Type TR™
Multi-Purpose Cleaner

American Polywater® Corporation

TECHNICAL DATA SHEET

Description:

Type TR™ Cleaner is fast evaporating. It 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. Type TR™ Cleaner leaves no residue and is essentially non-conductive.

Type TR™ Cleaner replaces ozone-depleting CFC's, trichloroethane and other carcinogenic chlorinated solvents. Type TR™ Cleaner is compatible with most materials.

Type TR™ Cleaner is available in convenient pre-saturated towelettes. Pre-saturated wipes are a great option for field use. They limit solvent exposure and eliminate spill hazard.

Performance Properties:

Type TR™ Cleaner meets IEEE 1493 performance criteria[1]. It effectively cleans semi-conducting cable shield. A towel saturated with cleaner quickly removes the compound and becomes visibly black.

Property	Result
Cleaning Effectiveness	Excellent
KB Value	125
Hildebrand Solubility Parameter	18.2
Dielectric Strength, 100 mil gap (ASTM D877):	16 KV
Evaporation Rate	Fast
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:

- Fast Evaporating
- Excellent Solvency
- Contains No Chlorinated Solvents
- No Residue
- Non-Conductive

End Use:

- Cable Splice Preparation
- Elbow connectors
- Transformers
- Switch Gear
- Motor Control Devices
- Fusible Disconnecting Devices
- Relays
- Generators

Physical Properties:

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

Property	Result
Initial Boiling Point	158°F (70°C)
Specific Gravity	1.31

Cleaning Properties:

Type TR™ Cleaner is an excellent cleaner with great solvency on a variety of contaminants. It quickly removes XLPE insulation shield (Union Carbide Type 0691). A clean towel wetted with Type TR™ Cleaner becomes visibly black in just two wipes over 2-inches of cable length with light pressure.

Usage Directions:

To prepare cable for splice, buff the insulation with the abrasive strip to remove any conductive material remaining on the insulation. The surface should be smooth with no particle contaminants.

Clean the cable insulation with the Type TR™ Cleaning Wipe. Wipe away from the conductor towards the insulation shield. Turn the solvent towelette after each wipe, using a fresh portion of the towel each time. It is important not to wipe material from the insulation onto the insulation shield. Do not wipe the insulation shield. TR™ Cleaning Wipes can also be used to clean the cable jacket for improved adhesion of mastics and tapes used in splicing and termination.

For general electrical cleaning, follow manufacturers' instruction. TR™ Cleaning Wipes are fast evaporating. Do not open until ready to use.

Safety:

Type TR™ Cleaner does not contain any listed carcinogens. Type TR™ is flammable. Keep away from fire and flame. Good industrial hygiene practice and appropriate precautions should be employed during use. Use with adequate ventilation and avoid contact with skin. Use of protective gloves is required (Silver Shield or viton for extended use and nitrile, neoprene or butyl gloves for short-term exposure). See SDS for specific details.

Pel Pac System

Type TR™ 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.

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 abrasive cloth or gloves as needed.

Convenient pre-saturated wipe (TR-1L or TR-1) controls solvent exposure.

Environmental Impact:

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

Property	Result
VOC Content	1330 grams/liter
Global Warming Potential	Does not contain global warming compounds
Ozone Depletion Potential	Negligible
CFC, HCFC, HFC Content:	None
RCRA	Not regulated as hazardous waste
CERCLA/SARA Status	Not regulated as a hazardous substance
SNAP Status	Approved

Compatibility:

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

Plastic Materials - XLPE
XLPE jacket material immersed in Type TR™ Cleaner retains tensile and elongation characteristics and shows minimal weight change[1].

Rubber Materials – EPDM and Silicone Rubber
Platen samples of EPDM and Silicone Rubber immersed in Type TR™ Cleaner retain tensile and elongation characteristics and show minimal weight change[1].

Volume Resistivity of Cable Insulation Shield
Type 0691 XLPE immersed in Type TR™ Cleaner shows acceptable volume resistivity values[1]. After exposure to the cleaner, volume resistivity measurements return to control levels.

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

Soak Testing:

Type TR™ Cleaner is compatible with many materials. It is an aggressive cleaner that will dissolve or swell certain materials. The fast evaporation profile limits exposure.

Metals	Corrosion Test
Carbon Steel	Pass
Copper	Pass
Stainless Steel	Pass
Aluminum	Pass

Metals are degreased and scrubbed to remove surface oxides. Metals are then immersed in Type TR™ Cleaner for 2 months at 48.9°C (120°F). Metals are examined for any signs of corrosion, pitting, or discoloration for failure.

Plastics	Exposure Result
ABS	Incompatible
Acrylic	Incompatible
Delrin®	Acceptable
Epoxy	Acceptable
Nylon	Acceptable
Polycarbonate	Incompatible
Polyethylene	Acceptable
Polystyrene	Incompatible
PVC	Acceptable
Teflon®	Acceptable
Ultem® 1000	Acceptable

Plastics are immersed in Type TR™ Cleaner for 24 hours at 48.9°C (120°F). Plastics are examined for any sign of dissolving, swelling, or fraying for incompatibility.

Elastomers	% Weight Change
Neoprene®	(11 – 15%) Incompatible
Viton®	(< 5%) Acceptable

Elastomers are immersed in Type TR™ Cleaner and heated to boiling (70°C) for exposure to vapor for 60 minutes. Some rubbers will swell, but should return to their original state once the cleaner evaporates. Wipe cleaning minimizes solvent exposure.

Model Specification:

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

The cleaner shall not leave a residue. The cleaner shall be fast evaporating. It shall evaporate at a rate >2 (n-butyl acetate = 1). 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.

When tested by ASTM D877 (100 mil gap), the cleaner shall show a voltage withstand of at least 15 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. The cleaner shall not significantly affect the volume resistivity of Union Carbide 0691 XLPE cable insulation shield.

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:

Cat #	Package Description
TR-1	Single, saturated towelette (5"X8") 96/case
TR-1L	Single, saturated towelette (8"X12") 144/case
TR-16	16-oz aerosol can 12/case
TR-3PS	Pel-Pac™ Cable Splicing Prep Kit with Sanding Strip 24/case
TR-P63	Cable Preparation Kit includes: 6 TR-1 wipes 3 Strips 120-grit, non-conductive aluminum oxide sanding cloth 1 Instruction card 12/case

Not available in bulk packaging

LIT-TRTECHSPEC/REV000

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

American Polywater® Corporation

11222 60th St. N
Stillwater, MN 55082
U.S.A
1-800-328-9384
1-651-430-2270
http://www.polywater.com (URL) support@polywater.com (e-mail)