Tergo™ CCA

Broad Range Degreasing Fluid

- Cleans Light to Moderate Organic Soils, Rosin Fluxes and Particulates
- Stable, Non-Flammable, Non-Corrosive
- Good Global Warning Potential (GWP)
- Zero Ozone Depletion Potential (ODP)
- Fast Drying
- Excellent Thermal, Chemical and Hydrolytic Stability
- Low Surface Tension, Low Viscosity, High Liquid Density
- Excellent Permeability
- Recoverable by Simple Distillation
- Cleaning Can be Enhanced with Ultrasonics

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™ CCA broad range degreasing fluid is a high purity fluorinated azeotrope designed to replace 71DE and similar fluorinated fluids used as solvents to clean a wide variety of soils. This fluid 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 mild acid-based activators. While *Tergo* CCA was designed for efficient use in closed-looped deposition systems, it is also functional in production line applications, on the bench or for solvent extraction requirements.

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

Applications

Tergo™ CCA broad range degreasing fluid is designed to replace HFCs, HFEs, PFCs and other fluorinated fluids that are miscible with a variety of materials, including fluorinated, chlorinated, silicones and conventional hydrocarbon mixtures onto a variety of substrates including metals and polymers.

Some of the potential applications include:

- Carrier solvent for fluorinated polymers, oils, and greases
- Carrier solvent for silicone oils and greases
- Precision cleaning applications
- High Purity Line Flush requirements
- Replacement for 3M™ Novec™ 71DE solvent and similar fluids

Recovery

Tergo™ CCA is easily recoverable by simple distillation, either by utilizing a vapor degreaser or simple still apparatus. 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.

Specifications

All components are listed in the TSCA inventory.

Material Composition

1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether (Tergo PF100)	40 - 60%
Trans 1,2-Dichloroethylene	40 - 60%

Physical Properties

Boiling Point	38C (100 F)
Melting Point	-49C (-56.7 F)
Density (g/cm^3, 25C)	1.36
Viscosity (cST, 25C)	0.33
Surface Tension (dyne/cm/ 25C)	18
Latent Heat of Vaporization (KJ/kg, 39C)	185
Relative Evaporation Rate (Ether=100)	90.4
Flash Point (Open/Closed cup)	None
Kauri Butanol value	32
Vapor Flammability in Air, vol% - LEL	None
Vapor Flammability in Air, vol% - UEL	None

Use Procedures

It is recommended that MicroCare fluids be used in a closed looped system to optimize efficiency, economy, and emission control. Coating or cleaning procedures for Tergo CCA are similar to those of conventional systems, such as industrial vapor degreasing equipment. The procedures consist of immersing a workload into the boiling solvent or coating bath, immersing and rinsing in the ambient solvent, rinsing or spraying with cool solvent and then drying in solvent vapor.

Environmental Health and Safety

Ozone Depletion Potential (ODP)[1]	None
Global Warming Potential (GWP)[2]	270
Flash Point	None

[1] CFC-11 = 1.0
[2] CO2 = 1.0, 100yr ITH

Storage / Handling

Tergo CCA 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 35° C.

Materials Compatibility

Tergo CCA has a broad range of compatibilities. 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 fluid to the production process.

Table 1. The effects of Tergo CCA on Unstressed Plastics and Elastomers at Boiling Point.

	At boiling for 5 min			At boiling for 3 days		
	Weight change (%)	Linear Swell (%)	Extractables (%)	Weight change (%)	Linear Swell (%)	Extractables (%)
Polyvinyl chloride (rigid)	3.2	2.2	<0.1	40.9	41.3	0.7
Polyvinyl chloride (plasticized)	23.0	17.4	5.8	-9.2	-20.4	19.2
Polyethylene (HP)	8.1	5.7	<0.1	128.6	affected	1.3
Polyethylene (LP)	1.4	0.1	<0.1	23.6	18.7	4.1
Polypropylene	1.95	1.3	<0.1	38.6	27.8	1.5
Polystyrene	34.0	19.9	0.3	affected	affected	103.8
Polycarbonate	16.4	19.7	<0.1	33.2	56.6	1.1
Polyacetal	0.28	0.36	<0.1	11.0	16.4	0.4
Polyphenylene oxide	30.5	22.7	0.92	affected	affected	102.6
Phenolic	0.17	0.13	<0.1	9.8	9.0	0.8
ABS	38.4	24.3	0.44	154.7	affected	3.0
Nylon6	<0.1	-3.4	<0.1	5.5	2.7	<0.1
Nylon66	<0.1	0.42	<0.1	4.8	5.2	<0.1
Polyester (FR)	2.4	3.4	<0.1	18.9	26.3	3.9
PTFE	<0.1	0.25	<0.1	2.7	2.6	<0.1
PCTFE	0.22	0.7	<0.1	11.3	17.4	<0.1
Epoxy (FR)	0.3	0.1	<0.1	6.8	9.9	<0.1
Polyphenylene sulfide	0.25	<0.1	<0.1	3.8	4.5	<0.1
Polybutylene terephthalate	0.82	0.18	<0.1	13.4	11.7	0.8
Polyethylene terephthalate	19.6	18.8	<0.1	64.5	72.7	1.9

Table 2. Effect of Tergo CCA on Elastomers at the Boiling Point.

	At boiling for 5 min			At boiling for 3 days		
	Weight change (%)	Linear Swell (%)	Extractables (%)	Weight change (%)	Linear Swell (%)	Extractables (%)
Polysulfide rubber FA(T)	18.9	16.8	<0.1	61.0	52.8	11.7
Natural rubber (NR)	19.9	19.1	0.2	45.5	32.6	10.7
Urethane rubber (UR)	30.6	25.9	<0.1	138.9	109.2	4.0
Isobutylene isoprene rubber (IIR)	19.5	13.0	0.9	38.7	30.0	13.6
Polychloroprene (CR)	18.0	16.5	1.3	29.6	23.2	17.9
Fluoroelastomer E (FKM)	8.0	9.3	<0.1	82.0	103.5	3.9
Chlorosulfonated polyethylene (CSM)	15.3	14.1	1.2	29.7	23.9	10.7
Silicone rubber (Q)	63.4	44.8	<0.1	155.6	120.1	2.4
Nitryl rubber (NBR)	22.4	20.1	1.4	54.2	48.4	13
Ethylene propylene diene terpolymer (EPDM)	17.3	14.1	3.5	17.5	8.3	17.3

Table 3. Effect of Tergo CCA on Viton and PTFE at the boiling point.

	At boiling for 7 days		
	Weight change (%)	Linear Swell (%)	Extractables (%)
Viton (FDA White)	55.2	37.3	0.5
Viton (Chemical Resistant)	92.7	74.3	1.4
Vition (Low Temp)	72.0	56.6	0.2
Viton	73.6	57.5	7.0
PTFE	2.8	0.9	<0.1

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