

Technical Information

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® = Registered trademark of BASF

Pluriol® E 400

Polyethylene glycol for the detergents and cleaners industry

Chemical nature

Pluriol® E 400 is a polyethylene glycol it conform to the general formula $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_n\text{H}$.

The degree of polymerization n determines the average molar mass of each product and the properties it displays.

PRD-No.*

30044134

*BASF's commercial product numbers.

Appearance

Pluriol® E 400 is a clear, colorless liquid at 23 °C.

Handling and Storage**Handling**

- a) Pluriol® E 400 should be stored indoors in a dry place. Storerooms must not be overheated.
- b) Pluriol® E 400 is hygroscopic, and care needs to be taken to exclude moisture. Drums must be resealed each time they are opened.
- c) The storage temperature should not be allowed to fall below the melting point if at all possible.
- d) Drums that have solidified or that have begun to precipitate should be reconstituted by gentle heating, preferably in a heating cabinet. The temperature must not be allowed to exceed 70 °C. This also applies if drums are heated by external electrical elements.
Internal electrical elements should not be used because of the localized anomalies in temperature that they cause.
- e) Pluriol® E 400 must be blanketed with nitrogen if it is stored in heated tanks (at 60 – 70 °C) to prevent it from coming into contact with air. Constant, gentle stirring helps to prevent it being discolored as a result of prolonged contact with electrical elements or external heating coils.
- f) Please refer to the latest Safety Data Sheet for detailed information on product safety.

Materials

The following materials can be used for tanks and drums:

- a) Stainless steel 1.4541 – AISI 321 stainless steel (X6 CrNiTi 1810)
- b) Stainless steel 1.4571 – AISI 316 Ti stainless steel (X6 CrNiMoTi 17122)
- c) Stainless steel 1.4306 – AISI 321 L stainless steel (X2 CrNi 1911)

Shelf life

Provided it is stored properly and drums are kept tightly sealed, Pluriol® E 400 has a shelf life of at least two years in its original packaging.

Properties

Some physical properties are listed in the table below. These are typical values only and not all of them are monitored on a regular basis. They are correct at the time of publication and do not necessarily form part of the product specification. A detailed product specification is available on request or via BASF's WorldAccount: <https://worldaccount.basf.com> (registered access).

Pluriol® E 400	Unit	Value
Physical form		Liquid
Average molar mass (calculated from the OH number according to DIN 53240)	g/mol	400
pH value (5% in water, EN 1262, 23 °C)		approx. 7
Density (DIN 51757, 23 °C)	g/cm ³	approx. 1.13
Clear melting point	°C	approx. 0
Viscosity (DIN 51562) - at 20 °C - at 50 °C - at 99 °C	mm ² /s mm ² /s mm ² /s	approx. 110 approx. 30 approx. 6.5
Water content (EN 13267)	%	<0.3
Ash content (DIN 51575)	%	max. 0.05
Flash point (ISO 2592)	°C	>250

Solubility

Pluriol® E types are easy to dissolve in water, and in the solubility is not affected by water hardness. The solubility decreases to a certain extent as their molar mass increases. Pluriol® E 400 is resistant to moderately strong acids, alkalis and salt solutions. Generally speaking, substances in this group are fairly inert, but they can react with vegetable and synthetic tanning agents and other substances that contain phenolic hydroxyl groups to form sparingly soluble addition products.

Pluriol® E types are soluble in alcohols. Their solubility decrease as their molar mass increase. Pluriol® E 400 is soluble in most aromatic solvents, but the virtually insoluble in aliphatic hydrocarbons and petroleum fractions.

Stability

Pluriol® E 400 is thermally stable in the absence of oxygen.

Compatibility

Pluriol® E 400 is freely intermiscible, which enables homogeneous mixtures with specific properties to be prepared.

It is compatible with nonionic surfactants such as our Lutensol®, Plurafac® and Pluronic® types. It is miscible to a greater or lesser extent with monomeric and polymeric substances of a largely hydrophilic nature – such as dyes and pigments, anionic and cationic surfactants, and animal, vegetable and synthetic glues and binders – and its compatibility is good. The miscibility of Pluriol® E 400 with fats, fatty acids, alcohols and oils, natural and synthetic ester and hydrocarbon waxes, petroleum fractions and other substances of a predominantly hydrophobic nature is limited. Nevertheless, pseudomixtures or pasty dispersions can be made from some combinations of products by melting them into a vessel and allowing them to cool before stirring.

Solids, such as chromatic pigments, ceramic pigments, and abrasives in polishes and solid lubricants, can be ground into stable, homogeneous pastes with Pluriol® E 400, providing that the solids are properly wetted, the viscosity is kept within reasonable limits, and the various ingredients are correctly proportioned.

Safety

We are not aware of any ill effect that can result from using Pluriol® E 400 for the purpose for which it is intended and from processing it in accordance with current practices.

According to the experience that we have gained over many years and other information at our disposal, Pluriol® E 400 does not exert harmful effects on health, provided it is used properly, due attention is given to the precautions necessary for handling chemicals, and the information and advice given in our Safety Data Sheets are observed.

Labelling

Please consult the current Safety Data Sheets for information on the classification and labelling of our products and other information relevant to safety.

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