



### **Polycarbonate Tube and Rod**

Allplastics stock and cut a wide selection of Clear Polycarbonate Tubes from 6.3mm OD to 127mm OD. In addition we can supply custom made sizes for many type of projects. The PC tubes have excellent impact strength, higher service temperature than PMMA (Acrylic), good UV protection and very good light transmission.

The above features makes polycarbonate tube the ideal selection for indoor/outdoor lighting, luminaries, high impact and security applications, sludge judges, sight glasses, instrument containers, and sampling devices.

Polycarbonate Rod is stocked in a variety of diameters. It has a slightly cloudy finish.

**Service Temperature:** -60° to +120°

**Clear Polycarbonate Tube - 3000mm Length**

	Diameter	Wall
	OD ID	mm
PC022.15	22.2 x 15.9	3.15
PC022.19	22.2 x 19	1.6
PC025.22	25.4 x 22.2	1.6
PC029.27	29.5 x 27.3	1.1
PC031.25	31.8 x 25.4	3.2
PC038.31	38.1 x 31.8	3.15

**Clear Polycarbonate Tube - 2000mm Length**

	Diameter	Wall
	OD ID	mm
PCT006.3	6.3 x 3.2	1.55
PCT009.6	9.5 x 6.3	1.6
PCT012.9	12.7 x 9.5	1.6
PCT016.12	16.0 x 12.8	1.6
PCT019.15	19 x 15.8	1.6
PCT025.19	25.4 x 19.0	3.2
PCT028.25	28.7 x 25.5	1.6
PCT031.28	31.4 x 28.6	1.6
PCT038.31	38.0 x 31.8	3.15
PCT038.34	38.0 x 34.9	1.6
PCT045.38	45 x 38.1	3.45
PCT045.41	45.0 x 41.3	1.6
PCT050.44	50.0 x 44.5	2.7
PCT050.47	50.0 x 47.6	1.6
PCT057.50	57 x 50.8	3.1
PCT057.54	57 x 54	1.5
PCT063.60	63 x 60.3	1.35
PCT070.63	70 x 63.5	3.25
PCT075.69	75.0 x 69.9	2.5
PCT085.80	85 x 80	2.5
PCT101.97	101.6 x 97.0	2.3
PCT110.107	110 x 107	1.5
PCT127.123	127 x 123	2



# Polycarbonate



## Technical Information:

Information to be used as a guide only. It corresponds with our current knowledge and indicates possible applications. We cannot guarantee suitability for a specific application. Unless otherwise stated these values represent averages taken from injection moulded samples.

Properties	Unit	Test Method DIN ASTM	Result
<b>MECHANICAL</b>	-	-	-
Density	g/cm <sup>3</sup>	53479	1.20
Tensile strength at yield	MPa	53455	65
Tensile strength at break	MPa	53455	-
Elongation at Break	%	53455	60-100
Modulus of elasticity in tension	MPa	53457	2200
Modulus of elasticity in flexure	MPa	53457	-
Ball indentation hardness	MPa	53456	100
Impact strength (Charpy)	KJ/m <sup>2</sup>	53453	No break
Creep rupture strength after 1000 hours with static load	MPa	-	48
Time yield limit for 1% elongation after 1000 hours	MPa	-	18
Coefficient of friction against hardened and ground steel p+0,05 N/mm <sup>2</sup> , v=0,6 m/s	-	-	0.52
Wear conditions as above	µm/km	-	22
<b>THERMAL</b>	-	-	-
Crystalline melting point	°C	53736	-
Glass transition temperature	°C	53736	145
Heat distortion temperature method A	°C	ISO 75	135
Heat distortion temperature method B	°C	ISO 75	140
Max. service temperature short term	°C	-	120
Max. service temperature long term	°C	-	120
Coefficient of thermal conductivity	W/(m K)	-	0.19
Specific heat	J/(g K)	-	1.2
Coefficient of thermal expansion	10 <sup>-5</sup> /K	-	6-7
<b>ELECTRICAL</b>	-	-	-
Dielectric constant at 10 (5) Hz	-	53483	3
Dielectric loss factor at 10(5) Hz	-	53483	0.006
Specific Volume Resistance	Ωcm	53482	10 (17)
Surface Resistance	Ω	53482	10 (15)
Dielectric strength 1mm	kV/mm	53481	27
Tracking resistance	-	53480	KA1
<b>MISCELLANEOUS</b>	-	-	-

Moisture Absorption: Equilibrium in standard atmosphere (23°C / 50% relative humidity)	%	53714	0.2
Water absorption at saturation at 23°C	%	53495	0.36
Resistance to hot water, washing soda	-	-	Not resistant
Flamability	-	UL 94	V2
Resistance to weathering	-	-	Not resistant

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## Chemical Resistance - Polycarbonate

The chemical resistance of a polymer (polycarbonate) describes its ability to maintain mechanical integrity while being exposed to specific chemical environments. Temperature, chemical concentration, state of mechanical stress, and duration of exposure are key variables that influence the ultimate performance of polycarbonate in a particular environment.

Given these many critical variables, the final classification of "suitable for use" is largely dependent upon the application. The information contained in the following chart can be used only as a guide in assessing the general suitability of polycarbonate for a particular application. The prospective user must determine, by suitable testing, the correct application of our product in their particular application. Please consult Fibox directly should you have any questions.

The following environmental resistance ratings are based upon submersion for 48 hours in the reagent listed. E-Excellent, G-Good, L-Limited, U-Unsatisfactory, and ND-No Data.

Acetic Acid	G
Acetic Acid 20%	E
Acetic Acid 80%	G
Acetic Acid, Glacial	G
Acetic Anhydride	U
Acetone	U
Acetyl Chloride (dry)	U
Acetylene	U
Acrylonitrile	U
Alcohols:Amyl	G
Alcohols:Butyl	E
Alcohols:Ethyl	G
Alcohols:Isobutyl	ND
Alcohols:Isopropyl	E
Alcohols:Methyl	G
Aluminum Chloride	E
Aluminum Chloride 20%	E
Aluminum Hydroxide	G
Aluminum Nitrate	E
Aluminum Potassium Sulfate 10%	E
Aluminum Potassium Sulfate 100%	E
Aluminum Sulfate	E
Amines	U
Ammonia 10%	U
Ammonia Nitrate	G
Ammonia, anhydrous	U
Ammonia, liquid	U
Ammonium Carbonate	ND
Ammonium Chloride	E
Ammonium Hydroxide	U
Ammonium Nitrate	ND

Ammonium Oxalate	E
Ammonium Persulfate	E
Ammonium Phosphate,Dibasic	E
Ammonium Sulfate	E
Ammonium Sulfite	ND
Amyl Acetate	U
Amyl Alcohol	G
Aniline	U
Aniline Hydrochloride	U
Antimony Trichloride	E
Aqua Regia (80% HCl, 20% HN03)	U
Arsenic Acid	E
Barium Carbonate	E
Barium Chloride	E
Barium Hydroxide	U
Barium Nitrate	U
Barium Sulfate	U
Beer	E
Benzaldehyde	U
Benzene	U
Benzene Sulfonic Acid	U
Benzoic Acid	G
Benzol	U
Benzonitrile	E
Boric Acid	G
Bromine	L
Butadiene	U
Butane	U
Butanol (Butyl Alcohol)	G
Butyl Amine	U
Butyl Phthalate	U

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Butylacetate	U
Butylene	U
Butyric Acid	U
Calcium Bisulfate	U
Calcium Bisulfite	U
Calcium Carbonate	L
Calcium Chlorate	ND
Calcium Chloride	G
Calcium Hydroxide	U
Calcium Hypochlorite	U
Calcium Nitrate	E
Calcium Sulfate	E
Carbolic Acid (Phenol)	U
Carbon Disulfide	U
Carbon Monoxide	G
Carbon Tetrachloride	U
Carbonic Acid	E
Chloric Acid	ND
Chlorine (dry)	L
Chlorine Water	ND
Chlorine, Anhydrous Liquid	L
Chloroacetic Acid	U
Chlorobenzene (Mono)	U
Chloroform	U
Chlorosulfonic Acid	L
Chocolate Syrup	E
Chromic Acid 10%	G
Chromic Acid 30%	L
Chromic Acid 5%	G
Chromic Acid 50%	U
Citric Acid	E

Clorox® (Bleach)	G
Copper Cyanide	U
Copper Nitrate	U
Copper Sulfate >5%	E
Copper Sulfate 5%	E
Cresols	U
Cresylic Acid	U
Cupric Acid	E
Cyclohexane	G
Cyclohexanone	U
Detergents	E
Diacetone Alcohol	U
Dichlorobenzene	U
Dichloroethane	U
Diesel Fuel	E
Diethyl Ether	U
Diethylamine	U
Diethylene Glyco	G
Dimethyl Aniline	U
Dimethyl Formamide	U
Epsom Salts (Magnesium Sulfate)	E
Ethane	ND
Ethanol	G
Ethyl Acetate	U
Ethyl Benzoate	U
Ethyl Chloride	U
Ethylene Bromide	U
Ethylene Chloride	U
Ethylene Chlorohydrin	U
Ethylene Diamine	E
Ethylene Dichloride	U

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Ethylene Glycol	G
Ethylene Oxide	L
Fatty Acids	G
Ferric Chloride	E
Ferric Nitrate	E
Ferric sulfate	E
Ferrous Chloride	U
Ferrous Sulfate	E
Fluorine	L
Fluosilic Acid	E
Formaldehyde 100%	E
Formaldehyde 40%	E
Formic Acid	E
Fuel Oils	G
Gasoline (high-aromatic)	E
Gasoline,leaded,ref.	E
Gasoline,unleaded	E
Glucose	E
Glycerin	E
Heptane	G
Hexane	G
Hydraulic Oil (Petro)	ND
Hydraulic Oil (Synthetic)	ND
Hydrazine	U
Hydrochloric Acid 100%	U
Hydrochloric Acid 20%	G
Hydrochloric Acid 37%	U
Hydrocyanic Acid (Gas 10%)	G
Hydrofluoric Acid 100%	U
Hydrofluoric Acid 20%	U
Hydrofluoric Acid 50%	U

Hydrofluoric Acid 75%	U
Hydrogen Gas	E
Hydrogen Peroxide 10%	E
Hydrogen Peroxide 100%	E
Hydrogen Peroxide 30%	E
Hydrogen Peroxide 50%	E
Hydrogen Sulfide (aqua)	E
Hydrogen Sulfide (dry)	ND
Isooctane	G
Isopropyl Acetate	U
Isopropyl Ether	U
Jet Fuel (JP3,JP4,JP5)	E
Kerosene	U
Ketones	U
Lacquer Thinners	G
Lacquers	U
Lactic Acid	G
Lead Sulfamate	E
Lithium Chloride	G
Lithium Hydroxide	U
Lubricants	E
Lye:Ca(OH) <sub>2</sub> Calcium Hydroxide	U
Lye:KOH Potassium Hydroxide	U
Lye:NaOH Sodium Hydroxide	U
Magnesium Bisulfate	E
Magnesium Carbonate	E
Magnesium Chloride	E
Magnesium Hydroxide	E
Magnesium Nitrate	E
Magnesium Sulfate (Epsom Salts)	E
Manganese Sulfate	E

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Mercuric Chloride (dilute)	E
Mercurous Nitrate	E
Mercury	U
Methane	G
Methanol (Methyl Alcohol)	G
Methyl Alcohol 10%	G
Methyl Butyl Ketone	U
Methyl Cellosolve	U
Methyl Chloride	U
Methyl Ethyl Ketone	U
Methyl Isobutyl Ketone	U
Methyl Isopropyl Ketone	U
Methyl Methacrylate	U
Mineral Spirits	L
Motor oil	E
Naphtha	G
Nickel Chloride	E
Nickel Nitrate	U
Nickel Sulfate	E
Nitrating Acid (<15% HNO3)	ND
Nitrating Acid (<15% H2SO4)	ND
Nitric Acid (20%)	G
Nitric Acid (50%)	G
Nitric Acid (5-10%)	E
Nitric Acid (Concentrated)	L
Nitrobenzene	U
Nitromethane	U
Oils:Diesel Fuel (20,30,40,50)	ND
Oils:Fuel (1,2,3,5A,5B,6)	G
Oils:Hydraulic Oil (Petro)	ND
Oils:Hydraulic Oil (Synthetic)	ND

Oils:Mineral	G
Oils:Olive	E
Oils:Orange	L
Oils:Pine	E
Ozone	E
Pentane	E
Perchloroethylene	U
Phenol (10%)	G
Phenol (Carbolic Acid)	U
Phosphoric Acid (>40%)	E
Phosphoric Acid (crude)	E
Phosphoric Acid (molten)	ND
Phosphoric Acid (<40%)	E
Phosphoric Acid Anhydride	U
Phosphorus Trichloride	L
Photographic Developer	E
Photographic Solutions	E
Phthalic Anhydride	E
Potassium Bromide	E
Potassium Chlorate	E
Potassium Chloride	E
Potassium Dichromate	E
Potassium Hydroxide (Caustic Potash)	U
Potassium Nitrate	E
Potassium Oxalate	-
Potassium Permanganate	E
Potassium Sulfate	E
Potassium Sulfide	ND
Propane (liquefied)	L
Propylene	ND
Propylene Glycol	G

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Pyridine	U
Resorcinol	G
Salicylic Acid	E
Salt Brine (NaCl saturated)	E
Sea Water	E
Silicone	E
Silver Bromide	ND
Silver Nitrate	E
Soap Solutions	E
Soda Ash (see Sodium Carbonate)	E
Sodium Acetate	E
Sodium Benzoate	E
Sodium Bicarbonate	E
Sodium Bisulfate	E
Sodium Bisulfite	E
Sodium Borate (Borax)	E
Sodium Bromide	ND
Sodium Carbonate	E
Sodium Chlorate	E
Sodium Chloride	E
Sodium Chromate	E
Sodium Hydroxide (20%)	E
Sodium Hydroxide (50%)	U
Sodium Hydroxide (80%)	U
Sodium Hypochlorite(5%)	G
Sodium Hypochlorite(<20%)	L
Sodium Hypochlorite(100%)	ND
Sodium Peroxide	E
Sodium Sulfate	E
Sodium Sulfide	U
Sodium Sulfite	ND

Sodium Thiosulfate (hypo)	U
Stannic Chloride	E
Sulfur Dioxide	I
Sulfur Dioxide (dry)	E
Sulfuric Acid (<10%)	E
Sulfuric Acid (10-75%)	G
Sulfuric Acid (75-100%)	U
Sulfuric Acid (cold concentrated)	ND
Sulfuric Acid (hot concentrated)	U
Tannic Acid	L
Toluene (Toluol)	U
Trichloroacetic Acid	U
Trichloroethane	U
Trisodium Phosphate	ND
Turpentine	U
Urea	U
Vinegar	E
Water, Acid, Mine	G
Water, Deionized	ND
Water, Distilled	E
Water, Fresh	E
Water, Salt	E
Whiskey & Wines	E
Xylene	U
Zinc Chloride	E
Zinc Sulfate	E