

Propylene Carbonate

Propylene Carbonate

Description Propylene carbonate (PC) is a VOC-exempt* clear polar solvent having high boiling and flash points, a low order of toxicity and a mild ether-like odor. It is stable under most conditions and is not hygroscopic or corrosive. It is particularly well suited for applications requiring a water white product or high purity. Examples would be cosmetics, electronics or where recycling of spent material will occur.

Product Identification

Chemical Name	Dioxolanone
Chemical Family	Organic Carbonate
Other Names	4-methyl-1 3-dioxolan-2-one
Chemical Formula	C ₄ H ₆ O ₃

Propylene carbonate is a cyclic carbonate that reacts with amines to form carbamates, undergoes hydroxy alkylation and transesterification. It can be used as an isocyanate and unsaturated polyester resin cleanup solvent, viscosity reducer in coatings, CO₂ extraction solvent, electrolyte in lithium batteries, polar additive for clay gellants, foundry binder catalyst, and textile dye carrier and cleaner.

Typical Properties

Autoignition Temperature (°F)	851
Density (pounds per gallon) at 20°C (68°F)	10.0
Dielectric Constant, csu @ 25°C	64
Distillation @ 760mm, Hg IBP, min. DP, min.	195°C 253°C
Evaporation Rate (BuA=1)	<0.005
Flammability Limits (Lower/Upper Vol. %)	1.7/32.5
Flash Point GT (SETA) °F	275°
Refractive Index @ 25°C (77°F)	1.419
Residue on Ignition, wt. %, max.	0.01
Solubility @ 25°C (% by wt.) PC in water Water in PC	21 8
Specific Gravity @20/20°C	1.203-1.210
Total Hansen Parameter (CGS)	13.3
Vapor Pressure @ 25°C (77°F) (mmHg)	0.03
Viscosity (CPS) @ 25°C (77°F)	2.4

*The U.S. Environmental Protection Agency (EPA) has published a rule excluding propylene carbonate from the Federal definition of a VOC (40 C.F.R. § 51.100(s)). State and local definitions may vary.

Storage

Propylene Carbonate is stable under normal storage conditions.

Safety and Handling

Undue exposure or spillage should be strictly avoided as a matter of good practice. Hazard ratings are summarized as follows:

	<u>NPCA HMIS</u>	<u>NFPA</u>
Health	1	1
Flammability	1	1
Reactivity	0	0
Personal Protection	X	

Propylene carbonate is stable under normal storage conditions. However, in the presence of an acid, base, metal oxide or salt, propylene carbonate may decompose liberating CO₂. These materials will also decrease thermal stability. In an aqueous solution, the decomposition products would be propylene glycol and CO₂. Either situation could potentially lead to pressure buildup in closed containers, which may result in the container rupturing. It is therefore suggested that all such mixtures be tested for shelf life stability.

Material Compatibility Guidelines

Carbon steel or stainless steel transfer lines and pumps may be used. Preferred gasket material is Teflon®, but EPR, neoprene, polyethylen, cork and natural rubber are satisfactory, Buna N, Hypalon® and Viton® are not suitable gasket materials. Information from material suppliers and specific conditions of contact should be considered in the selection of suitable materials.

Before using a product sold by a company of the LyondellBasell family of companies, users should make their own independent determination that the product is suitable for the intended use and can be used safely and legally.

SELLER MAKES NO WARRANTY; EXPRESS OR IMPLIED (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY WARRANTY) OTHER THAN AS SEPARATELY AGREED TO BY THE PARTIES IN A CONTRACT.

This product(s) may not be used in:

- (i) any U.S. FDA Class I, Health Canada Class I, and/or European Union Class I medical devices, without prior notification to Seller for each specific product and application; or
- (ii) the manufacture of any of the following, without prior written approval by Seller for each specific product and application: U.S. FDA Class II Medical Devices; Health Canada Class II or Class III Medical Devices; European Union Class II Medical Devices; film, overwrap and/or product packaging that is considered a part or component of one of the aforementioned medical devices; packaging in direct contact with a pharmaceutical active ingredient and/or dosage form that is intended for inhalation, injection, intravenous, nasal, ophthalmic (eye), digestive, or topical (skin) administration; tobacco related products and applications, electronic cigarettes and similar devices, and pressure pipe or fittings that are considered a part or component of a nuclear reactor. Additionally, the product(s) may not be used in: (i) U.S. FDA Class III Medical Devices; Health Canada Class IV Medical Devices; European Class III Medical Devices; (ii) applications involving permanent implantation into the body; (iii) life-sustaining medical applications; and (iv) lead, asbestos or MTBE related applications. All references to U.S. FDA, Health Canada, and European Union regulations include another country's equivalent regulatory classification.

Users should review the applicable Safety Data Sheet before handling the product.

Alkylate, Duopac, Duoprime, Filmex, MPDIOL, Polymeg, SAA-100, SAA-101, TBAC, Tebol, T-Hydro, and Tufflo are trademarks owned or used by the LyondellBasell family of companies.

Duopac, Duoprime, Filmex, MPDIOL, Polymeg, Tebol, T-Hydro and Tufflo are registered in the U.S. Patent and Trademark Office.

Houston, Texas, USA | Tel: +1 713 309 7200 or toll-free within USA +1 888 777 0232
Rotterdam, The Netherlands | Tel: +31 10 275 5500
Hong Kong, China | Tel: +852 2882 2668