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Synative® RPE 1740

Low-foaming block copolymer

Chemical composition

Synative RPE 1740 is a non-ionic surfactant based on a block ethylene oxide-propylene oxide copolymer

Properties

Physical form

Liquid

Physical data

Characteristic	Unit	Synative RPE 1740
Concentration	%	approx. 100
Cloud point (EN 1890)*		
Method A	°C	approx. 50
Method B	°C	
Method C	°C	
Method D	°C	approx. 53
Method E	°C	approx. 47
pH (EN 1262, Solution B)**		approx. 7
Density (DIN 51757, Method A, 23 °C)	g/cm ³	approx. 1.03
Brookfield viscosity (EN 12092, 23 °C, 60 rpm)	mPa · s	approx. 600
Setting point (DIN 51583)	°C	approx. 9
Wetting power (EN 1772, 23 °C, 2 g soda ash/l, 1 g surfactant/l)	s	> 300
Surface tension*** (EN 14370, 1 g/l, 23 °C)	mN/m	approx. 41
HLB value		approx. 12

* Cloud point according to EN 1890:

Method A: 1 g surfactant + 100 g distilled water

Method B: 1 g surfactant + 100 g NaCl solution (c = 50 g/l)

Method C: 1 g surfactant + 100 g NaCl solution (c = 100 g/l)

Method D: 5 g surfactant + 45 g ethylene glycol monobutyl ether solution
(c = 250 g/l)

Method E: 5 g surfactant + 25 g ethylene glycol monobutyl ether solution
(c = 250 g/l)

** The pH can fall slightly in storage, but this has no effect on their performance

*** Applying Harkins-Jordan correction factor

Quality control

The above-listed data represent average values at the time of going to press of this Technical Information. They are intended as a guide to facilitate handling and cannot be regarded as specified data. Specified product data are issued as a separate product specification.

Solubility

Solubility in selected solvents (10 % solution at 23 °C)

Solvent	Synative RPE 1740
Water	clear solution
Caustic soda (5 %)	insoluble or sparingly soluble
Hydrochloric acid (5 %)	clear solution
Ethanol	clear solution
Isopropanol	clear solution
Toluene	clear solution
Mineral spirits	clear solution

Applications

Synative RPE 1740 can be employed as lubricant in synthetic-metalworking fluids, mould-release agents and synthetic spin finishes.

Synative RPE 1740 can also be used as heat transfer fluid and hydraulic fluid, for example in the electronics industry in the production of printed circuit boards.

Synative RPE 1740 is an effective lubricant, especially at elevated temperatures, and is easy to wash off.

Synative RPE 1740 does not form tarry residues at high temperatures.

Synative RPE 1740 does not foam or, at worst is very low foaming.

It is insensitive to cations such as Ca^{2+} , Mg^{2+} and other hardness ions, and does not react with soluble alkali salts or with polyanionic compounds.

Processing

It is advisable to stir the surfactant into the water when making up aqueous solutions. Solutions mixed in the reverse order have a much higher viscosity.

Compatibility

As a non-ionic surfactant, Synative RPE 1740 can be combined with non-ionic, anionic and cationic surfactants.

The resistance of Synative RPE 1740 to acids is virtually unlimited in conventional applications. Synative RPE 1740 is also resistant to alkalis to some extent.

Storage

Stability

- a) Synative RPE 1740 should be stored indoors in its original packaging, which should be kept tightly sealed. Storerooms must not be overheated.
- b) Synative RPE 1740 is hygroscopic, with the result of absorbing moisture very quickly. Drums must be resealed each time they are opened.
- c) Synative RPE 1740 must be protected from frost.
- d) Synative RPE 1740 can become slightly cloudy if stored at low temperatures, but this has no effect on the product performance. This cloudiness can be dissipated by heating them to approx. 40–50 °C.
- e) Liquid which has solidified or shows signs of precipitation should be heated to approx. 50 °C and re-homogenized before it is processed.
- f) 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 50 °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.
- g) Synative RPE 1740 must be blanketed with nitrogen if stored in heated tanks (at 40–50 °C) to prevent from coming into contact with air. Constant, gentle stirring helps to prevent discoloration as a result of prolonged contact with electrical elements or external heating coils.

Materials

The following materials can be used for tanks and drums.

AISI 316 Ti stainless steel (X6CrNiTi1810)

AISI 321 stainless steel (X10CrNiMoTi1810)

Iron lined with a phenolic resin

Shelf Life

Provided it is stored properly and the drums are kept tightly sealed, Synative RPE 1740 has a shelf life of at least two years in its original packaging.

Safety

When using this product, the information and advice given in our **Safety Data Sheet** should be observed. Due attention should also be given to the **precautions** necessary for handling chemicals.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

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