



Technical Information

HSDG Ultra Degreaser For Hydrocarbons

For Precision Metal Cleaning

Introduction

The *MicroCare* HSDG Ultra Degreaser for Hydrocarbons is a nonflammable cleaning fluid consisting of hydrofluorocarbons and trans-1,2-dichloroethylene. It is formulated to replace n-propyl bromide and trichloroethylene where maximum cleaning performance is needed. It can also be used to replace HCFC-225, HCFC-141b, HFEs, PFCs and CFC based solvents, and water based solvents when safety and environmental concerns and/or floor-space and cleanliness are at a premium. This Technical Information Sheet summarizes product properties, application and use, safety, health, environmental and regulatory information. Users should also consult the product Safety Data Sheet (SDS) for additional information.

Applications

This cleaning fluid is ideally suited for use in both vapor degreasing equipment and in "cold cleaning" applications such as cleaning of hydraulic lines and related equipment. It has enhanced solvency for a wide range of soils including oils, greases, waxes and cutting fluids, making it particularly effective in many precision cleaning applications. Vapor degreasing should be used for optimum cleaning effectiveness and economy. Modern vapor containment technology is recommended for batch and in-line equipment. These systems have higher freeboard and a secondary set of low temperature (-29°C /-20°F) condenser coils to reduce vapor loss.

The *MicroCare* HSDG Ultra Degreaser for Hydrocarbons has a broad range of cleaning capabilities. See below for a list of typical soils readily removed from parts in a normal vapor degreasing cycle:

Cutting Oils	Gear Oils
Heavy Greases	Hydraulic Oils
Stamping Oils	Silicone Oils & Grease
Wax	Mineral Oils

Safety/Flammability

The *MicroCare* HSDG Ultra Degreaser for Hydrocarbons exhibits no flash point. It is not classified as a flammable liquid by NFPA or DOT:

Closed Cup Flash Point (ASTM-D93)	None
Open Cup Flash Point (ASTM-D1310)	None
Lower Explosion Limit	7.0 (% by volume)
Upper Explosion Limit	14.0 (% by volume)

Flash point data and limits of flammability in air provide the user with additional information that should be used as elements of a fire risk assessment and to define guidelines for the safe handling of volatile chemicals. Users should assure compliance with NFPA standards and local fire codes.

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Material Compatibility

The *MicroCare* HSDG Ultra Degreaser for Hydrocarbons is compatible with metals. Contact with highly basic materials, pH 10 and above, is not recommended.

Plastics that may show signs of softening, swelling or other changes include acrylic, ABS and polycarbonate. Elastomers, if affected, will generally revert to within a few percent of original size after air-drying. Prior-to-use, testing of plastics and elastomers should be performed under conditions expected during normal operation (e.g., time in contact with *MicroCare* HSDG, temperature, etc.).

For more information on material compatibility, contact your *MicroCare* salesperson.

Recovery

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

Environmental Legislation

The ingredients of this formula are listed as "Acceptable" by the U.S. Environmental Protection Agency (EPA) under the Significant New Alternatives Policy (SNAP) program as a substitute for ozone depleting substances in the solvent category.

Environmental Properties:

Ozone-Depletion Potential (ODP)	0
Global Warming Potential (GWP/100 yr. ITH)*	148
Volatile Organic Compounds (VOC, g/liter)	1150

* Based on IPCC Second Assessment Report values.

All components are listed in the TSCA inventory. Refer to the SDS for additional regulatory information.

Safety/Exposure Limits

Data from acute toxicity studies has demonstrated that the *MicroCare* HSDG Ultra Degreaser for Hydrocarbons has low toxicity. It has a calculated AEL (Acceptable Exposure Limit) of 193 ppm based on its individual components. AEL is a manufacturer assigned airborne inhalation exposure limit that specifies time-weighted average concentrations to which nearly all workers may be repeatedly exposed without adverse effects. The calculated AEL is in accordance with ACGIH formulas for TLVs for mixtures. The *MicroCare* HSDG Ultra Degreaser for Hydrocarbons is a slight skin and eye irritant and has low acute inhalation toxicity.

Please refer to the product SDS for additional information on detailed exposure limits and toxicity-related data.

Physical Properties Comparison Chart

Property	HSDG	HCFC-225	HFE-72DE	TCE	nPB
Boiling Point:	43° C / 109° F	54° C / 129° F	43° C / 109° F	87° C / 160° F	71° C / 160° F
Surface Tension:					
N/m	0.0212	0.0162	0.019	0.032	0.0259
dyn/cm	21.2	16.2	19.0	32.3	25.9
Liquid Density, kg/liter (lb/gal):	1.29 /10.8	1.55 /12.9	1.28 /10.7	1.46 /12.15	1.35 /11.26
Vapor Pressure at 25° C (77° F):					
kPa	51.7	38.5	46.6	9.9	20.3
atm	0.51	0.38	0.46	0.099	0.20
psia	7.5	5.6	6.8	1.4	2.9
Freezing Point:					
°C	-50° C	-131° C	-	-86° C	-76° C
°F	-58° F	-204° F	-	123° F	-105° F
Heat of Vaporization at Boiling Point:					
kJ/kg	283	146	219	237.9	248.0
cal/g	67.1	35	52	56	58.8
Heat Capacity:					
kJ/kg °C	1.12	1.2	-	0.87	-
BTU/lb°F	0.27	0.20	-	0.21	-
Viscosity at 25° C (77° F), cPs:	0.59	0.59	0.45	0.54	0.49
KB Value:	95	31	52	129	125

Storage/Handling

The *MicroCare* HSDG Ultra Degreaser for Hydrocarbons is thermally stable and does not oxidize or degrade during storage. Store in a clean, dry, area out of direct sunlight and other sources of heat. Protect from freezing temperatures. If this cleaning fluid is stored below -10°C (14°F), mix prior to use. Do not allow stored product to exceed 52°C (125°F) to prevent leakage or potential rupture of container from pressure and expansion.

Drum pumps are recommended to dispense this solvent from its container. Refer to the Safety Data Sheet for specific handling precautions and instructions. Contact your *MicroCare* salesperson for additional assistance.

Specifications

Composition and specifications are detailed below:

Hydrofluorocarbon mixture	17-20 wt%
1,2-trans-Dichloroethylene	80-83 wt%
Water	< 200 ppm
Appearance	Clear, colorless
Non-volatile residue	< 10 ppm (drum s) or < 50 ppm (pails)

All ingredients are listed in the TSCA Inventory.

Ordering Information

# MCC-HSDGD	500 lb. (55 gallon) Steel Drum
# MCC-HSDGP	45 lb. (5 gallon) Steel Pail

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