulsion	120° - 180°F (49° - 82°C)	Excellent	Yes
<b>AXAREL 46</b>	Aliphatic hydrocarbons, esters	205°F (96°C)	Heated semi-aqueous and emulsion	120° - 180°F (49° - 82°C)	Good	Not tested

## AQUEOUS DEFLUXERS

Product	Solvent Base	Flash Point (PMCC)	Process	Operating Temperature	Operating Concentrations	Phase 2 Approved
<b>AXAREL 125</b>	Non-linear alcohols	220°F (104°C)	Heated aqueous	75° - 190°F (24° - 88°C)	5% - 30%	Not tested
<b>AXAREL 130</b>	Non-linear alcohols	220°F (104°C)	Heated aqueous	75° - 190°F (24° - 88°C)	5% - 30%	Not tested

## MANUAL DEFLUXERS

Product	Solvent Base	Flash Point (PMCC)	Evaporation Rate (IPA = 1)	Process	Packaging
<b>AXAREL 2200</b>	Non-linear alcohols and aliphatic hydrocarbons	111°F (44°C)	0.12	Cold cleaning	Bulk liquid and aerosol dispenser

## STENCIL/MISPRINT CLEANERS

Product	Solvent Base	Flash Point (PMCC)	Evaporation Rate (IPA = 1)	Process	Packaging
<b>AXAREL 2200</b>	Non-linear alcohols and aliphatic hydrocarbons	111°F (44°C)	0.12	Cold cleaning	Bulk liquid and pre-saturated wipes

**M**ost of the AXAREL Electronics Products were originally developed by DuPont as alternatives to CFC-113 for electronic assembly manufacturing and semiconductor packaging applications. Today, there are AXAREL products for semi-aqueous, aqueous and manual/non-aqueous cleaning processes. Petroferm, with its worldwide marketing partners, is committed to helping you with your selection to ensure your total satisfaction.



### **SEMI-AQUEOUS DEFLUXING**

The semi-aqueous process combines the benefits of solvent and aqueous cleaning into one process. The process typically consists of an organic solvent-based product such as AXAREL 32, followed by a series of water rinse and dry stages. Wastewater treatment is simplified by the addition of a decanter and utilizing the first water stage as an emulsion rinse stage. The semi-aqueous process is still regarded as the most robust defluxing process due to its ease of operation and its ability to remove a wide range of flux residues and ionic contamination.



### **AQUEOUS DEFLUXING**

Unlike traditional organic and inorganic saponifiers, Petroferm's aqueous defluxers are organic solvent-based products that are either soluble or emulsifiable in water. They are used diluted in water followed by a series of water rinse and dry stages. These products differ from semi-aqueous defluxers in that they can be used in standard aqueous equipment, both metal and plastic.



### **MANUAL DEFLUXING**

In addition to replacing CFCs in production defluxing, Petroferm also developed alternative products for manual and cold dip benchtop defluxing after touch-up and rework. Like the CFCs and IPA they replace, these products are applied at room temperature, rinsed with fresh product and dried with ambient or forced air. The products are more aggressive than CFCs and IPA, and they are gaining acceptance due to their ability to remove difficult residues.



### **STENCIL/MISPRINT CLEANING**

Certain AXAREL products are well suited to replace HCFC-141b, IPA and other low flash point materials in both manual and equipment applications where performance, safety and environmental properties are of primary concern. The products are applied at ambient temperature and dry quickly with or without forced air. There are also AXAREL products that are designed for aqueous stencil cleaning equipment.

## ENVIRONMENTAL PROPERTIES AND REGULATORY STATUS

AXAREL Products	Ozone Depletion Potential (ODP)	Global Warming Potential (GWP)	Significant New Alternatives Program (SNAP)	Hazardous Air Pollutant (HAP)	National Emission Standards for Hazardous Air Pollutants (NESHAP)	Superfund Amendments and Reauthorization Act (SARA)	Resource Conservation and Recovery Act (RCRA)
<b>AXAREL 32</b>	Zero	Low	Approved	No	Not regulated	Not regulated	Not regulated
<b>AXAREL 36</b>	Zero	Low	Approved	No	Not regulated	Not regulated	Not regulated
<b>AXAREL 46</b>	Zero	Low	Approved	No	Not regulated	Not regulated	Not regulated
<b>AXAREL 125</b>	Zero	Low	Approved	No	Not regulated	Not regulated	Not regulated
<b>AXAREL 130</b>	Zero	Low	Approved	No	Not regulated	Not regulated	Not regulated
<b>AXAREL 2200</b>	Zero	Low	Approved	No	Not regulated	Not regulated	Not regulated

### CUSTOMER ASSISTANCE

For further product information, recommendations, samples or technical service, contact your Petroferm representative or Petroferm's Cleaning Products Division.

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