

Tergo™ Performance Fluids

Tergo PF100-IPA

High Purity Ionic & Static Remover

Introduction

Tergo PF100-IPA High Purity and Static Remover is a true azeotrope of a modern HFE with Isopropyl Alcohol. It is ideally suited for use in vapor degreasing equipment or bench-top applications. It offers improved solvency for polar soils, compared to neat fluorocarbons, while maintaining excellent compatibility with most plastic, ceramic, and metal components. Typical applications include precision and specialty cleaning of optics or circuitry, solvent drying, and rinsing for removal of particulate, fingerprints, and light soils from metal, plastic, and glass parts.

Tergo PF100-IPA can replace hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) in medical and aerospace applications where critical cleaning is paramount and there is a focus towards bioburden or dendrites.

Tergo PF100-IPA is hydrolytically stable and therefore does not require chemical stabilizers or scavengers to prevent it from breaking down in the presence of excess water or mildly acidic activators.

Its unique properties (Table 1) include a high density, low viscosity, and low surface tension for effective particle and soil removal.

This product bulletin summarizes product properties, applications and use, safety, health, environmental, and regulatory information. Users should also consult the appropriate Safety Data Sheet (SDS) for additional details.

Applications

Tergo PF100-IPA is designed to replace HFCs, PFCs and other fluorinated fluids used to mitigate situations where static or ionic charges are an issue. Tergo PF100-IPA can also be used for critical cleaning where the added polarity of Isopropyl Alcohol aids in cleaning inorganic soils. Tergo PF100-IPA has also been found to be effective as a solvent drying agent for absorbing trace amounts of moisture from optics, circuitry or substrates with tight stand-offs. Some of the potential applications include:

- Control of ionic charges
- Solvent drying /moisture absorption
- Precision cleaning of optics and circuitry
- Replacement for 3M™ Novec™ 7100 IPA solvent

Cleaning Process

Vapor degreasing should be used for optimum cleaning effectiveness and economy. Modern vapor containment technology is recommended for both batch and in-line equipment. These systems have higher freeboard and a secondary set of low temperature (–29°C [–20°F]) condenser coils to greatly reduce vapor losses.

Specifications

All components are listed in the TSCA inventory.

Table 1. Physical Properties^a

Boiling Point	51°C (124°F)
Liquid Density, g/cc	1.42
Vapor Pressure (kg/cm ² , 25C)	0.29*
Flash Point (Open ^b /Closed ^c cup)	None

^a At 25°C (77°F), except where indicated.

^b Setaflash Closed Cup Tester (ASTM D 3278)

^c Tag Open Cup Tester (ASTM D 1310)

* Calculated.

Recovery

This product is easily recoverable by off-line or in-line distillation equipment such as a vapor degreaser or still. The presence of soil, however, may alter the characteristics of the material during the recovery operation. Recovery should be closely monitored to ensure operating levels are maintained. Contact your MicroCare salesperson for assistance.

Plastic and Elastomer Compatibility

Most plastics and elastomers can be safely cleaned in *Tergo* PF100-IPA. Tables 2 and 3 summarize test results on short-term exposures of unstressed plastics and elastomers simulating a typical cleaning cycle.

Elastomer swelling and shrinking will, in most cases, revert to within a few percent of original size after air drying. Swell, shrinkage, and extractables are strongly affected by the compounding agents, plasticizers, and curing used in the manufacture of plastics and elastomers. Therefore, prior in-use testing is particularly important.

Table 2. Unstressed Plastic Compatibility
Immersion: 5 Minutes at Boil Point

Compatible	Incompatible ^a
Polyethylene	Polymethyl methacrylate (acrylic)
Polypropylene	^a Material composition varies depending upon compounding agents, plasticizers, processing, etc. Specific materials should be tested for compatibility with solvent.
Polystyrene	
Epoxy (FR)	
Polycarbonate	
Polyacetate	
Polyphenylene Sulfide	
ABS	
Nylon 6	
PTFE	
PVC	
Epoxy	

Table 3. Elastomer Compatibility
Immersion: 5 Minutes at Boil Point

Compatible	Incompatible ^a
Natural Rubber	none
Butyl Rubber, IIR	^a Material composition varies depending upon compounding agents, plasticizers, processing, etc. Specific materials should be tested for compatibility with solvent. Compatibility is given for results of less than 1% deviation.
EPM, EPDM, Nordel®	
EPDM	
Chlorosulfonated PE	
Polysulfide	
Nitrile	

Metals and Other Compatibility

Tergo PF100-IPA is compatible with common metals and most alloys. Initial compatibility testing on non-production parts is always recommended when using a new cleaning fluid.

Contact with highly basic process materials, pH 10 or above, is not recommended.

Safety / Flammability

Tergo PF100-IPA exhibits no closed cup or open cup flash point and is not classified as a flammable liquid by NFPA or DOT.

Safety / Exposure Limits

Data from acute toxicity studies has demonstrated that *Tergo* PF100-IPA has low toxicity. The listing below shows the applicable exposure limits for the component materials of *Tergo* PF100-IPA.

The AEL and TLV limits are Time Weighted Average (TWA) concentrations for a normal 8 or 12 hour workday and a 40 hour work week to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

Please read and understand the Safety Data Sheet (SDS) for this product for additional details.

Table 4. Exposure Limits

Component	Limit, ppm	Type
<i>Tergo</i> PF100	AEL ^a 50	8- and 12-hr TWA
	PEL ^b 75	8- and 12-hr TWA
Isopropanol	AEL 980	8- hr TWA -TLV ^c

^a AEL is a limit set by the manufacturer and is an airborne inhalation exposure limit that specifies time-weighted average concentrations to which nearly all workers may be repeatedly exposed without adverse effects.

^b PEL is a limit set by the EPA and is an airborne inhalation exposure limit that specifies time-weighted average concentrations to which nearly all workers may be repeatedly exposed without adverse effects.

^c TLV (Threshold Limit Value) is an airborne inhalation exposure limit established by the American Conference of Government and Industrial Hygienists (ACGIH) that specifies time-weighted average concentrations to which nearly all workers may be repeatedly exposed without adverse effects.

Storage and Handling

Tergo PF100-IPA is thermally stable and does not oxidize or degrade during storage. Store in a clean, dry area. Protect from freezing temperatures. If solvent is stored below -10°C (14°F), mix by agitation prior to use. Do not allow stored product to exceed 44°C (111°F) to prevent leakage or potential rupture of container from pressure and expansion.

Consideration should be given to retrofit of existing, or purchase of new, vapor degreasing equipment to provide vapor containment technology that enables safe and economical use of *Tergo* PF100-IPA.

Drum pumps are recommended to dispense *Tergo* PF100-IPA from its container. Refer to the Safety Data Sheet for specific handling precautions and instructions.

Packaging

Part Number	Package	Weight/Volume
MCC-TPF100IPAD	Steel Drum	226.8 kg (500 lbs) / 208.2 L (55 gallons)
MCC-TPF100IPAP	Steel Pail	24.9 kg (55 lbs) / 18.9 L (5 gallons)
MCC-TPF100IPAG	Steel Pail	4.5 kg (10 lbs) / 3.78 L (1 gallon)
MCC-TPF100IPAGL	Glass Liter	1.13 kg (2.5 lbs) / 1 L (0.3 gallon)



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