



FluoSolv™ CX-500

Technical Information

Precision Light Duty Vapor Degreasing

Introduction

FluoSolv™ CX-500 is a proprietary blend of nonflammable fluorinated solvents (HFEs, HFC etc) and trans-1,2-dichloroethylene (t-DCE). It is intended for precision degreasing applications for removal of particulates, fingerprints and light oils.

FluoSolv™ CX-500 is a drop-in replacement for Vertrel® MCA and similar vapor degreasing solvents.

FluoSolv™ CX-500 solvent leverages the chemical solvency of the fluid as well as its physical properties such as high density, low surface tension and low viscosity for optimal performance. Efficient cleaning requires the solvent to flow extremely close to the surface of the part to dissolve the contaminant or physically lift insoluble particulate contaminants away from the surface to be cleaned.

User Benefits

NuGenTec FluoSolv™ CX-500 is ideally balanced to deliver performance, worker safety and desirable environmental properties.

- Non-ozone depleting chemical (ODC)
- Drop-in replacement for Vertrel MCA & AK-225
- Low global warming potential (GWP)
- Low toxicity; high allowable exposure limit (AEL);
- Non-Flammable; Non-Hazardous
- Chemically stable; will not go acid

Material Compatibility

FluoSolv™ CX-500 is compatible with all metals, ceramic and other non-conducting materials. Most elastomeric materials are compatible except fluoroelastomers such as Viton & Kalrez which tend to swell. It is recommended that all materials be tested prior to use. See Table 1.

Table 1: Material Compatibility

	Compatible	Additional Testing Required
Metals	Aluminum, Copper, S/S Titanium, Brass, Tungsten	-
Elastomers	Neoprene, Butyl Rubber, EPDM, Kynar (PVDF)	Viton A & B, Kalrez**
Plastics	Acrylic*, HDPE, PTFE, Nylon, PVC, Epoxy, Phenolic, ABS, Polycarbonate*	

** Viton & Kalrez are fluoroelastomers that tend to swell when exposed to fluorinated fluids; dimensional changes are reversible

* Acrylics & Polycarbonates in stressed conditions are more susceptible to solvent attack at elevated temperatures.

Table 2: Physical Properties

Property	NuGenTec FluoSolv™ CX-500	Asahi AK-225	DuPont Vertrel® MCA	Honeywell Solstice®	nPB
Boiling Point °C [°F]	39[102]	54 [129]	39 [102]	19 [66]	71[160]
Density at 25°C (77°F) kg/liter [lb/gal]	1.23 [10.2]	1.55 [12.9]	1.41 [11.7]	1.27 [10.6]	1.35 [11.26]
Surface Tension at 25°C (77°F) dyne/cm	17.8	16.2	21.2	12.7	25.9
Viscosity at 25°C (77°F), cPs	0.46	0.59	0.59	0.53	0.49
Vapor Pressure at 25°C (77°F) kPa	69	38.5	62	152	20.3
Heat of Vaporization @bp cal/g	50.3	35	67.3	45.6	58.8
Global Warming Potential	<560	370	806	1	n/a
Ozone Depleting Chemical	No	Yes	No	No	No
Volatile Organic Compounds (VOC) g/l	423	0	536	0	1,350
Allowable Exposure Limit (AEL) ppm	775	100	200	800	<10
Worker Exposure Ceiling (ppm)	No	No	400 ^a	No	10
KB Value	45	31	50	25	125

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a: Has a ceiling of 400 ppm due to its acute toxicity. None of the other solvents have any stipulated ceiling on AEL



Worker Safety

Data from acute toxicity studies of various ingredients has demonstrated that FluoSolv™ CX-500 blend has low toxicity. It has a calculated AEL (Acceptable Exposure Limit) of 775 ppm based on its individual components. None of the ingredients in FluoSolv™ CX-500 have any chronic or acute toxicity associated with them which makes it a worker friendly solvent.

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

NuGenTec FluoSolv™ CX-500 exhibits no closed cup or open cup flash point and is not classified as a flammable liquid per established definitions by NFPA or DOT, however being volatile, vapors may become flammable in air. Flash point data and vapor flammability limits in air are shown in Table 3 below .

Table 3: Flammability

Test Method FluoSolv™ CX-500		
Flash Point (CC)	ASTM D93	None
Flash Point (OC)	ASTM D1310	None
Flammability in Air	ASTM E681	
Lower Explosivity		5.4 vol%
Upper Explosivity		9.4 vol%

Storage

FluoSolv™ CX-500 is thermally & chemically a very stable solvent. It is non-reactive, has low water solubility and will not oxidize or degrade when exposed to air. It is not affected by any sunlight or other sources of UV radiation. Common industrial practice should be implemented for storage; keep away from human food source and extreme temperature conditions. Freezing temperatures will cause the drums to compress and hot conditions will balloon the drum. The product in any case is perfectly usable.

Solvent Recycling

FluoSolv™ CX-500 is a stable azeotropic blend easy to reclaim and reuse by simple distillation process. Commercially available modular recycling units can easily be added to realize sizable savings in solvent usage. Solvent recovery yields are typically in the range of 80 to 95%.

Please contact the FluoSolv™ Technical Services group for information.

Product Specifications

FluoSolv™ CX-500 Composition (Typical)

Fluorinated Fluid Mixture	> 60 wt%
Trans-dichloroethylene	< 40 wt%
Water	< 100 ppm
Non-volatile residue	<50 ppm (drums) <200 ppm (pails)
Appearance	Clear, colorless

Packaging & Availability

FluoSolv™ CX-500 is available in three package sizes

- 55-gal lined metal drums (net wt. 550 lbs)
- 5-gal lined pails (net wt. 55 lbs)
- 1 gal HDPE bottle (net wt. 11 lbs)

Note: Drum & Pail have phenolic liner

For orders, call 800-409-3142 within the US or 517-775-6596 outside the US.

Email: fluosolv@nugentec.com

Lead times are 1-2 weeks after receipt of order.