Static Dissipative Polyurethane

Specifications

Temperature Range
-40°F to +165°F

Vacuum Rating
To 28" Hg.

Diameter Tolerances
±.005"

Tube Markings
None

Dissipative Values:
per EIA Std 541

Volume Resistivity:
85A: $4x10^{10}$ohms-cm
90A: $9.9x10^{9}$ ohms-cm

Surface Resistivity:
85A: $1x10^{11}$ ohms/sq
90A: $9.9x10^{9}$ ohms/sq

Working Pressure
3:1 Safety Factor

UV Stabilized
90A & 85A

Resin Compliance
85A: FDA

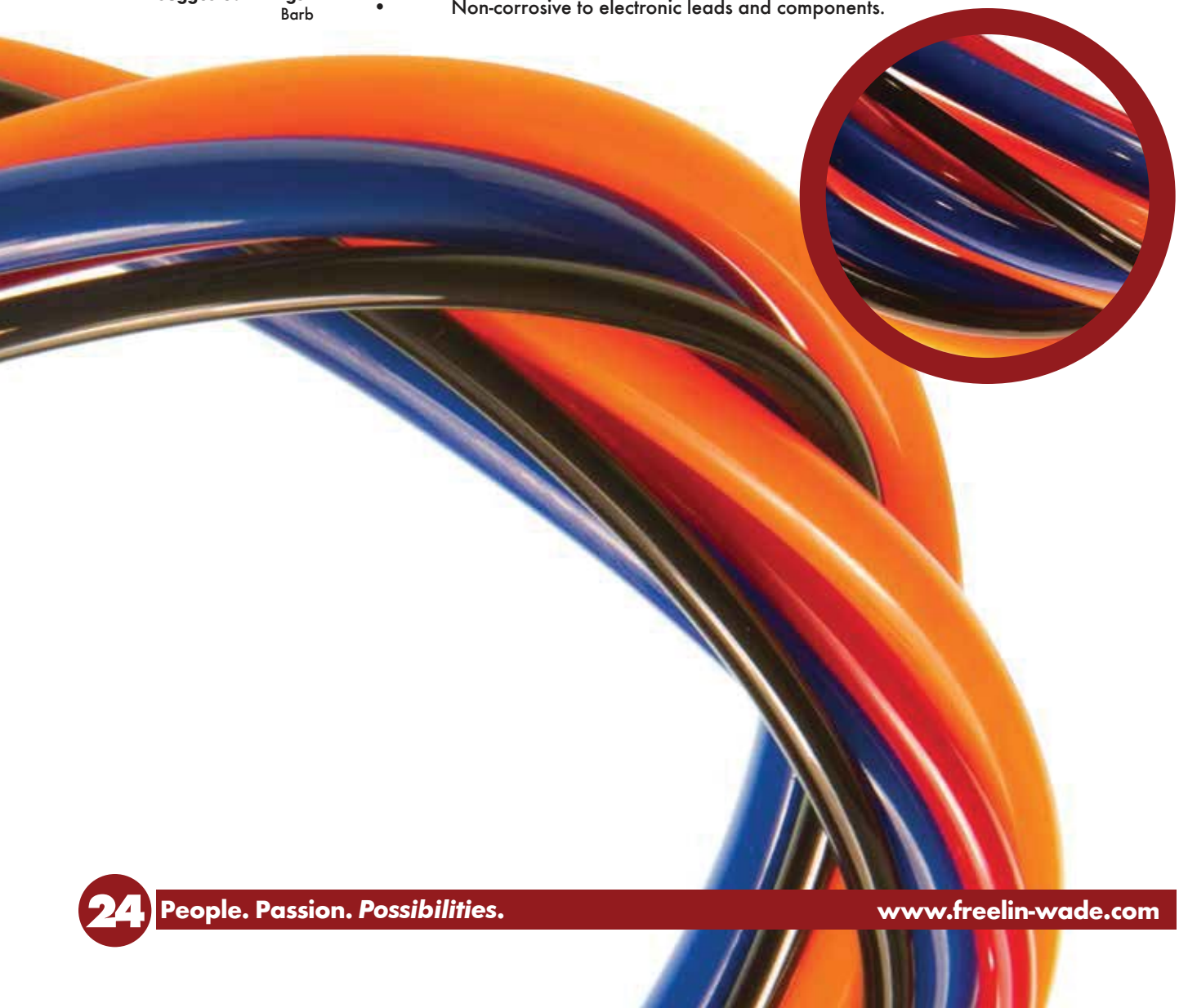
Suggested Fittings
Barb

Static electricity is a stationary charge of electricity resting on an object's surface. With plastic tubing, the charge is usually generated by friction on the exterior or interior of the tubing. The charge is typically localized. This means that a charge may exist on one part of the tube but not the entire tube. The spotty nature of the charge makes it much harder to detect. Furthermore, humans can only sense electrostatic discharge (ESD) greater than 3,500 electrostatic volts. A charge as low as 100 ESD volts can damage certain circuits meaning that electronics can be destroyed by ESD without the person even knowing it. For more information about ESD, please contact Freelin-Wade.

Freelin-Wade's Static Dissipative Polyurethane tubing is available in both a 90A durometer and an 85A durometer tube. It's made from an Ether-based polyurethane that is specially formulated to help control ESD. It should always be used in low humidity environments or when tubing is going to be near circuit boards.

Features

- Dissipates electrostatic charges with no chemical additives.
- Contains no conductive fillers and no particle emission.
- Dissipative values are permanent and cannot be washed away.
- Non-contaminating and non-outgassing.
- Ideal for low humidity environments.
- Non-corrosive to electronic leads and components.



85A Static Dissipative Polyurethane

Part Number & Color Code	Packaging Unit Size	OD	ID	Wall	Standard Colors	Working Pressure 75°F/25°C	Working Pressure 150°F/65°C	lbs./ 100'	Bend Radius	Fitting
1J-413- ___ 1C-413- ___ 1B-413- ___ 1A-413 ___	100' Bag 500' Reel 1000' Reel 2500' Reel	1/8"	1/16"	.031"	01 81	115 PSI	55 PSI	.48	3/16"	B
1J-430- ___ 1C-430- ___ 1B-430- ___ 1A-430- ___	100' Bag 500' Reel 1000' Reel 2500' Reel	5/32"	5/64"	.039"	01 04 07 09 25 27 28 45 46 81	125 PSI	60 PSI	.74	3/8"	B
1J-425- ___ 1B-425- ___ 1A-425- ___	100' Bag 500' Reel 1000' Reel	1/4"	1/8"	.062"	01 81	120 PSI	60 PSI	1.91	1/2"	B
1J-405- ___ 1A-405- ___	100' Bag 500' Reel	3/8"	.245"	.065"	01 81	90 PSI	45 PSI	3.29	3/4"	B

Metric Sizes

Part Number & Color Code	Packaging Unit Size	OD mm	ID mm	Wall mm	Standard Colors	Working Pressure 75°F/25°C	Working Pressure 150°F/65°C	lbs./ 100'	Bend Radius	Fitting
1J-458- ___ 1B-458- ___ 1A-458- ___	100' Bag 500' Reel 1000' Reel	6	4	1	81	70 PSI	35 PSI	1.27	9.5 mm	B
1J-472- ___ 1A-472- ___	100' Bag 500' Reel	9	6	1.5	01 81	80 PSI	40 PSI	2.84	19 mm	B

Variations Available: Coiling • Colors • Cutting • Bonding • Printing • Packaging • Sizes

90A Static Dissipative Polyurethane

Part Number & Color Code	Packaging Unit Size	OD	ID	Wall	Standard Colors	Working Pressure 75°F/25°C	Working Pressure 150°F/65°C	lbs./ 100'	Bend Radius	Fitting
1J-486-90 __ 1C-486-90 __ 1B-486-90 __ 1A-486-90 __	100' Bag 500' Reel 1000' Reel 2500' Reel	5/32"	3/32"	.031"	01 02 05 07 09	105 PSI	50 PSI	.61	3/8"	B
1J-451-90 __ 1B-451-90 __ 1A-451-90 __	100' Bag 500' Reel 1000' Reel	1/4"	.160"	.045"	07	115 PSI	60 PSI	1.46	3/4"	B
1J-452-90 __ 1A-452-90 __	100' Bag 500' Reel	3/8"	.245"	.065"	05	100 PSI	50 PSI	3.18	1"	B

Metric Sizes

Part Number & Color Code	Packaging Unit Size	OD mm	ID mm	Wall mm	Standard Colors	Working Pressure 75°F/25°C	Working Pressure 150°F/65°C	lbs./ 100'	Bend Radius	Fitting
1J-486-90 __ 1A-486-90 __	100' Bag 2500' Reel	4	2.4	.8	01 02 05 07 09	105 PSI	50 PSI	.80	9.5 mm	B
1J-488-90 __ 1B-488-90 __ 1A-488-90 __	100' Bag 500' Reel 1000' Reel	6	4	1	01 07 09 81	90 PSI	45 PSI	1.3	12.7 mm	B
1J-489-90 __ 1A-489-90 __	100' Bag 500' Reel	8	5	1.5	01 07	100 PSI	50 PSI	2.6	19 mm	B
1J-490-90 __ 1A-490-90 __	50' Bag 500' Reel	10	6.5	1.75	05 07	100 PSI	50 PSI	3.9	22.3 mm	B
1J-491-90 __ 1A-491-90 __	50' Bag 250' Reel	12	8	2	01	90 PSI	45 PSI	5.3	28.6 mm	B

Variations Available: Coiling • Colors • Cutting • Bonding • Printing • Packaging • Sizes

Resource Guide—Chemical Resistance Chart

This information was provided to Freelin-Wade by our suppliers and other sources. It is to be used only as a general reference guide to aid in the selection of products in which chemical and material compatibility issues are a factor. This guide is not intended as a complete nor conclusive database. Freelin-Wade does not guarantee these ratings since the resistance of a material can be greatly affected by the temperature, consistency, and presence of other chemicals. Ultimately, the consumer must determine the chemical compatibility of an item based on the conditions in which the product is being used.

Rating Scale

1= Little or no impact
2= Minor effect
3= Moderate effect
4= Severe effect

	PUR	PE	PVC	Nylon	Kynar
Acetic Acid, Glacial	4	2	4	-	1
Acetic Acid, 30%	4	1	4	2	1
Acetone	4	2	4	1	4
Acetylene	1	4	1	1	1
Alkazene	4	-	-	-	-
Aluminum Chloride (aq)	3	2	1	-	1
Aluminum Nitrate (aq)	3	-	2	-	1
Ammonia Anhydrous	4	2	1	-	4
Ammonia Gas (cold)	3	-	3	1	4
Ammonia Gas (hot)	4	-	-	1	4
Ammonium Chloride (aq) 40%	2	1	1	-	1
Ammonium Sulfate (aq)	1	1	1	1	1
Amyl Alcohol	4	2	1	-	1
Amyl Naphthalene	4	-	-	-	-
Animal Fats	1	-	-	-	-
Aqua Regia	4	2	3	-	-
Arsenic Acid	3	2	1	-	1
Asphalt	2	1	1	-	1
ASTM Fuel A	2	-	-	-	-
ASTM Fuel B	3	-	-	-	-
ASTM Fuel C	3	1	4	-	-
Barium Chloride (aq)	1	2	1	1	1
Beer	2	2	1	1	1
Beet Sugar Liquors	4	1	1	-	1
Benzene	3	4	3	1	1
Benzine	2	-	-	-	-
Blast Furnace Gas	4	-	-	-	-
Bleach Solutions	4	1	1	-	1
Borax	1	1	1	-	1
Boric Acid	1	1	1	-	1
Brake Fluid	4	-	-	-	1
Brine	2	-	3	-	1
Bromine Water	4	-	3	4	1
Bunker Oil	2	-	-	-	-
Butane	1	3	3	1	1
Butter	1	-	-	-	-
Butyl Alcohol (Butanol)	3	1	3	1	1
Butylene	4	1	1	-	1
Calcium Chloride (aq)	1	1	3	1	1
Calcium Hydroxide (aq)	2	1	2	-	1
Calcium Nitrate (aq)	1	-	1	1	1
Calcium Sulfide (aq)	1	-	-	-	-
Cane Sugar Liquors	4	-	1	-	1
Carbolic Acid	3	4	3	-	-
Carbon Dioxide	1	2	1	-	1
Carbonic Acid	4	2	1	-	1
Carbon Monoxide	1	2	1	-	1
Carbon Tetrachloride	4	4	4	3	1
Castor Oil	1	1	1	-	1
Chlorine (dry)	4	3	4	4	1
Chlorine (wet)	4	3	-	4	1
Chloroform	4	4	4	3	1
Chlorox	4	-	-	-	-
Chromic Acid 50%	4	1	4	4	1
Citric Acid	1	1	2	1	1
Coal Tar (Creosote)	3	-	-	-	-
Coconut Oil	2	1	1	-	1
Cod Liver Oil	1	1	1	-	-
Coke Oven Gas	4	-	-	-	-
Copper Chloride (aq)	1	2	1	-	1
Copper Cyanide (aq)	1	2	1	-	1
Corn Oil	1	1	2	-	1
Cotton Seed Oil	1	1	2	-	1
Creosol (Methyl Phenol)	4	4	4	4	1
Cychlohexane	1	4	4	1	1
Denatured Alcohol	4	-	-	-	-
Detergent Solution	3	1	1	-	-
Diesel Oil	2	3	1	-	-
Dioxane	4	3	-	-	4
Dowtherm Oil	3	-	-	-	-
Dry Cleaning Fluids	4	-	-	-	-
Ethane	1	-	1	-	-
Ethyl Acrylate	4	-	-	-	1
Ethyl Alcohol (Ethanol)	4	2	3	3	1
Ethyl Benzine	4	-	-	-	-
Ethyl Cellulose	2	-	-	-	-
Ethyl Chloride	4	4	4	-	1
Ethyl Ether	3	4	4	-	1
Ethylene Chloride	4	4	4	-	-
Ethylene Glycol[5] (Anti-Freeze)	2	1	1	1	1
Ethylene Oxide	4	3	3	1	1
Ethylene Trichloride	4	4	-	-	-
Ferric Chloride (aq)	1	2	1	-	1
Ferric Nitrate (aq)	1	2	1	-	1
Ferric Sulfate (aq)	2	1	1	-	1
Fluroine (Liquid)	4	3	4	4	1
Formaldehyde (RT)	4	2	1	1	1
Formic Acid	4	2	1	4	1
Freon 11	4	3	1	-	-
Freon 12	1	1	1	1	-
Freon 22	4	-	1	1	-
Fuel Oil (Bunker 'C')	2	3	1	-	1
Gasoline (100 Octane, High Test)	3	4	3	1	1
Glue	1	1	3	-	1
Glycerin (Glycerol)	1	1	1	1	1
Glycols	4	-	-	1	-
Green Sulfate Liquor	1	-	-	-	-
Hexane	2	4[1]	2[2]	-	1
Hydraulic Oil	1	1-3	1	-	-
Hydrochloric Acid (cold) 37%	4	2	2	4	1
Hydrochloric Acid (hot) 37%	4	-	-	4	1
Hydrofluroic Acid (Conc.) (cold)	4	2	-	-	1
Hydrofluroic Acid (Conc.) (hot)	4	-	-	-	1
Hydrogen Gas	1	1	1	1	1
Isobutyl Alcohol	3	1	-	-	1
Isooctane	2	3	1	-	1
Isopropyl Acetate	4	3	4	-	-
Isopropyl Alcohol (Isopropanol)	3	1	-	1	1
Isopropyl Ether	2	1	2	-	1
Kerosene	1	4	2	1	1

	PUR	PE	PVC	Nylon	Kynar
Lacquers	4	1	4	-	-
Lacquer Solvents	4	1	3	-	-
Lard	1	1	1	-	1
Lavender Oil	4	-	-	-	-
Lead Acetate (aq)	4	1	1	-	1
Linseed Oil	2	3	1	1	1
Liquified Petroleum Gas	1	-	-	1	-
Lubricating Oils	1-2[3]	4	2	1	1
Lye	4	1-4[4]	1-2	-	-
Magnesium Chloride (aq)	1	2	1	1	1
Magnesium Hydroxide (aq)	4	2	1	-	1
Mercury	1	1	1	1	1
Methane	3	-	2	1	1
Methyl Acetate	4	2	4	1	1
Methyl Acrylate	4	-	-	-	1
Methyl Alcohol (Methanol)	4	1	1	1	1
Methyl Butyl Ketone	4	-	1	-	-
Methyl Chloride	4	4	4	1	1
Methylene Chloride	4	4	4	-	1
Methyl Ethyl Ketone	4	2	4	1	4
Methyl Isobutyl Ketone	4	3	4	1	4
Milk	4	1	1	1	1
Mineral Oil	1	3	1	1	1
Motor Oil 20W, 10W40	2	3	2	1	1
Naphtha (Lighter Fluid)	2	4	1	1	1
Naphthalene (Moth Repellent)	2	2	4	1	1
Natural Gas	2	-	1	-	1
Neatsfoot Oil	1	-	-	-	-
Nitric Acid 70%	4	2	-	4	1
Nitric Acid (Dilute) 10%	3	2	1	4	1
Nitroethane	4	-	-	-	1
N-Octane	4	1	-	-	1
Oleic Acid	2	1	3	1	1
Oleum Spirits	3	4	4	-	4
Olive Oil	1	1	-	-	1
Oxygen (cold)	1	-	-	1	1
Oxygen (200-400F)	4	-	-	-	-
Paint Thinner, Duco	4	-	-	-	-
Perchloric Acid	4	1	3	-	1
Perchloroethylene	4	4	3	3	1
Petroleum - Below 250F	2	3	-	-	1
Petroleum - Above 250F	4	-	-	4	-
Phenol (Carbolic Acid)	3	2	3-4	4	1
Phenyl Ethyl Ether	4	-	-	-	-
Phosphoric Acid - 45%	4	1	2	2	1
Pickling Solution	4	-	-	-	-
Picric Acid	2	1	4	3	1
Potassium Acetate (aq)	4	-	-	-	1
Potassium Chloride (aq)	1	2	1	-	1
Potassium Cyanide (aq)	1	2	1	-	1
Potassium Hydroxide (aq)	4	1	1	3	4
Producer Gas	1	1	1	-	-
Propane	1	4	1	1	1
Propyl Alcohol (Propanol)	4	1	1	-	1
Propylene	4	-	2	-	-
Propylene Glycol (Anti-Freeze)	3	1	3	2	1
Propylene Oxide	4	2	-	-	4
Pydraul, 10E, 29 ELT	4	-	-	-	-
Pydraul 30E, 50E, 65E	4	-	-	-	-
Pydraul, 115E	4	-	-	-	-
Pydraul 230E, 312C, 540C	4	-	-	-	-
Rapeseed Oil	2	4	-	-	-
RJ-1 (MIL-F-23338 B)	1	-	-	-	-
RP-1 (MIL-F-25576 C)	1	-	-	-	-
Salt Water	2	1	1	1	1
Sewage	1	-	-	-	1
Silicate Esters	1	-	-	-	-
Silicone Oils	1	1	1	-	1
Silver Nitrate	1	1	1	-	1
Skydrol 500	4	-	-	-	-
Skydrol 700	4	-	-	-	-
Soap Solutions	3	4	1	1	-
Sodium Chloride (aq)	1	1	1	1	-
Sodium Hydroxide (aq)	4	1	1	2	4
Sodium Peroxide (aq)	4	1	2	-	1
Sodium Phosphate (aq)	1	-	-	-	1
Sodium Sulfate (aq)	1	1	1	-	-
Soy Bean Oil	2	1	1	-	1
Stoddard Solvent	1	3	3	-	-
Styrene (Monomer)	4	-	4	1	1
Sucrose Solution	4	2	-	-	-
Sulfuric Acid (Dilute Battery Acid)	3	1	1	-	1
Sulfuric Acid (Conc)	4	2	4	-	1
Sulfuric Acid (20% Oleum)	4	-	4	-	4
Sulfurous Acid	4	2	1	-	-
Tannic Acid	4	1	1	-	1
Tetrochlorethylene	4	2	4	-	-
Toluene (Toluol)	4	3	4	1	1
Transformer Oil	2	-	2	-	-
Transmission Fluid Type A	2	-	-	-	-
Trichloroethane	4	4	3	3	1
Trichloroethylene	4	4	4	3	1
Turbine Oil	1	3	1	1	-
Turpentine	4	4	4	1	1
Varnish	3	3	4	-	1
Vinegar	2	1	1	1	1
Vinyl Chloride	4	4	4	-	1
Water	1	1	1	1	1
Whiskey, Wines	2	1	1	1	1
White Oil	1	-	-	-	-
Wood Oil	3	-	-	-	-
Xylene	4	4	4	1	1
Zinc Acetate (aq)	4	-	-	-	1
Zinc Chloride (aq)	2	1	1	1	1

1 Petroleum Base **2** Synthetic Base =1, Petroleum Base = 3
3 SAE 10, 20, 30, 40, 50 = 1, Petroeum = 2
4 Calcium Hydroxide & Potassium (Hydroxide=1, Sodium Hydroxide=4) **5** See Propylene Glycol **6** See Ethylene Glycol