

Type HP™ Multi-Purpose Cleaner

American
Polywater
Corporation

TECHNICAL DATA SHEET

Description:

Type HP™ Cleaner effectively cleans semi-conducting cable shield, corrosion inhibiting compound, silicone greases, filling gels, transformer oils and many other contaminants found in electrical construction and maintenance. It evaporates with no residue. Type HP™ is non-conductive.

Type HP™ Cleaner replaces ozone-depleting CFC's, trichloroethane and other carcinogenic chlorinated solvents. Type HP™ Cleaner lasts longer than fast evaporating solvents and is compatible with most materials and plastics, including polycarbonate.

Type HP™ Cleaner is available in multiple package options. Bulk Type HP™ Cleaner is an excellent choice for soaking or rinsing parts. Pre-saturated towels limit solvent exposure and eliminate spill hazard. Depending on end use, Type HP™ Cleaner has the optimal package available.

Performance Properties:

Type HP™ Cleaner meets IEEE 1493 performance criteria¹. It effectively cleans semi-conducting cable shield. A towel saturated with cleaner quickly removes the compound and becomes visibly black.

<u>Property</u>	<u>Result</u>
Cleaning Effectiveness	Excellent
KB Value	33
Hildebrand Solubility Parameter	7.5
Dielectric Strength 100 mil gap (ASTM D877):	>40 KV
Water Content (ASTM D1533B)	< 50 ppm
Evaporation Rate	Medium
Residue (ASTM D2369)	<100 ppm

¹ Tested using methods from IEEE 1493, "Guide for the Evaluation of Solvents Used for Cleaning Electrical Cables and Accessories."



Product Benefits:

- Excellent Solvency
- No Residue
- Non-Conductive
- Contains No Chlorinated Solvents
- Compatible with Most Plastics and Rubbers
- Multiple Package Options

End Use:

- Transformers
- Switch Gear
- Motor Control Devices
- Fusible Disconnecting Devices
- Wind Turbine Nacelles
- Relays
- Generators
- Motors
- Circuit Boards
- Rheostats
- Tools

Physical Properties:

Type HP™ Cleaner is a high purity solvent with low aromatic content.

<u>Property</u>	<u>Result</u>
Flashpoint (ASTM D93)	>140°F (60°C)
Initial Boiling Point	365°F (185°C)
Specific Gravity	0.79
Percent Aromatics	< 1%

Cleaning Properties:

Type HP™ Cleaner dissolves a broad range of contaminants. Contaminant is added to 20 grams cleaner at ambient temperature. The quantity dissolved is recorded.

<u>Contaminant</u>	<u>Amount Dissolved</u>
PCB (Aroclor® 1260)	10 grams
Cutting oil (Rigid Nu-Clear, sulphurized oil)	10 grams
Silicone grease (Dow Corning 4 Compound)	2 grams
Animal oil (Lanolin-Tech Grade)	2 grams

Usage Directions:

Type HP™ Cleaner is suitable for many types of cleaning and degreasing and is effective at room temperature. It does not freeze and can be used in cold weather applications.

Cleaning time and effectiveness will vary based on the contaminant and cleaning method. Wiping or agitation cleans faster than just soaking. Experiment with your particular contaminant and conditions.

Type HP™ Cleaner is residue-free. For precision cleaning, a final rinse of fresh cleaner should be used. Finish with a fresh wipe, spray until the solvent runs clear, or rinse in a fresh bath of Type HP™ cleaner.

For faster drying, air or centrifugal dryers can be used to accelerate evaporation. Wiping the part with an absorbent, lint-free towel (Cat.# DT-69) will reduce drying time considerably.

Drying Time Comparisons:

No Drying:	60-90 Mins.	Cool Air:	3-5 Mins.
Drying Wipe:	1-2 Mins.	Hot Air:	2-3 Mins.

Safety:

Type HP™ Cleaner has a low level of toxicity and does not contain any listed carcinogens. It is combustible and should not be exposed to fire or flame. Good industrial hygiene practice and appropriate precautions should be employed during use. See SDS for specific details.

Pel Pac System

Type HP™ Cleaner presaturated towelettes are a convenient package with multiple safety benefits.

Control

Presaturated wipes minimize solvent exposure on sensitive electrical parts. Directly spraying or immersing the part allows the solvent to puddle into small openings. Wipe cleaning will also ensure that the solvent evaporates more quickly.

Safety

The presaturated towelette package eliminates spill hazard and limits solvent vapor exposure. Wipes contain a carefully measured quantity of solvent and are an excellent way to control vapor. Type HP™ Cleaner presaturated towelettes are a great choice for underground or confined space applications.

Convenience

Each Pel-Pac package utilizes non-linting, non-tearing towels. Clean wipes are always available, eliminating recontamination of parts with dirty rags. Custom kits may include extra dry towels or abrasive cloth as needed.



Convenient Wet/Dry Tandem Pack (HP-P158ID) controls solvent exposure.

Environmental Impact:

Type HP™ Cleaner is a safer alternative to chlorinated solvents.

<u>Property</u>	<u>Result</u>
VOC Content	790 grams/liter
Global Warming Potential	Does not contain global warming compounds
Ozone Depletion Potential	None
CFC, HCFC, HFC Content:	None
RCRA	Not regulated as hazardous waste
CERCLA/SARA Status	Not regulated as a hazardous substance

Compatibility:

Type HP™ Cleaner is compatible with most common plastics and rubbers. It meets standard electrical utility test requirements based on IEEE 1493.

Plastic Materials - XLPE

XLPE jacket material immersed in Type HP™ Cleaner retains tensile and elongation characteristics and shows minimal weight change¹.

Rubber Materials – EPDM and Silicone Rubber

Platen samples of EPDM and Silicone Rubber immersed in Type HP™ Cleaner retain tensile and elongation characteristics and show minimal weight change¹.

Volume Resistivity of Cable Insulation Shield

Type 0691 XLPE immersed in Type HP™ Cleaner shows acceptable volume resistivity values¹. After exposure to the cleaner, volume resistivity measurements return to control levels.

Corrosivity:

Type HP™ Cleaner will not corrode or stain metal parts. It does not tarnish or corrode copper².

¹ Tested using methods from IEEE 1493, "Guide for the Evaluation of Solvents Used for Cleaning Electrical Cables and Accessories."

² Testing based on ASTM D130, "Standard Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test."

Soak Testing:

Materials are immersed in Type HP™ Cleaner for 72 hours at 50°C (122°F). Some rubbers will swell, but should return to their original state once the cleaner evaporates. Wipe cleaning minimizes solvent exposure.

<u>Plastics</u>	<u>% Weight</u>	
	<u>Change</u>	<u>Appearance</u>
ABS	+0.04	NC
Acrylic	-0.01	NC
Delrin®	+0.03	NC
Epoxy	0.00	NC
Nylon 66	-0.02	NC
Nylon 101	+0.07	NC
Polycarbonate	+0.04	NC
Phenolic	-0.05	NC
PPO	+0.02	NC
PVC	+0.01	NC
Teflon®	+0.03	NC
Tygon®	-0.25	NC
Ultem® 1000	-0.01	NC
Valox® 420	0.00	NC

<u>Elastomers</u>	<u>% Weight</u>	
	<u>Change</u>	<u>Appearance</u>
Neoprene®	+9.31	SS
Nitrile	-2.01	NC
SBR	+47.34	S
Viton®	+0.07	NC

KEY:

NC = No Change
S = Swelling
ES = Extreme Softening
C = Cracking
SS = Slight Swelling
D = Dissolved

Testing based on ASTM D543, "Standard Test Method for Resistance of Plastics to Chemical Reagents."

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Model Specification:

The statement below may be inserted into a customer specification to help maintain engineering standards and ensure work integrity.

The cleaning solvent shall be at least 80% high purity, dearomatized, aliphatic hydrocarbon enhanced with a cyclic terpene. Aromatic content shall be less than 1%. Water content shall be less than 75 ppm.

The cleaner shall not leave a residue. The cleaner shall not significantly affect the volume resistivity of Union Carbide 0691 XLPE cable insulation shield. The cleaner shall show a voltage withstand of at least 40 kV before breakdown.

The cleaner shall not significantly affect the tensile and elongation properties of XLPE, silicone rubber, and EPDM rubber when tested to guidelines proposed in IEEE P1493. When wiped over an XLPE (Union Carbide Type 0691) insulation shield, a clean towel wetted with the cleaner shall become visibly "black" with two wipes over 2-inches of cable length with light hand pressure.

The cleaner shall not be a carcinogen or listed by CERCLA as a hazardous waste. It shall not be on the EPA Phase I or Phase II list of banned or phased-out chlorofluorocarbons.

Order Information:

<u>Cat #</u>	<u>Package Description</u>
HP-1	Single, saturated towelette 144/case
HP-P158ID	Wet/dry wipe Tandem Pack™ 144/case
HP-D72	72-Count Wipe Canister 6/case
HPY-12*	16-oz aerosol can 12/case
HP-16LF	1-pint bottle with flip top (475 ml) 12/case
HP-35LF	1-quart bottle with flip top (.95 Liter) 12/case
ST-R	Trigger sprayer, fits pint and quart bottles 12/case
HP-128	1-gallon bottle (3.8 Liter) 4/case
HP-640	5-gallon can (18.0 Liter)
HP-DRUM	55-gallon drum
HP-P63	Tandem Pack™ Cable Prep Kit contains 6 HP-P158ID wet/dry wipes 3 strips 120-grit non-conductive aluminum oxide sanding cloth 1 instruction card 12/case
HP-T369	Pel-Pac® Kit, 3 saturated towels in sturdy tin 24/case
HP-T369/S	Pel-Pac® Kit with sandpaper 24/case
HP-T369/S-D	Pel-Pac® Kit with sandpaper and dry towel 24/case
DT-1212	Non-linting, 12" X 12" dry towels 100/box
DT-69	Non-linting, 6" X 9" dry towels 200/box

*Government NSN # 6850-01-387-4567 for HPY-12

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Important Notice: The statements here are made in good faith based on tests and observations we believe to be reliable. However, the completeness and accuracy of the information is not guaranteed. Before using, the end-user should conduct whatever evaluations are necessary to determine that the product is suitable for the intended use.

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

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