

Product Description and Handling Guide

Polysolvan® O

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Glycolic acid-n-butyl ester

CAS no. 7397-62-8

EC no. 230-991-7



Product description

Polysolvan® O (Poly O) is a colorless liquid with a very faint, ester-like odor.

It contains no ethanol. Polysolvan® O is miscible with the common organic solvents, but only partially miscible with water.

In view of the thermal stability of Polysolvan® O as a “2-hydroxy ester”, reactions such as glycolide formation, transesterification, saponification and etherification are likely at elevated temperatures, especially at boiling point (180 °C). The effect of the resultant changes is an extension of the boiling range upwards.

Dissolving power:

Polysolvan® O has excellent dissolving power for polyvinyl acetates, polyvinyl butyrals, vinyl acetate/vinyl chloride/dicarboxylic acid copolymers, nitric acid esters of cellulose (nitrocellulose, celluloid), cellulose ethers, chlorinated rubber, many natural and synthetic resins and most oils and plasticizers.

The following substances are sparingly soluble:

Manila copal, shellac, acetic acid esters of cellulose (cellulose acetate), polystyrene (painted articles), indene resin and alkyd resins modified with oleic acid or fatty acid.

Polysolvan® O does not dissolve:

Dammar, rubber, bitumen, aldehyde resins, polyisobutylene, painted articles made of polyvinyl chloride (not post-chlorinated) and polyvinyl carbazole, polymethacrylates and polyacrylates.

Possible applications

Because of its very low volatility Polysolvan® O is used chiefly as a paint additive in the form of a highly effective flow agent. When added in amounts of 3-5 % it gives nitrocellulose lacquers excellent gloss and smooth flow properties. To produce a higher gloss the amount of Polysolvan® O in leather lacquers based on nitrocellulose can be increased.

Because of its faint odor Polysolvan® O is also used in brush-applied paints. Although Polysolvan® O hardly dissolves cellulose acetate at all, it can be added to cellulose acetate paints to prevent blushing at high relative humidity. Similarly it is used as a paint additive in alkyd resin and oil paints. The occasionally severe wrinkling of various oil paints can be largely prevented by an addition of 1 – 2 % Polysolvan® O.

The addition of Polysolvan® O as a high-boiling solvent to stoving finishes effects uniform flow of the paint film. Polysolvan® O is also employed in the manufacture of printing inks, where extremely faint odor, high boiling point and low volatility are of particular importance.

The high dilutability of Polysolvan® O has a beneficial effect in all applications. A highly successful use of the product is in lowering the minimum film-forming temperature (DIN 53 787) of polyvinyl acetate dispersions. When Polysolvan® O is added, it might happen that initial thickening occurs as a result of partial dissolving of the polymer particles; slow addition is therefore recommended. Furthermore it is advisable first to emulsify Polysolvan® O with an equal quantity of water.

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Characteristic data

<i>Typical Properties</i>	<i>Unit</i>	
Molar mass	g/mol	132.16
Boiling point at 1013 hPa	°C	180
Melting temperature	°C	< -20
Density at 20 °C (DIN 51 757, method D)	g/cm ³	1.015 – 1.023
Refractive index n _D at 20 °C (DIN 51 423, part 2)		1.425 – 1.427
Viscosity at 20 °C (calc)	mPa · s	5.23
Solubility in water at 20 °C	g/l	46
Water absorption at 20 °C	% (w/w)	25
Vapour pressure at 20 °C	hPa	1.3
Vapour density at 20 °C (Air = 1)		4.57
Specific heat at 20 °C	kJ/kg · K	approx. 2.1
Heat of vaporization at 1013 hPa	J/g	approx. 373
Dielectric constant at 20 °C (DIN 53 484)		approx. 13
Electrical conductivity at 20 °C	S	approx. 2.5 · 10 ⁻⁷
Evaporation number (DIN 53 170, diethyl ether = 1)		approx. 460
Evaporation (DIN 53 249, dipentene)	% (w/w)	approx. 18

These characteristic data are intended for the purpose of product description and are not the subject of continuous monitoring.

Further physical properties and characteristic data as well as information on safety and handling are listed in the material safety data sheet and the sales specifications. Please consult www.celanese.com

Shelf life

The shelf life of Polysolvan® O is one year.

The shelf life dates from the day of packaging, for bulk deliveries this is the day of loading. This period is in general applicable to material stored under conditions recommended by Celanese Chemicals.

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Storage

Recommended Blanketing	Dry Nitrogen ^{1,2,3}
Recommended Temperature	
Maximum	100 °F (37.8 °C)
Minimum	32 °F (0 °C)
Recommended pressure	Atmospheric
Bulk Quantities	Outside, detached tanks
Small Containers	Cool, dry, well ventilated area

Handling

- Thoroughly review Material Safety Data Sheet before handling product.
- Keep containers closed when not in use.
- Open containers slowly to allow any excess pressure to vent.
- Keep away from heat, sparks, flame or other sources of ignition.
- Protect small containers from physical damage.
- Use proper electrical grounding and bonding procedures when loading, unloading and transferring¹.
- Refer to the Material Safety Data Sheet for more information on materials to avoid.
- Use spark-resistant tools.
- Electrical equipment and circuits in all storage and handling areas must conform to requirements of national electrical code (Articles 500 and 501) for hazardous location.

1. Refer to NFPA #77 “Static Electricity” for proper electrical grounding procedures.
2. See the National Fire Protection Agency (NFPA) #30 “Flammable and Combustible Liquids Code” and consult with qualified fire protection specialists to determine specific storage tank design requirements.
3. Blanketing may be used to retain quality in long-term storage conditions.

Polysolvan® O is available from Celanese Chemicals as bulk material.

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Materials for storage and transport

Unit / element	Acceptable Material	Alternate Material
Tank	Stainless Steel ¹	Aluminum
Piping	Stainless Steel ¹	Aluminum
Valves	Stainless Steel ¹	–
Pumps	Stainless Steel ¹	–
Relief Valves	Stainless Steel ¹	–
Gaskets	Glass filled PTFE ²	PTFE ²
Pump Seals	Single Mechanical Seal: Stainless Steel / Hastelloy C-276 metallic components, Kalrez O-rings	–
Valve Packing	PTFE ²	Braided PTFE ²
Pipe End Connections	Welded and flanged system	Threaded with PTFE ² tape
Heat Exchanger	Product side: Stainless Steel ¹	–
Hoses	Stainless Steel ¹	Aluminum
Tank Truck	Stainless Steel ¹	Aluminum
Tank Car	Stainless Steel ¹	Aluminum
Barge	Stainless Steel ¹	–
Ship Tank	Stainless Steel ¹	–

1. Type 304 or 316 Stainless Steel
2. Polytetrafluoroethylene

For further information on safety and handling, please use the following link:
<http://www.celanese.com/msds/>

Other Product Information:

The following statements about Polysolvan® O manufactured at Celanese are based to the best of our manufacturing and process knowledge. The practice of providing this information to customers is for their convenience. It does not alter the terms and conditions of sale, including any warranties or limitations on liability, applicable to the underlying commercial transaction involving the product to which this certification applies. We believe this information to be accurate and reliable, but customers should make their own determination on the suitability of this product for a particular application.

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Chemical Inventory Status

The substance is listed in the following chemical inventories:

<i>Chemical Inventory Status</i>	<i>Listed</i>	<i>Comment</i>
AICS (Australia)	X	
DSL (Canada)	X	
IECSC (China)	X	
EINECS (Europe)	X	EC-No.: 230-991-7
KECI (Korea)	X	Korean ID Number: KE-20316
NZIoC (New Zealand)	X	May be used as a single component chemical under an appropriate group standard
PICCS (Philippines)	X	
NECSI (Taiwan)	X	
TSCA (USA)	X	

REACH

REACH (“Registration, Evaluation, Authorization and Restriction of Chemicals”) Celanese is aware of the obligations imposed by the European Union legislation REACH on EU manufacturers and importers as well as on downstream users. We are obliged to comply with the requirements of the REACH legislation relating to our European manufacturing facilities, our own imports as well as our obligations as a downstream user in the European chemical industry. Should you require additional information, please contact Celanese at REACH@celanese.com.

The product is to be regarded as a substance and has been registered.

Chemical name: Butyl glycollate
 CAS number: 7397-62-8
 EINECS number: 230-991-7
 Registration number: 01-2119514685-36-0000

Animal Origin, Genetically Modified Organisms

BSE/TSE Statement

To the best of our knowledge Polysolvan[®] O and the raw materials used in the production of this material are not derived from human or animal origin.

Genetically Modified Organisms

To the best of our knowledge this product is not based on raw materials obtained through genetically modified organisms. GMOs and biotechnical means are not used during the manufacturing process.

Allergens Guide

Celanese Acetyl Intermediates does not use any ingredients of animal or plant origin in the manufacture of Polysolvan[®] O (CAS no. 7397-62-8). Therefore, we can certify that the supplied Polysolvan[®] O does not contain any of the main food allergens (Peanut, Soya, Bean, Milk, Egg, Fish, Peas, Barley, Lupine, Wheat, Mollusks). Polysolvan[®] O is manufactured through an entirely synthetic process and will not contain any gluten. No nutritional data is available for Polysolvan[®] O.

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The information contained in this publication is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should not be construed as promising or guaranteeing specific properties of the products described or their suitability for a particular application. User is solely responsible for determining the suitability of the products for the intended purpose. To the best of our knowledge the information in this publication is accurate; however we do not assume any liability whatsoever for the accuracy and completeness of such information. We strongly recommend that users seek and adhere to our current instructions for handling these products, and to entrust the handling of such products to adequately trained personnel only. Please adhere to the instructions and information contained in the corresponding Material Safety Data Sheets (MSDS) before attempting to process our products. Any existing industrial property rights must be observed. User is solely responsible for investigating and checking the regulatory approval status. The quality of our products is guaranteed under our General Conditions of Sale.