

## CARBOWAX™ PEG 400E Polyethylene Glycol

**Product Description**

CAS # 025322-68-3  
INCI / CTFA nomenclature—PEG-8

The Dow Chemical Company is a science and technology-based company and one of the world's largest producers of polyalkylene glycols. Our worldwide research, manufacturing, and distribution includes facilities in Europe, North America, Latin America, and Asia-Pacific.

With over 50 years experience in polyglycol manufacturing, the industry's broadest product line, and a leadership position in new product development, Dow is uniquely positioned to meet the needs of a diverse global marketplace. This success results from expanding our customers' markets through combined customer formulation knowledge and Dow alkoxylation expertise in joint development applications. Together we focus these resources to help ensure success for our customers and their products.

CARBOWAX™ PEG 400E is the product of the catalysed reaction between ethylene oxide and water. The polymerisation reaction is controlled so that the average molecular weight is in the range 380 – 420.

CARBOWAX PEG 400E, at room temperature, is a clear, hygroscopic liquid, which possesses a characteristic low vapour pressure and excellent lubricity. It is totally soluble in water and in most organic solvents except aliphatic hydrocarbons.

At high temperatures and in the presence of air CARBOWAX PEG 400E will undergo decomposition. However, improved stability can be gained by the use of antioxidants. As CARBOWAX PEG 400E contains two terminal hydroxyl groups it can be used in polyurethane and esterification reactions.

**Applications**

CARBOWAX PEG 400E can be used in many applications including printing inks, ceramic and glass production, the treatment of paper, lubricant base, fatty acid ester manufacture, textile conditioner, as a formulation aid in the detergent industry and in the production of polyurethane prepolymers.

**Typical Physical Properties – CARBOWAX PEG 400E <sup>(1)</sup>**

Flash point (°C)	Viscosity		Specific Gravity (g/cm <sup>3</sup> @ 25°C/25°C)	Freezing range (°C)
	@ 25°C (cSt)	@ 100°C (cSt)		
263	81	7.3	1.127	4 to 8
ASTM D 92	ASTM D 445	ASTM D 445	ASTM D 892	ASTM D 1177

1. The information and data contained herein do not constitute sales specifications. No liability, warranty or guarantee of final product performance is created by this document.

## Handling and Storage

CARBOWAX Polyethylene Glycols are relatively easy to store and handle. They can be stored in bulk in steel tanks which could be padded with nitrogen or any other inert gas to prevent air from entering the tank. If slight iron pickup and colour changes cannot be tolerated then the storage tank should be constructed from stainless steel.

CARBOWAX PEG 200E – 600E Polyethylene Glycols are liquids at average room temperature and to maintain them in this condition storage tanks may have to be insulated and heated. Externally located heating devices are preferable to internally sited ones. With external heating the risk of accelerating product deterioration is greatly reduced. Insulation of the storage tanks should be suitable for maintaining the product temperature under local climatic conditions. Ideally the polyglycols should be stored at a temperature of at least 5° above freezing point but at not much higher than 65°C to avoid risk of product degradation.

Similarly drums should be stored under cover, or preferably inside a warehouse, to maintain the temperature of the polyglycol at a level which allows for easy discharge.

The shelf life of properly stored bulk and unopened drums is, at least, 36 months.

## Toxicological Information

CARBOWAX Polyethylene Glycols exhibit a very low order of acute oral toxicity. They cause no significant skin irritation or sensitisation and are not reportedly absorbed in any appreciable amount. Direct contact with the eyes may cause slight temporary irritation, similar in character to that caused by mild soap. Consequently it is recommended that eye protection should be employed and viewed as the minimum level of safety equipment required when working with CARBOWAX Polyethylene Glycols.

## Product Stewardship

Dow encourages its customers and potential users of CARBOWAX Polyethylene Glycols to review their applications from the standpoint of human health and environmental aspects. To ensure CARBOWAX Polyethylene Glycols are not used in ways for which it is not intended or tested, Dow literature, including Material Safety Data Sheets, should be consulted prior to the use.

### For More Information

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