American Polywater's

Technical Bulletin

FD™

Electrical Contact Cleaner

A Fast-Drying Cleaner for General Industrial and Maintenance Use

Description

FD™ Electrical Contact Cleaner is a fast drying, multi-purpose industrial and maintenance cleaner. It replaces ozone-depleting CFC's, trichloroethane, HCFC's, perchloroethylene and other carcinogenic chlorinated solvents. FD™ Electrical Contact Cleaner effectively dissolves industrial grimes, greases, lubrication fluids, silicone, tars, adhesives, and fluxes.

FD™ Electrical Contact Cleaner evaporates quickly without a residue. It is suitable for use in electrical maintenance as a replacement for 1,1,1-trichloroethane. Transformer oils, corrosion inhibitor compounds, silicone grease, semi-conducting paints, and many other kinds of electrical grime clean up quickly with Type FD™ Cleaner.

Typical Physical Properties

Dielectric Strength (ASTM D877)	36 KV
Relative Evaporation Rate	Fast
Residue (ASTM D 2369)	< 100 ppm
Flashpoint (ASTM D 56)	~ 20°F/-5°C
Initial Boiling Point	141°F/60°C
Specific Gravity	0.69
Percent Aromatics	< 0.1%
Propellant (aerosol only)	CO_2
Cleaning Strength	Excellent

Advantages

- Multiple packages to fit different end uses
- Fast evaporating
- Good general solvency power
- One cleaner for many needs
- Contains no CFC's or HCFC's
- Contains no chlorinated solvents
- Harmless to most plastics
- Non-conductive, non-corrosive, non-staining

FD™ Electrical Contact Cleaner aerosol (cat. # FD-9) has a variable spray head (low, medium, high) for better spray control.

Usage Directions/Performance

FD™ Electrical Contact Cleaner is suitable for many types of cleaning and degreasing, including contact cleaning and electrical maintenance cleaning. It can be used as a spray, wipe, or solvent rinse. FD™ Cleaner is effective at room temperature. It does not freeze and can be used in cold weather applications. FD™ Electrical Contact Cleaner is authorized by the USDA for use in federally inspected meat and poultry plants.

FD™ Cleaner has good solvency power. Cleaning time and effectiveness will vary based on the contaminant and cleaning method. Wiping or agitation speeds the cleaning. Experiment with your particular contaminant and conditions.

A comparison of FD™ Cleaner to other solvent types is charted below. A stainless steel surface is coated with 50 mils of contaminating compound. The surface is immersed and lightly agitated in FD™ Cleaner. The time at which the contaminant has dissolved is noted.

Silicone Electrical Insulating Compound	
Cleaner	**Cleaning Time**
FD™ Electrical Contact Cleaner	<2 Minutes
Odorless Mineral Spirits	5 Minutes
Isopropyl Alcohol	>5 Minutes

Hydrocarbon Lubricating Grease	
Cleaner	**Cleaning Time**
FD™ Electrical Contact Cleaner	<3 Minutes
Odorless Mineral Spirits	>5 Minutes
Isopropyl Alcohol	>>5 Minutes

Cable Filling Grease (PE/PJ)	
Cleaner	**Cleaning Time**
FD™ Electrical Contact Cleaner	5 Minutes
Odorless Mineral Spirits	>5 Minutes
Isopropyl Alcohol	>>5 Minutes

Oxide Inhibiting Compound	
Cleaner	**Cleaning Time**
Type FD™ Cleaner	<1 Minutes
Odorless Mineral Spirits	<2 Minutes
Isopropyl Alcohol	>>5 Minutes

FD™ Electrical Contact Cleaner contains no surfactants and leaves no residue once dried. For precision cleaning (residue free use), prevent recontamination with existing grime by finishing with a fresh wipe, spraying until the solvent runs clear, or rinsing in a fresh bath of FD™ Cleaner.

FD™ Electrical Contact Cleaner is fast evaporating and does not require forced air to dry. In areas where solvent has pooled, the part may be wiped with an absorbent, lint-free towel.

Evaporation Rate

FD™ Electrical Contact Cleaner:	40 mg/min.
111 Trichloroethane:	50 mg/min.
Perchloroethylene:	20 mg/min.
Isopropyl Alcohol:	10 mg/min.
Odorless Mineral Spirits:	.3 mg/min.

Compatibility

FD™ Electrical Contact Cleaner will not corrode or stain metal parts. It does not tarnish or corrode copper per ASTM D130 and D1729.

FD™ Electrical Contact Cleaner is compatible with most plastics and elastomers. Tables I and II show the effect of FD™ Cleaner on various plastics and rubbers.

Testing, shown in charts I and II, is based on a soak test described in ASTM D543. FD™ Cleaner may temporarily swell some rubber compounds. These rubbers should return to their original state after the cleaner has evaporated. Immersion will affect sensitive materials more than incidental contact of a spray or wipe. It is recommended that all plastic parts, gaskets, seals and O-rings be tested for specific use and exposure method.

FD™ Solvent Compatibility with Plastics and Elastomers

TABLE I

PLASTICS	AGING 72 HOURS AT 50°C		
	% WEIGHT CHANGE	% THICKNESS CHANGE	APPEARANCE
ABS	+0.81	0	NC
Acrylic	+0.06	+0.15	NC
CPE Thermoplastic	+6.49	0	NC
CPE Thermoset	-6.51	0	NC
Delrin®	+0.24	0	NC
Epoxy	+0.08	0	NC
Nylon 101	+0.70	+0.27	NC
Polycarbonate	+0.18	0	NC
Phenolic	+6.99	+9.00	NC
Polyethylene	+12.46	+3.78	NC
Polystyrene	+31.49	+33.12	SF
PVC	-0.03	0	NC
Teflon®	+0.07	0	NC
Tygon®	-0.17	+6.62	NC
Ultem® 1000	-0.08	+0.27	NC
Valox® 420	+0.10	+1.12	NC

TABLE II

ELASTOMERS	AGING 72 HOURS AT 50°C		
	% WEIGHT CHANGE	% THICKNESS CHANGE	APPEARANCE
EPDM	+100.88	+37.15	S
Neoprene	+2.36	+2.72	NC
Nitrile	+2.00	+5.26	NC
SBR	+16.96	+31.53	SS
Silicone	+65.97	+47.50	S
Viton®	+1.98	+4.43	NC

KEY:
NC = NO CHANGE
S = SWELLING
SS = SLIGHT SWELLING
SF = SOFTENING

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Delrin®, Teflon®, and Viton® are trademarks of Du Pont
Ultem® 1000 and Valox® 420 are trademarks of G.E. Plastics
Tygon® is a trademark of Norton Performance Plastics

Safety

FD™ Electrical Contact Cleaner has a low level of toxicity. As with any solvent, ventilation should be sufficient to keep vapors at safe levels. Avoid eye contact and excessive skin contact. Wash hands with soap and water after using.

FD™ Electrical Contact Cleaner is an extremely flammable liquid. It should not be used on energized equipment. FD™ Electrical Contact Cleaner should not be used for high temperature cleaning or exposed to pilot lights, flames or heated surfaces. Good industrial hygiene practice and appropriate precautions should be employed during use. See MSDS for specific details.

Storage

FD™ Electrical Contact Cleaner is classified as flammable. Keep containers cool, dry and away from sources of ignition and oxidizing materials. Do not expose aerosol cans to direct sunlight or temperatures above 120°F. Do not puncture or incinerate aerosol cans.

Package Options

Catalog No.	Description
FD-9	9-wt. oz. aerosol with adjustable nozzle (16 oz can) (12/cs)
FD-16LF	16-fl. oz. bottle with flip top (12/ cs)
FD-35LF	1-quart bottle with flip top (12/cs)
ST-R	Trigger sprayer fits pt. & qt. Bottles (12/cs)
FD-128	1-gallon can (4/cs)
FD-640	5-gallon pail (1 ea).
FD-Drum	55-gallon drum (1 ea)

LIT-FDTECHB/4-03/C1000(8/04)

Makers of Polywater® and Dyna-Blue® Cable Lubricants and Pull-Planner™ 2000 Software

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