Tergo™ HDF

Heavy Degreasing Fluid

- Aggressive Cleaning Agent
- Removes Heavy Greases, Silicone Fluids and Resilient Organic Contaminants
- Ideal Replacement for TCE, nPB, 71DE, 72DE and 73DE Fluids

Tergo™ Performance Fluids

The MicroCare™ Signature Line of Precision Products

Cutting-edge cleaning fluids meticulously crafted for diverse industrial applications. Each Tergo™ product boasts a distinctive formula and unparalleled operational attributes, all united by a common mission: to deliver efficient and sustainable performance.

Introduction

Tergo Heavy Degreasing Fluid (HDF) cleans a broad range of soils using either open-top or vacuum vapor degreasers. This azeotrope-like blend can stand up against thermal breakdown and continue to clean parts to the highest cleanliness standards.

Like our other *Tergo* products, *Tergo* HDF is compatible with a broad range of substrates, while solvating soils such as heavy hydrocarbons, greases, caramelized residues, waxes and silicone oils.

Tergo HDF is a non-flammable solvent that does not contain Ozone Depleting Substances and has one of the lowest GWP values in the market, thus offering the benefits of low surface tension, low viscosity cleaning while minimizing its environmental footprint.

While *Tergo* HDF was designed for efficient use in a vapor degreaser, it is also ideally suited as a line flush fluid, or for solvent extraction applications.

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.

Table 1. Physical Properties

Appearance	Colorless to light
Boiling Point	46°C (115°F)
Solubility in Water	Slight
Kb value	>100
% Volatile by weight	100%
Surface Tension	21 Dynes
Evaporation Rate (Ether=1)	<1

Specifications

All components are listed in the TSCA inventory.

Appearance	Clear, colorless
Moisture, ppm wt.	200 max
Nonvolatile Residue, ppm wt.	25 max
Ozone Depletion Potential	Zero
Global Warming Potential (GWP)	11

Recovery

The azeotropic nature of this formula allows this material to be easily recoverable by simple distillation, either by utilizing the vapor degreaser itself or a still. Recovery should be closely monitored to ensure that the operating levels are maintained. Spent ingredients and still bottoms need to be disposed of according to Federal, State, and local regulations.

Property	Tergo HDF HFO	Vertrel® SDG HFC	n-Propyl Bromide nPB	Trichloroethylene TCE	Novec® 71DE HFE	Novec® 72DE HFE	Novec® 73DE HFE
Boiling Point (°C / °F)	46 / 115	43 / 109	71 / 160	87 / 189	41/ 106	43 / 109	48 / 118
Specific Gravity	1.27	1.29	1.35	1.46	1.37	1.28	1.28
Weight / Gallon	10.52	10.75	11.3	12.2	11.4	10.7	10.7
Surface Tension (dyne / cm)	21	21.2	25.9	29.3	16.6	19	20
Viscosity (25°C, cP)	0.42	0.59	0.49	0.58	0.45	0.45	0.38
Kb Value	115	195	125	129	27	52	83
Flash Point	None	None	None	None	None	None	None
Flammability Limits	7 - 14	7 – 14	3.8 – 7.5	8 – 10.5	none	7.3 - 15	7.5 - 15
GWP (100 year)	11	148	16	630	160	43	0
ODP	0	0	0	0	0	0	0
HAP	No	No	Yes	Yes	No	No	No

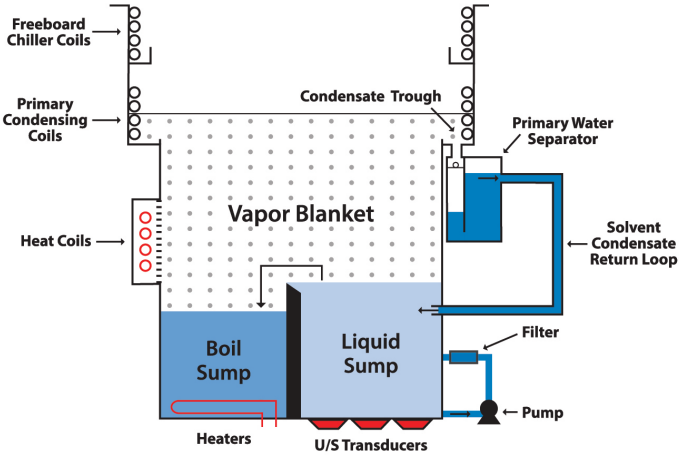
Applications

Tergo HDF is designed to replace nPB, TCE, PFC, and HCFC solvents used to remove stubborn soils from a variety of substrates, including metals and metal alloys. This rugged formula can be used to clean parts in the aerospace, automotive, medical, oil exploration and industrial sectors.

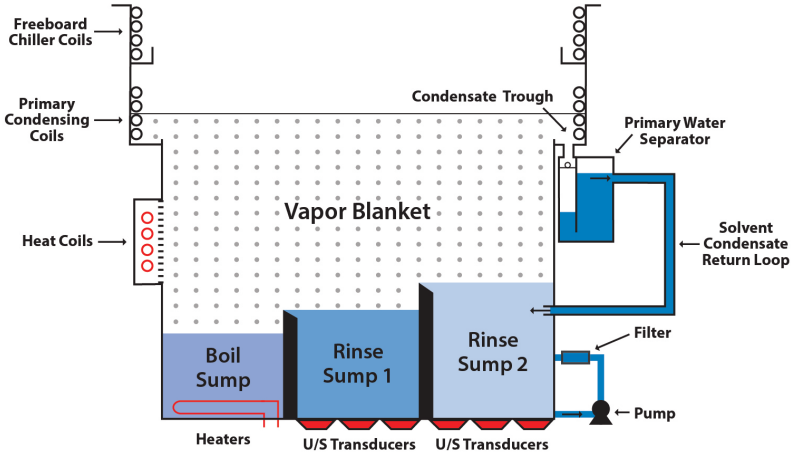
Some of the potential applications include:

- Precision Cleaning / Rosin Removal / Hydrocarbon Extraction
- Binder Displacement / Flushing Agent / Silicone Deposition or Removal
- Metal Cleaning / Cleaning Down-Hole Components / Tracing Solvent

Vapor Degreaser Equipment
Modern Low Emission Design



2-Sump Vapor Degreaser



3-Sump Vapor Degreaser

Plastic and Elastomer Compatibility

Tergo HDF is compatible with common metals and alloys. Plastics and elastomers compatibility may be dependent on exposure time and temperature. *Microcare* recommends always testing compatibility on scrap or surplus parts prior to introducing a new cleaning fluid to the production process.

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

Compatible		
HDPE	PET	PFA
LDPE	Nylon	PVDF
PP	PTFE / Teflon	Kynar
Polyester	FEP	Halar

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

Compatible
Kalrez
Parofluor
Ryton
Teflon enxapsulated gaskets

Safety, Toxicity and Environmental

Tergo HDF exhibits no closed or open cup flash point and is classified as a nonflammable liquid by NFPA or DOT. This product is volatile; vapor may become flammable when mixed with air in the concentrations shown below. Flash point data and vapor flammability limits in air are shown in **Table 4**.

Table 4. Safety, Toxicity and Environmental Properties

Property	Units	*Tergo* HDF
Flash Point, Closed Cup, ASTM D56	°C	None
Flash Point, Open Cup, ASTM D1310	°C	None
Vapor Flammability Limits - LEL	%vol.	7
Vapor Flammability Limits - UEL	%vol.	14
Global Warming Potential		11
Volatile Organic Compound Content	g/L	1209
Exposure Limit	ppm	200

Storage and Handling

Tergo HDF is thermally and hydrolytically stable and does not oxidize or degrade during storage under normal conditions. It is recommended to store containers inside in a clean, dry area and out of direct sunlight. The recommended storage temperature should not exceed 30°C (86°F). When stored properly, an unopened package of *Tergo* HDF has an unlimited shelf life.