Technical Information

February 2014

WF-No. 3495

Dehydol® LT 8

® = Registered trademark of BASF in many countries.

Nonionic surfactant for detergent and cleaner industry

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Chemical character

Dehydol® LT 8 is a nonionic surfactant. It is alkyl polyethylene glycol ethers made from a C_{12}-/C_{18}-alcohol and ethylene oxide.

It conforms to the following formula:

$$RO(CH_2CH_2O)_xH$$

R = C_{12} to C_{18}-Alkyl
Dehydol® LT 8:
x = 8

The numeric code in the product name indicates in general the degree of ethoxilation.

PRD-No.*

30528549

* BASF's commercial product numbers.

Properties

Dehydol® LT 8 is a cloudy liquid at room temperature and tends to form sediment. Dehydol® LT 8 becomes clear liquid at 40 °C.

Dehydol® LT 8	Unit	Value
Physical form (23 °C)		Pasty
Degree of ethoxilation		approx. 8
Concentration	%	approx. 100
Cloud points (EN 1890)*		
Method A	°C	approx. 69
Method B	°C	approx. 55
Method C	°C	approx. 46
Method D	°C	approx. 83
Method E	°C	approx. 84
Average molar mass (from OH number)	g/mol	approx. 540
pH value (EN 1262, solution B)**		approx. 7
Density (DIN 51757, 50 °C)	g/cm^3	approx. 0.99
Dropping point (DIN 51801)	°C	approx. 25
Congealing point (ISO 2207)	°C	approx. 13
Viscosity (EN 12092, 40 °C, Brookfield, 60 rpm)	mPa·s	approx. 35
Hydroxyl number (DIN 53240)	mg KOH/g	approx. 100
Flash point (ISO 2592)	°C	approx. 230
Wetting (EN 1772, distilled water, 23 °C, 2 g Soda ash/l)		
0.5 g/l	s	approx. 98
1.0 g/l	s	approx. 65
2.0 g/l	s	approx. 35
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. 250
Surface tension (EN 14370, 1 g/l in distilled water, 23 °C)***	mN/m	approx. 29

The above information is correct at the time of going to press. It does not necessarily form part of the product specification. A detailed product specification is available from your local BASF representative.

* *Cloud point EN 1890:*
Method A: 1 g of surfactant + 100 g of distilled water
Method B: 1 g of surfactant + 100 g of NaCl solution (c = 50g/l)
Method C: 1 g of surfactant + 100 g of NaCl solution (c = 100g/l)
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 Dehydol® LT 8 can decrease during storage, but this does not have any effect on its performance.*

*** *Applying Harkins-Jordan correction.*

Solubility

Details on the solubility of Dehydol® LT 8 in various solvents are given in the table below:

Solubility of Dehydol® LT 8 (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)*
○ = *forms an opaque soluble, homogeneous emulsion*

Viscosity

The relationship between viscosity and temperature is always an important point to consider when Dehydol® LT 8 is stored or shipped. This is shown in the following table (mPa·s, Brookfield LVT):

Viscosity at °C	Dehydol® LT 8
0	solid
10	solid
20	solid
23	solid
30	approx. 170
40	approx. 35
50	approx. 25
60	<20

We would recommend the preparation of 10 – 25% stock solutions of Dehydol® LT 8 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.

Dehydol® LT 8 can form fairly stiff gels at certain concentrations when water is added. The figures below were measured using a Brookfield-Viscosimeter at 23 °C and 60 rpm.

The viscosity of Dehydol® LT 8 at 23 °C as a function of concentration in water (all values in mPa·s):

Water content in %	Dehydol® LT 8
10	approx. 150
20	approx. 5800
30	approx. 6200
40	$>10^5$
50	$>10^5$
60	$>10^5$
70	approx. 90
80	<20
90	<20

The numbers reported have to be regarded as maximum values; the values measured immediately after mixing will be lower than the numbers reported.

Storage

a) Dehydol® LT 8 should be stored indoors in a dry place. Storage rooms must not be overheated (see flash point).

b) Dehydol® LT 8 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) The storage temperature should not be allowed to fall substantially below 20 °C. The congealing point of Dehydol® LT 8 also needs to be taken into account.

d) Dehydol® LT 8 is a cloudy liquid and tends to form sediment, it becomes clear liquid at 40 °C.

e) Liquid that has solidified or that shows signs of sedimentation should be heated to 50 – 70 °C and homogenized before it is processed. Please mix sufficiently prior to use.

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 70 °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.

g) Dehydol® LT 8 must be blanketed with nitrogen if it is stored in heated tanks (at 50 – 60 °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.

Materials

The following materials can be used for tanks and drums:

a) AISI 321 stainless steel (X6CrNiTi1810)
b) AISI 316 Ti stainless steel (X6CrNiMoTi17122)

Shelf life

Provided it is stored properly and drums are kept tightly sealed, Dehydol® LT 8 has a shelf life of at least two years in its original packaging.

Safety

We know of no ill effects that could have resulted from using Dehydol® LT 8 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, Dehydol® LT 8 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.

Note

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