



MicroCare™ XH Specialty Fluid

For Light-Duty, High-Precision Parts Cleaning

Introduction

MicroCare XH Specialty Fluid is an azeotrope of a hydrofluorocarbon, HFC 43-10, with heptane. It is ideally suited for use in vapor degreasing equipment. It offers improved solvency for mineral oils and enhanced performance on light soil removal while maintaining excellent compatibility with most plastic, ceramic, and metal components.

Typical applications include precision cleaning and rinsing of particulate and light soils from metal, plastic, and glass parts.

MicroCare XH Specialty Fluid is nonflammable, has “zero” ozone depletion and low global warming impact. It has been formulated to replace CFC-113, 1,1,1-trichloroethane (1,1,1-TCA), hydrochloro-fluorocarbons (HCFCs) and perfluorocarbons (PFCs) in many applications. Its unique properties (see **Table 1**) include a similar boiling point, viscosity and a lower surface tension, compared to CFC-113.

This Technical Information Sheet summarizes product properties, application and use, safety, health, environmental and regulatory information. Users should also consult the Safety Data Sheet (SDS) for additional information.

Table 1: Physical Properties

Property	XH
Boiling Point, °C (°F)	53 (127)
Kb Value	12
Liquid Density	1.54
Vapor Pressure, mmHg (psia)	3.9
Surface Tension, N/rm	0.0144
Freezing Point, °C (°F)	-80 (-112)
Heat of Vaporization (at boiling point), cal/g	35
Heat Capacity, cal/g°C (Btu/lb°F)	0.29
Viscosity, cPs	0.64
Flash Point, °C (°F)	None

Applications

This formula is ideally suited for use in both vapor degreasing equipment and in “cold cleaning” applications such as hand-wiping applications. When compared to “neat” HFC-43-10 or HFE solvents, this fluid has an expanded range of solvency for light hydrocarbon soils, making it particularly effective in many precision cleaning applications. It also is a very effective rinse for insoluble particulates.

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 losses. For more information about cleaning equipment, contact *MicroCare*.

MicroCare XH Specialty Fluid has a relatively narrow range of cleaning capabilities. The typical soils readily removed from parts in a normal vapor degreasing cycle include very light oils and particulate. The primary reason to select *MicroCare* XH Specialty Fluid is for speedy, mild cleaning of delicate substrates.

Environmental

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. It has an Ozone Depletion Potential (ODP) of zero. It is an effective alternative to some hydrofluorocarbons (HCFCs) and perfluorocarbons (PFCs) in many critical light-duty degreasing applications where high-value parts are being prepared for demanding applications.

All of the ingredients of *MicroCare* XH Specialty Fluid are listed in the USA TSCA, and EU ELINICS. None of the ingredients in this formula are classified as Hazardous Air Pollutants (HAP) and thus not subject to NESHAP regulation. It is also not included in SARA Title III Section 313 list of toxic chemicals, and is not subject to SARA Title III (EPCRA) reporting requirements.

Plastic and Elastomer Compatibility

MicroCare XH Specialty Fluid is compatible with most of the polymerics and elastomers commonly encountered in precision parts. However, PTFE, ETFE, certain acrylics and urethanes should be tested for compatibility. Avoid highly basic materials (pH>10).

Table 2: Plastic and Elastomer Compatibility

Immersion: 15 Minutes

Compatible					
Polyethylene	Polyphenylene Oxide	Natural, Nitril, and Butyl Rubber	Polyester, PET, and PBT	PVDF	Thiokol ST
Polypropylene	Polyimides	Acetal	Nylon	ABS	Thiokol FA
Polystyrene	Polycarbonate	Epoxy	Phenolic	Neoprene	SBR
Polyarylate	Polyetherketones	Ionomer	PVC, CPVC	EPDM	Polyester
Further Testing Recommended					
PTFE, EFTE	Polyphenylene Sulfide	Cellulosic	Fluoroelastomers	Urethane	

Metals and Other Compatibility

MicroCare XH Specialty Fluid is compatible with aluminum, copper, iron, with and without oil present. Contact with highly basic process materials, pH 10 or greater, is not recommended.

Safety/Exposure Limits

Data from acute toxicity studies has demonstrated that *MicroCare* XH Specialty Fluid has low toxicity. It is a slight skin and eye irritant and has low inhalation toxicity. The listing in **Table 3** details the applicable exposure limits for the component materials of *MicroCare* XH Specialty Fluid.

The AEL and TLV exposure 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 3: Exposure Limits

Component	Limit	ppm	Type
HFC-43-10	AEL ¹	200 400	8- and 12-hr TWA Ceiling ²
Heptane	TLV ³	400	8-hr TWA

¹ AEL (Acceptable Exposure Limit) is an airborne inhalation exposure limit that specifies time-weighted average concentrations to which nearly all workers may be repeatedly exposed without adverse effects.

² A ceiling limit is the concentration that should not be exceeded during any part of the working day. The ceiling limit for individual components applies to the blend product as well.

³ TLV (Threshold Limit Value) is an air-borne 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.

Safety/Flammability

MicroCare XH Specialty Fluid exhibits no flash point per Tag Closed Cup (TCC, ASTM-D56) and Pensky-Martins Closed Cup (ASTM-D93). It is not classified as a flammable liquid by NFPA or DOT. This product does not have flammable limits in air.

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.

Recovery

This product has azeotropic 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.

Storage/Handling

MicroCare XH Specialty Fluid 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 solvent is stored below -10°C (14°F) mix the product gently 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 *MicroCare* for additional assistance.






Specifications

Composition and specifications are detailed below. All ingredients are listed in the TSCA inventory.

Table 4: MicroCare XH Specifications

HFC-43-10, wt%	60-100%
Heptane, wt%	1-5%
Nonvolatile Residue, ppm wt	100 max.
Moisture, ppm wt	200 max.

Packaging and Availability

Part Number	Package		Weight	Size
MCC-XHGL	Glass Liter		2.5 lb (1.13 kg)	1 Liter
MCC-XHG	Steel Gallon		10 lb (4.54 kg)	1 Gal (3.79 L)
MCC-XHGG	Glass Gallon		10 lb (4.54 kg)	1 Gal (3.79 L)
MCC-XHP	Steel Pail		55 lb (24.95 kg)	5 Gal (18.93 L)
MCC-XHD	Steel Drum		500 lb (226.8 kg)	55 Gal (208.2 L)

Note: Products sold by weight, not volume.

Discover Perfectly Clean www.MicroCare.com

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