

## Porous High Density Polyethylene Tubes

High Density Polyethylene (HDPE) Porous Tube is a durable solution for fine pore diffusion of air and other gases. Each tube is designed to fit standard Schedule 40 PVC end fittings and couplings. The omni-directional porous structure is excellent for diffusing, sparging, and aeration applications, emitting a multitude of small, evenly distributed bubbles.

### Applications:

- Municipal and industrial wastewater treatment.
- Aquaculture aeration (growout ponds, hauling trucks, etc.)
- Air agitation of electroplating solutions baths.
- Fermentor sparging for food, beverage, and pharmaceutical industries.
- Desiccant containers
- Air agitation in food processing
- Foaming of cleaning solutions



### Features and Benefits:

- Rigid, lightweight Schedule 40 sized tubes are easy to handle and can be easily fabricated into piping systems with off the shelf components.
- High-density polyethylene tubes have excellent resistance to chemicals and abrasion.
- Omni-directional porous structure, available in fine, medium, and coarse pore sizes, provides uniform distribution of fine bubbles.
- Material complies with the Code of Federal Regulations (USA), Title 21, Section 177.1 520 Item 2.1, for food contact.

MODEL	TUBE SIZE	TUBE O.D.	TUBE I.D.	LENGTH	MATERIAL	AVERAGE PORE SIZE
HPT-050	1/2" Schedule 40	0.830" / 0.860"	0.605" / 0.635"	48"	HDPE	20 – 40 µm
HPT-075	3/4" Schedule 40	1.030" / 1.070"	0.790" / 0.830"	48"	HDPE	20 – 40 µm
HPT-100	1" Schedule 40	1.260" / 1.320"	0.940" / 0.980"	48"	HDPE	20 – 40 µm
HPT-200	2" Schedule 40	2.325" / 2.405"	1.850" / 1.895"	48"	HDPE	20 – 40 µm
HPT-D50	1/2"	1/2"	1/4"	36"	UHMW-PE	20 µm
HPT-D75	3/4"	3/4"	1/2"	36"	UHMW-PE	20 µm

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## Fabrication Techniques:

- **Cutting, Turning, and Drilling**  
Conventional band, table, and hand saws may be utilized as well as lathes and drills.
- **Thread Cutting**  
External or internal threads can be cut using standard metal cutting tools, either on a lathe or by hand. A stronger thread can be achieved by dipping the area to be threaded into PVC pipe cement and allowing it to harden before cutting the threads.
- **Bonding and Sealing**  
Tubes can be bonded to fittings and couplings using hot melt adhesives, PVC plastic pipe cement, epoxy, or similar sealants. These adhesives form a strong mechanical bond by curing on the surface and within the pore structure of the tube.



## Characteristic of HDPE Porous Plastic

Throughout all HDPE porous plastic runs an intricate network of open-celled, onmi-directional pores. These pores, which can be made in average pore sizes down to one micron, give porous plastics their unique combination of filtering capability and structural strength.

Unlike the direct passages in woven synthetic materials and metal screens, the pores in porous plastic join to form many tortuous paths giving porous plastics a dual filtering capability. Not only do they act as surface filters by trapping particles large than their average pore size, they also trap much smaller particulate matter deep in their complex channels for a "depth filter" effect. This tortuous path structure is so efficient that, as a rule of thumb, with an average pore size of 25 microns, offer you approximately the same filtration as many five micron-rated filters.

HDPE can be used in continuous service at temperatures up to 180°F (82°C) and intermittently at 240°F (116°C). If not stressed, it is stable at 212°F (100°C) in continuous service.

HDPE Porous Plastics are naturally hydrophobic, but aqueous solutions can be forced through under pressure. The material is cleanable with HCl (muriatic acid) or chlorine.

Not recommended in presence of strong oxidizing acids, prolonged fire and sunlight and solvents above 176°F (80°C).

# RATING SYSTEM CHART

The following codes are used to rate chemical resistance of the porous High Density Polyethylene (HDPE) tubes with various substances.

**G = Good**  
**F = Fair**  
**P = Poor**  
**N = Not Recommended**  
 (some swelling or degradation will probably occur)

SUBSTANCE AT 21°C (70°F)	HDPE UHMW PE
Acetaldehyde	G
Acetic acid, 10%	G
Acetic Acid, 100% (Glacial)	G
Acetic anhydride	G
Acetone	G
Acide, aromatic	G
Acrylonitrile	G
Aallyl alcohol, 96%	G
Aluminum Chloride	G
Alum	G
Amonia	G
Ammonia, gaseous	G
Ammonium salts	G
Amyl acetate	G
Anisole	F
Antimony trichloride	G
Aqua regia	N
Beer	G
Beeswax	G
Benzaldehyde	G
Benzene	F
Bensenesulphonic acid	G
Benzoic acid	G
Benzol Chloride	F
Borax	G
Boric acid	G
Brine (saturated)	G
Bromine (liquid)	N
Bromochloromethane	N
Butanol	G
Butylacetate	G
Butylene glycol	G
Butyric acid	G
Calcium chloride	G
Calcium hupochlorite	G
Calcium nitrate, 50%	G
Camphor	G
Carbon disulphide	F
Carbon tetrachloride	P
Carbonic acid	G
Castol oil	G
Caustic potash	G
Caustic soda	G
Chloral hydrate	G
Chlorine (liquid)	N
Chlorine gas (dry)	F
Chlorine gas (wet)	F
Chloloracetic acid (mono)	G
Chlorobenzene	F
Chlorethanol	G
Chloroform	P
Chlorosulphonic acid	N
Chromic acid, 80%	G
Citric acid	G

SUBSTANCE AT 21°C (70°F)	HDPE UHMW PE
Clophen A50 and A6	G
Coconut oil	G
Common salt (Aqueous, saturated)	G
Copper salts	G
Corn oil	G
Creosote	G
Cresol	G
Cyclohexane	G
Cyclohexanol	G
Cyclohexnone	G
Dibutyl ether	F
Dibutyl phthalate	G
Dichloroacetic acid, 50%	G
Dichloroacetic acid, 100%	G
Dichloroacetic acid methyl ester	G
Dichlorobenzene-o	F
Dichlorobenzene-p	F
Dichloroethylene	N
Diesel oil	G
Diethyl ether	F
Diisobutyl ketone	G
Dimethylamine	G
Dimethyl formamide	G
Dimethyl sulphoxide	G
Dioxane	G
Emulsifiers	G
Epichlorhydrin	G
Esters, aliphatic	G
Ethanol 96%	G
Ether	F
Ethyl acetate	G
Ethylene chloride (Dichloroethane)	F
Ethylenediaminetetraacetic acid	G
Ethylene glycol	G
Fatty acids (C)	G
Ferric chloride	G
Fluorine	N
Fluosilicic acid	G
Formaldehyde (40% aqueous)	G
Formic acid	G
Frigenr	F
Fruit juices	G
Fruit pulp	G
Fuel oil	G
Furfuryl alcohol	G
Gelatine	G
Glycerine	G
Glycol (concentrated)	G
Glycolic acid, 55%	G
Glycolic acid, 70%	G
Glycolic acid butyl ester	G
Hylothane	F
Hydraulic fluid	G
Hydrazine hydrate	G

SUBSTANCE AT 21°C (70°F)	HDPE UHMW PE
Hydrobromic acid, 50%	G
Hydrochloric acid, all conc.	G
Hydrochloric acid gas (dry and wet)	G
Hydrocyanic acid	G
Hydrofluoric acid, 40%	G
Hydrofluoric acid, 70%	G
Hydrogen peroxide, 30%	G
Hydrogen peroxide, 90%	G
Hydrogene sulphide	G
Hydrosulphine (10%, aqueous)	G
Iodine tincture, DAB 6 (German Phamacopoeia)	G
Isoocatane	G
Isopropanol	G
Isopropyl ether	F
Ketones	G
Lantic acid	G
Linseed oil	G
Liquid paraffin	G
Magnesium chloride	G
Maleic acid	G
Malic acid, 50%	G
Menthol	G
Mercury	G
Mercuric Chlorine (corrosive sublimate)	G
Methanol	G
Methoxybutanol	G
Methoxybutylacetate	G
Methylcyclohexane	F
Methylene chlorine	F
Methyl ethyl ketone	G
Methyl glycol	G
Monochloracetic acid	G
Monochloracetic acid ethyl ester	G
Monochloracetic acid methyl ester	G
Morpholine	G
Motor oil (HD oil)	G
Nephtha	G
Naphthalene	G
Nickel salts	G
Nitric acid, 25%	G
Nitric acid, 50%	F
Nitrobenzene	G
Nitotoluene	G
Nitrous gases	G
Oils (ethereal)	F
Oils (vegetable and animal)	G
Oleic acid, conc.	G
Oleum	N
Oxalic acid, 50%	G
Ozone	F
Perchloric acid, 20%	G
Perchloric acid, 50%	G
Perchloric acid, 70%	G
Petrol	G
Petro/Benzene mixture	G
Petroleum	G
Petroleum ether	G
Phenol	G
Phosphates	G
Phosphoric acid, 25%	G
Phosphoric acid, 50%	G
Phosphoric acid, 95%	G
Phosphorus oxychloride	G
Phosphorus pentoxide	G
Phosphorus trichloride	G
Photographic developers	G
Phthalic acid, 50%	G

SUBSTANCE AT 21°C (70°F)	HDPE UHMW PE
Polyglycois	G
Potassium bichromate, 40%	G
Potassium chloride	G
Potassium cyanide (aqueous, saturated)	G
Potassium hydroxide (30% aqueous)	G
Potassium nitrate (aqueous, saturated)	G
Potassium permanganate	G
Propionic acid, 50%	G
Propionic acid, 100%	G
Propylene glycol	G
Pseudocumene	G
Pyridine	G
Sea water	F
Silicic acid	G
Silicone oil	G
Silver nitrate	G
Sodium benzoate	G
Sodium borate	G
Sodium carbonate	G
Sodium chloride	G
Sodium chloride, 50%	G
Sodium chloride bleach	F
Sodium dodecylbenzene-Sulphonate	G
Sodium hydroxide-30% aqueous	G
Sodium hypochlorite, all concs.	G
Sodium nitrate	G
Sodium peroxide, 10%	G
Sodium peroxide, 10% saturated	F
Sodium sulphide	G
Sodium thiosulphate	G
Spermaceti	G
Spindle oil	F
Starch	G
Stearic acid	G
Succinic acid, 50%	G
Sugar syrup	G
Sulphates	G
Sulphur	G
Sulphur dioxide (dry)	G
Sulphur dioxide (wet)	G
Sulphuric acid, 10%	G
Sulphuric acid, 50%	G
Sulphuric acid, 98%	F
Sulphurous acid	G
Sulphuryl chloride	N
Synthetic detergents	G
Tallow	G
Tannic acid, 10%	G
Tartaric acid	G
Tetrabromoethane	P
Tetrachloroethane	P
Tetrahydrofuran	P
Toluene	P
Transformer oil	G
Tributyl phosphate	G
Trichloroacetic acid, 50%	G
Trichloroacetic acid, 100%	G
Trichloroethylene	P
Tricresyl phosphate	G
Triethanolamine	G
Turpentine oil	F
Urea, 33%	G
Vaseliner	F
White spirit	F
P-Xylene	F
Yeast	F
Zinc Chloride	G