Dehypon® LS 54

Technical Information

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Chemical character

Dehypon® LS 54 is a low-foaming, nonionic surfactant. It is an fatty alcohol alkoxylate made from a C_{12}-C_{14}- fatty alcohol (1 mol) ethylene oxide (5 moles) and propylene oxide (4 moles).

PRD-No.*

30528519

* BASF's commercial product numbers.

Appearance

Dehypon® LS 54 is a yellowish, clear to slightly cloudy liquid at room temperature and tends to form sediment in cold.

Handling and Storage

Handling

a) Dehypon® LS 54 should be stored indoors in a dry place. Storage rooms must not be overheated.
b) Dehypon® LS 54 is hygroscopic due to its good solubility in water, with the result that it may absorb moisture very quickly. Drums must be resealed each time they are opened.
c) Dehypon® LS 54 is a clear to cloudy liquid and tends to form sediment.
d) Liquid that has solidified or that shows signs of sedimentation should be heated to 30 – 50 °C and homogenized before it is processed. Please mix sufficiently prior to use.
e) 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. Please mix sufficiently prior to use. 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.
f) Dehypon® LS 54 must be blanketed with nitrogen if it is stored in heated tanks (at 30 – 40 °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.
g) 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)

Shelf life

Provided it is stored properly and drums are kept tightly sealed, Dehypon® LS 54 has a shelf life of at least two years in its original packaging.

Properties

Some physical properties are listed in the tables 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).

Dehypon® LS 54	**Unit**	**Value**
Physical form (23 °C)		Liquid
Concentration	%	approx. 100
Cloud points (EN 1890)*		
Method A	°C	approx. 30
Method D	°C	approx. 48
Method E	°C	approx. 42
pH value (EN 1262, 1% in water)**		approx. 7
Density (DIN 51757, 20 °C)	g/cm^3	approx. 0.97
Pour point (ISO 3016)	°C	approx. - 10
Viscosity (EN 12092, 20 °C, Brookfield, 60 rpm)	mPa·s	approx. 70
Hydroxyl value (DIN 53240)	mg KOH/g	approx. 94
Flash point (ISO 2592)	°C	approx. 200
Wetting (EN 1772, distilled water, 23 °C, 2 g Soda ash/l)		
0.5 g/l	s	approx. 50
1.0 g/l	s	approx. 20
2.0 g/l	s	approx. 8
Foam volume (EN 12728, 40 °C, 2 g/l water at a hardness of 1.8 mmol Ca-ions/l, after 30 s)	cm^3	approx. 10
Surface tension (EN 14370, 1 g/l in distilled water, 23 °C)***	mN/m	approx. 29

* *Cloud point EN 1890:*
Method A: 1 g of surfactant + 100 g of ditilled water
Method D: 5 g of surfactant + 45 g of butyldiglycol solution (c = 250 g/l)
Method E: 5 g of surfactant + 25 g of butyldiglycol solution (c = 250 g/l)

** *The pH value of Dehypon® LS 54 can decrease during storage, but this does not have any effect on its performance.*

*** *Applying Harkins-Jordan correction.*

Solubility

Details on the solubility of Dehypon® LS 54 in various solvents are given in the table below:

Solubility of Dehypon® LS 54 (10% at 23 °C)

Distilled water	+
Potable water (2.7 mmol Ca^{2+}-Ions/l)	+
Caustic soda (5%)	–
Hydrochloric acid (5%)	+
Salt solution (5%)	–
Solvent naphtha	+
Ethanol, Isopropanol	+
Aromatic hydrocarbons	+

\+ = *clear solution*
± = *sparingly soluble (insoluble sediment)*
– = *insoluble (phase separation)*
o = *forms an opaque soluble, homogeneous emulsion*

Viscosity

The relationship between viscosity and temperature is always an important point to consider when Dehypon® LS 54 is stored or shipped. This is shown in the following table (Brookfield LVT):

Temperature (°C)	Viscosity (mPa·s)
0	approx. 210
10	approx. 110
20	approx. 70
23	approx. 60
30	approx. 45
40	approx. 30
50	approx. 20
60	<20

We would recommend the preparation of 10 – 25% stock solutions of Dehypon® LS 54 if it is to be used in the form of very dilute solutions, or if it is to be added to other solutions. This makes it very much easier to dilute it later on.

Dehypon® LS 54 is not likely to form fairly stiff gels at certain concentrations when water is added.

Safety

We know of no ill effects that could have resulted from using Dehypon® LS 54 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, Dehypon® LS 54 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.

Please refer to the latest Safety Data Sheet for detailed information on product safety.

Disclaimer

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