



POLYPROPYLENE

Also Known As (common industry trade names):

Cor-X . Corogard . Coroplast . Coroplast CI . Coroplast SI . Copolymer Polypropylene
Ensipro . Homopolymer Polypropylene . Intepro IR . Resinol Type O . Polystone . Polystone P
Propylux . Propylux . PPro . Ultrapro

Material Description:

Polypropylene has long been recognized for its high strength-to-weight ratio, excellent chemical resistance, as well as high performance in corrosive environments. This material is easily thermoformed and welded making it a popular choice for chemical and plating tanks. Polypropylene homopolymer meets FDA 21CFR 177.1520 requirements and is approved by the FDA for use in poultry and meat packing facilities. The copolymer offers a greater impact strength along with stronger low temperature impact resistance. Both homopolymer and copolymer maintain high degrees of flexural strength and low moisture absorption. Polypropylene is a thermoplastic made by the polymerization of propylene gas, a by-product of petroleum refining. Various techniques can vary the physical, chemical or mechanical properties of polypropylene. Polypropylene is easily fabricated with ordinary wood or metalworking equipment. It can be welded with standard plastic welding equipment. Polypropylene has such a hard, high gloss surface it is ideally suited to environments where there is concern for bacteria buildup or buildup that can interfere with flow. Excellent track, arc resistance and dielectric strength allows polypropylene to be used extensively in electrical applications. It can also be modified to be conductive or antistatic. As a homopolymer, polypropylenes use temperature ranges from 30 to 210F, depending on specific chemistry. For copolymers use temperatures can range from -20 to 180F. Resistance to chemicals and solvents is very good. It has good resistance to aqueous, salts, acids or alkaline solutions. It also has very low permeability to water vapor and gases. Because of its excellent resistance to solvents, it finds extensive use in the semiconductor industry. It performs well in the presence of DI water. Polypropylene can be used in direct contact with foods, and many icecube trays are made from it because of its toughness and flexibility at low temperatures.

Care must be taken when in the presence of active oxidizing agents, especially with fabricated parts. Numerous chemical resistance charts are based solely on press molded plaques and do not take fabricated parts into consideration. The resins are attacked, however, by halogens, fuming nitric acid and other active oxidizing agents, and by aromatic and chlorinated hydrocarbons at high temperatures.

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POLYPROPYLENE

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Characteristics / Enhancements / Varieties - Available grades

Homopolymer: Heat resistant to 210°F. Resists most alkalis and solvents.

Available in natural, white, black and eurogray

Flame Retardant: White polypropylene grade that meets UL 94 flammability rating of V-O.

Copolymer: Ethylene is introduced to the process giving the material a greater impact strength in both high and low temperature environments. (-20 to 180F).

Fabricating Techniques

Vacuum Formed . Hot Gas Welded . Thermoformed

Ultra Sonic Welding . Heat Fusion . Injection Molding

Applications:

Chemical Tanks, Vent Hoods, Clean Room

Equipment, Valve Components, Plating Tanks,

Die Cutting . Backup Pads . Filters . Pump Housings

,Machine Stock . Laboratory Equipment,

Prosthetic Devices, Basket Strainers, Drip Pans

Standard Shapes and Sizes (please call for custom sizes not listed):

Sheet: 48"x 96", Fluted (Graphics) 18"x 14"and up

Rod: 1/4" thru 12", plus larger MM sizes available via import

Tube: Limited sizes are available - Please call for more details

Film: Available for specialty applications - Please call for more details



TECAFINE™ PP

TECAFINE™ PP (polypropylene)

TECAFINE™ PP (polypropylene) is an anti-static, poly-propylene, random copolymer polyolefin engineering plastic providing excellent chemical resistance

and high purity. FDA compliant with better mechanical properties than other typical polyolefin materials, it is light weight, weldable, and unaffected by

moisture. Ensinger's unique processing technology provides unsurpassed quality in TECAFINE™ PP stock shapes.

- **Excellent chemical resistance**
TECAFINE™ PP is resistant to organic chemicals, solvents, mineral acids, and inorganic salts.
- **Weldable**
- **High purity**
TECAFINE™ PP nonparticulating and suitable for high purity environments.
- **FDA compliant**
TECAFINE™ PP meets FDA 21CFR 177.1520.
- **Light weight**
TECAFINE™ PP has a specific gravity of less than 1.
- **Moisture resistant**
TECAFINE™ PP is unaffected by water or moist environments.
- **Unsurpassed quality**
Ensinger's unequalled extrusion expertise means users consistently obtain the highest quality polypropylene stock shapes.

TECAFINE™ PP's excellent chemical resistance and high purity characteristics make it ideal for use in the food-processing and chemical-processing industries. Common applications include pump and valve components, tanks, laboratory equipment, and other parts in contact with corrosive environments.

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TYPICAL PROPERTY VALUES

	PROPERTIES	ASTM Test Method	Units	TECAFINE™ PP
PHYSICAL	Density	D792	lbs/in ³	0.033
	Specific Gravity	D792	-	0.9
	Water Absorption, @24 hours, 73°F	D570	%	0.01 - 0.03
MECHANICAL	Tensile Strength, Break, 73°F	D638	psi	4,700
	Tensile Modulus, 73°F	D638	psi	130,000
	Elongation, Break, 73°F	D638	%	100
	Flexural Strength, 73°F	D790	psi	6,000 - 8,000
	Flexural Modulus, 73°F	D790	psi	180,000
	Izod Impact Strength, Notched, 73°F	D256	ft-lbs/in	0.9
	Rockwell Hardness	D785	"R" Scale	90
THERMAL	Deflection Temperature @ 66 psi	D648	°F	-
	@ 264 psi	D648	°F	130
	Coefficient of Linear Thermal Expansion	D696	in/in/°F	5 x 10 ⁻⁵
	Melting Point	D3418	°F	330
	Flammability	UL94	-	HB
ELECTRICAL	Dielectric Constant, @ 60 Hz, 73°F, 50% RH	D150	-	2.2
	Volume Resistivity, 73°F	D257	ohm-cm	1 x 10 ¹⁷

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MATERIAL AVAILABILITY

Rods: Diameters: 3/16" to 16"
Lengths: 3/16" to 4-3/4" Diameter - 10'
5" and greater Diameter - 5'

Profiles, tubes, and special sizes are custom-produced on request.



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DS106/1004

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