

**Petroferm**



## Advanced Products for Advanced Cleaning

Petroferm is a specialty chemical manufacturing company that has achieved rapid growth through both internal development and acquisitions. Customers use our products to clean high reliability circuit boards used in applications from heart pacemakers to aircraft instrumentation; to improve the flow of heavy crude from oil wells; to increase fuel combustion efficiency in oil-fired industrial boilers; to enhance the effectiveness of agricultural crop treatment products; to improve the performance of lubricant compositions; and to provide unique properties in personal care products such as long-wear lipstick.

We are committed to support our customers, totally and constantly, as they apply our products to their products and processes.

### Advanced Cleaning

Petroferm offers an extensive line of industrial cleaning agents specially designed to replace toxic, flammable or environmentally undesirable chemicals. We offer aqueous, semi-aqueous, non-aqueous and vapor degreasing products for cleaning in electronics, aerospace, defense, medical and automotive applications.

We are always seeking new approaches, new formulations and new ideas to sustain our continued leadership position in high-tech cleaning.

### Global Supplier

Petroferm supplies products on a global basis. Our Cleaning products are available through a network of distributors and business partners operating in approximately 40 countries around the world. Petroferm trade names include Axarel, Bioact, Hydrex, Lenium, Re-Entry, and Cleansafe.

## Special Solvents

Product	Application	Description
<b>LENIUM* FRA</b>	Rinsing in vapor degreasing and co-solvent processes	A binary azeotrope of fluorocarbons, specially formulated for rinsing in co-solvent and vapor-degreasing processes. Lenium FRA can also be used for finger print development and also as a carrier fluid for deposition of fluoro-lubricants.
<b>LENIUM* FCA</b>	General Cleaning	A general solvent specially formulated to remove contaminants such as oils, greases, adhesives, resins, and flux residues. The fluid has physical properties and solvency characteristics that are similar to chlorinated solvents such as 1,1,1-trichloroethane and trichloroethylene. It is a vapor degreasing solvent suitable for removing a wide variety of soils in immersion and vapor cleaning applications.
<b>LENIUM* FEC</b>	Electronic Cleaning	A binary azeotrope of fluorocarbons, chlorocarbons, and methanol specially formulated to remove solder flux, paste, and ionic residues from circuit assemblies. The fluid has physical properties and solvency characteristics that are similar to chlorinated solvents such as 1,1,1-trichloroethane and trichloroethylene. It is a vapor degreasing solvent suitable for removing a wide variety of soils in immersion and vapor cleaning applications.
<b>LENIUM* FMC</b>	General Cleaning	A general solvent specially formulated to remove contaminants such as oils, greases, adhesives, resins, and organic residues. The fluid has physical properties and solvency characteristics that are similar to chlorinated solvents such as 1,1,1-trichloroethane and trichloroethylene. It is a vapor degreasing solvent suitable for removing a wide variety of soils in immersion and vapor cleaning applications.
<b>LENIUM* FHD</b>	Cleans Heavy Hydrocarbon Soils	An excellent, reliable, ozone-safe precision cleaner. This cleaner delivers speedy cleaning for the toughest hydrocarbon soils – including waxes and buffering compounds – in an affordable, nonflammable solvent package.
<b>LENIUM* DF</b>	Silicon Deposition Fluid Silicon Cleaning Solvent	A proprietary blend of 3M™ HFE-7100, octam ethyltrisiloxane and isopropanol. The product is suitable for use as a diluent and carrier fluid for silicone base lubricants. It has excellent solubility for silicone lubricants, but does not attack sensitive plastic components. For this reason it may be used in variety of medical applications.
<b>LENIUM* TS</b>	Silicon Tube Swelling Fluid	A proprietary blend of 3M™ HFE-7100, and octam ethyltrisiloxane. The product is designed for use at room temperature as a swelling fluid for silicone tubing. Although the product will swell silicone tubing, it does not attack sensitive plastic components.

## RustSafe™\* Corrosion Inhibitors

Product	Benefits	Protection Period	Base Chemistry	Recommended when	Equipment
<b>RustSafe 21</b>	Water soluble Non-staining Non-flammable Low-foaming Easily cleaned	60+ days	Oil	Long term protection; Indoor/Outdoor storage	These products can be used in most types of cleaning equipment including inline spray systems, dip tanks, ultrasonic tanks, spray cabinets, and rotary drum machines.
<b>RustSafe 27 SDST</b>	Ultra thin film Water based Accepts coatings Low-foaming Dry to touch	30-60 days, (depending on storage conditions)	Water	Interim protection; Painted parts; Residue-free substrate; Indoor storage	
<b>RustSafe 2400</b>	Ultra thin film Non staining Non flammable Water displacing Dry to touch	60+ days	Solvent	Long term protection; Indoor/Outdoor storage; Salt spray protection	

## Electronic Cleaners

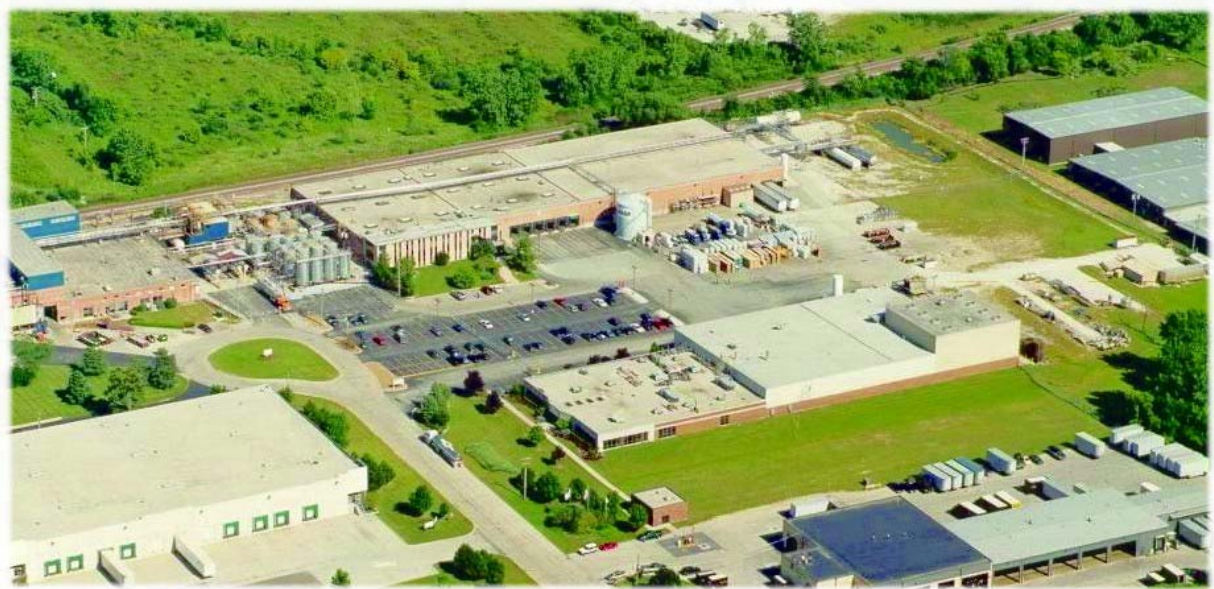
Product	Application	Description
<b>AXAREL* 32</b>	Defluxing	Semi-Aqueous Hydrocarbon Cleaner. Removal of Flux and Solderpaste Residues. Application 100% in Spray in Air or Ultrasonic Tanks , and as Emulsion in Spray-machines. Fp=91°C
<b>AXAREL* 2200</b>	Stencil Cleaning Solderpastes	Solvent Cleaner for Stencil Cleaning Solderpaste, Misprint Cleaning, manual and spark proof Spray-machines. Fp=41°C. Available in pre-saturated Wipes.
<b>SOLVAG* ES</b>	Defluxing	Solvent Cleaner for defluxing of Flux-, and Solderpaste Residues. Application 50% with Petroform Vapor Phase Rinse Agent, at 55°C, followed by 100% Petroform Vapor Phase Rinse Agent
<b>SOLVAG* 70</b>	Defluxing	Solvent Cleaner for defluxing of Flux and Solderpaste Residues. Application 50% with Petroform Vapor Phase Rinse Agent, at 55°C, followed by a rinse in 100% Petroform Vapor Phase Rinse Agent. GE Approval.
<b>SOLVAG* 24</b>	Defluxing	Very strong Solvent Cleaner for defluxing of Flux and Solderpaste Residues. Application 50% with Petroform Vapor Phase Rinse Agent, at 55°C, followed by a rinse in 100% Petroform Vapor Phase Rinse Agent.
<b>LENIUM* ES</b>	Defluxing	Non Flammable solvent cleaner. Based on n- Propyl Bromide. Suitable for immersion defluxing. Boiling point 68°C
<b>BIOACT* EC-7R</b>	Defluxing	Semi-Aqueous Hydrocarbon Cleaner. Removal of Flux and Solderpaste Residues. Application 100% in Spray in Air or Ultrasonic Tanks , and as Emulsion in Spray-machines. Fp=48°C
<b>BIOACT* SC-10</b>	Stencil Cleaning Solderpastes & Adhesives	Citrus Terpene Cleaner for Stencil Cleaning Solderpaste, SMD adhesives, Misprint Cleaning, manual and sparkproof Spray-machines, very fast drying. Fp=41°C. Available in pre-saturated Wipes
<b>BIOACT* SC-10E</b>	Stencil Cleaning Solderpastes & Adhesives	Citrus Terpene Cleaner for Stencil Cleaning Solderpaste, SMD adhesives, Misprint Cleaning, manual and sparkproof Spray-machines, fast drying. Fp=52°C
<b>BIOACT* SC-10E<sup>plus</sup></b>	Stencil Cleaning Solderpastes & Adhesives, Reflow-oven Cleaning	Citrus Terpene Cleaner for Stencil Cleaning Solderpaste, SMD adhesives, Misprint Cleaning, manual and sparkproof Spray-machines. Manual Cleaning of Reflow-ovens. Fp=58°C
<b>BIOACT* SC-22</b>	Stencil Cleaning Solderpastes, Defluxing	Alcohol based Cleaner for Cleaning Stencils Solderpaste, Misprint Cleaning, in sparkproof Spray machines and as Emulsion with no flashpoint as strong Cleaner for Defluxing in Spray-machines, most run at 25% Emulsion.. Fp=62°C
<b>HYDREX* DX</b>	Defluxing, Solderframe Cleaning	Aqueous Cleaner for Spraycleaning, very low VOC, alkaline pH 12. Cleans Circuit Boards, Solderframes, Guides and Tools at Room temperature (20-25°C). No flashpoint.
<b>HYDREX* LF</b>	Defluxing, Solderframe Cleaning, Stencil Cleaning	Aqueous Cleaner for Spray and Ultrasonic cleaning, VOC compatible, alkaline (ph 10). Very strong Defluxer and Stencil Cleaner, especially for new (lead-free) no-clean Flux Residues. Easy to rinse, no Flashpoint.
<b>HYDREX* WS</b>	Stencil Cleaning Solderpastes, underwipe	Aqueous Cleaner for Stencil Cleaning Solderpaste. Use as underwipe Cleaner in Stencil-Printers. No Flashpoint. Does not need water-rinse, can be used in cascade
<b>HYDREX* SP-50</b>	Stencil Cleaning Solderpastes, Adhesives, Defluxing	Aqueous Cleaner for Spraycleaning, low Solvent Content (50%), VOC compatible, ph-neutral. Very strong Stencil Cleaner for Solderpastes and all SMD Adhesives. Needs 35°C Working Temperature, good Defluxer in Spray-machines, especially good under BGA and flip-chip. No Flashpoint.
<b>REFLEX*</b>	Reflow-Oven Covers Cleaning	Solvent, for Reflow-Oven Cleaning. Flashpoint 102°C, ph-neutral

## Precision Cleaners

Product	Application	Description
<b>AXAREL* 4100</b>	Degreasing	Hydrocarbon Solvent for manual cleaning. Removal of Lubricants, Fingerprints. Application 100% in dip tanks. Fp=41°C. Available in wipes. Approved to Rolls Royce CSS255. Conforms ASTM F 945 (Stress-Corrosion of Titanium Alloys by Aircraft Engine) by Scientific Material International, (July 22, 1994)
<b>AXAREL* 6100</b>	Degreasing	Hydrocarbon Solvent for manual cleaning. Removal of Lubricants, Fingerprints. Application 100% in dip tanks. Fp=61°C. Available in wipes. Approved to Rolls Royce CSS255. (Stress-Corrosion of Titanium Alloys by Aircraft Engine) by Scientific Material International. (September 13, 1991)
<b>AXAREL* 9100</b>	Degreasing, Dewaxing	High flashpoint Hydrocarbon Solvent for removal of heavy oils and greases and waxes. Application in heated tank process at 100%. Fp=96°C. Approved to Rolls Royce CSS255. (Stress-Corrosion of Titanium Alloys by Aircraft Engine) by Scientific Material International. (September 13, 1991)
<b>AXAREL* 52</b>	Degreasing	Semi Aqueous Precision Cleaner designed to promote superior water rinsing of cleaned parts. Removes oils ,greases and high melting point waxes. It's solvent soluble rust inhibitor protects steel substrates from flash rusting, during cleaning and rinsing. (Stress-Corrosion of Titanium Alloys by Aircraft Engine) by Scientific Material International. (1990) Boeing BAC 5200 (Cleaning, Preserving and Re-lubricating Anti-friction Bearings)
<b>AXAREL* 56</b>	Degreasing	Similar to Axarel 52.However contains no rust inhibitors, making it ideal for specialized applications requiring minimum residues Recommended for cleaning oils, greases and high melting point waxes from metal, glass and plastic substrates. Boeing BAC 5763 Section 5.2b Meets specification for Boeing D6-17487 approved exterior and general cleaners.
<b>BIOACT* 105</b>	Degreasing	Terpene based Solvent for manual cleaning. Removal of Lubricants, Fingerprints. Application 100% in dip tanks. Fp=41°C. Available in wipes. Pratt & Whitney Commercial Standard Practices Manual SPOP 208; PMC 8929
<b>BIOACT* 200</b>	Removal of inks, paints, adhesives, toners.	Biodegradable, non reactive and non-corrosive. Bioact 200 is not chlorinated and does not contain heavy metals or petroleum distillates. Recommended for removal of inks, adhesives, toners and paints. Particularly recommended for removal of inks used for silk screening.
<b>BIOACT* 280E</b>	Dewaxing	High flashpoint Hydrocarbon Solvent for removal of high temperature melting waxes. Application in heated tank process at 100%. Fp=141°C. Pratt & Whitney Commercial Standard Practices Manual SPOP 37 – Method 2.
<b>BIOACT* AE/O</b>	Asphalt Extraction testing	Ideal alternative to chlorinated solvents traditionally used for performing asphalt-content extraction tests on bituminous highway mix, fp = 47°C
<b>LENIUM* GS</b>	Degreasing	Non flammable Solvent Cleaner for degreasing metal components. Application 100% at 74°C. Boiling Point 74°C, Fp=none, ph = 12

## Aqueous Cleaners

<b>CleanSafe 787</b>	Degreasing	Mildly alkaline, removes difficult soils, ultra low foaming at temperatures above 50°C. This Low VOC cleaner contains no glycols or water soluble solvents. May be used in ultrasonic tanks as well as in spray-equipment. Easy to rinse, high reserve alkalinity, Biodegradable.. Residue-free rinsing. pH 12...
<b>CleanSafe 787c</b>	Degreasing	Mildly alkaline cleaning agent to clean ferrous and non-ferrous substrates, ultra low foaming at room temperature. Excellent soil loading. For immersion and spray cleaning at 21 – 65°C in 5% - 15% concentration with DI-water. Biodegradable. Residue-free rinsing. pH 12-13
<b>CleanSafe 7200 DTX</b>	All purpose Cleaner	Mildly alkaline cleaning agent to clean ferrous and non-ferrous substrates. Excellent reserve alkalinity. Excellent corrosion inhibition of ferrous alloys. Inhibits oxidation of copper and copper alloys. This Low-VOC cleaner contains no glycols or water soluble solvents. Biodegradable. Residue-free rinsing. pH 12
<b>CleanSafe 50E plus</b>	Degreasing Copper-Brightening	Aqueous Cleaner, mildly acid. Brightens Copper and Copper Alloys. Essentially non-toxic and contains no chlorine or phosphates. To be used in immersion process. In a large number of applications an acid dip for brightening can be avoided by use of CleanSafe 50E. plus



## PETROFERM CORPORATE LOCATIONS

### **Petroferm Inc.**

Petroferm Inc. USA  
3938 Porett Drive  
Gurnee, Illinois 60031  
U.S.A.

### **Petroferm UK Ltd.**

Heron Chemical Works  
Moor Lane Lancaster LA1 1QQ UK  
mail [ksappal@petroferm.com](mailto:ksappal@petroferm.com)  
Phone +44-1524 65222  
Fax: +44-1524 381805

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