Technical Information

September 2014
Supersedes issue dated May 2014

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WF-No. 4729

Dehypon® E 127

Nonionic surfactants for the detergent and cleaner industry

BASF
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Chemical character

Dehypon® E 127 is a nonionic surfactant described as modified fatty alcohol polyglycol ether.

PRD-No.*

30532222

* BASF's commercial product numbers.

Properties

Dehypon® E 127 is white to yellowish solid at room temperature and becomes clear liquid at 40 °C.

Dehypon® E 127	Unit	Value
Physical form (23 °C)		Solid
Concentration	%	approx. 100
Cloud points (EN 1890)*		
Method D	°C	approx. 52
Method E	°C	approx. 50
pH (EN 1262, 10% in dist. water)**		approx. 6.5
Density (DIN 51757, 40 °C)	g/cm³	approx. 1.023
Melting point (BASF Method)	°C	32 – 34
Dropping point (DIN 51801)	°C	approx. 33
Congealing point (ISO 2207)	°C	approx. 33
Viscosity (EN 12092, 40 °C, Brookfield, 60 rpm)	mPa·s	approx. 100
Flash point (ISO 2592)	°C	approx. 265
Wetting (EN 1772, dist. water, 23 °C, 2 g Soda ash/l)		
0.5 g/l	s	approx. 160
1.0 g/l	s	approx. 110
2.0 g/l	s	approx. 55
Foam volume (EN 12728, 40 °C, 2 g/l water at a hardness of 1.8 mmol Ca-ions/l, after 30 s)	cm³	approx. 100
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 dist. Water
Method B: 1 g of surfactant + 100 g of NaCl solution (c = 50 g/l)
Method C: 1 g of surfactant + 100 g of NaCl solution (c = 100 g/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 of the Dehypon® types can decrease during storage, but this does not have any effect on their performance.*

*** *Applying Harkins-Jordan correction.*

Solubility

Details on the solubility of Dehypon® E 127 in various solvents are given in the table below.

Solubility of the Dehypon® E 127 (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® E 127 is stored or shipped. This is shown in the following table (Brookfield LVT):

Temperature (°C)	Viscosity (mPa·s)
0	Solid
10	Solid
20	Solid
23	Solid
30	$>10^5$
40	100
50	70
60	50

We would recommend the preparation of 10 – 25% stock solutions of Dehypon® E 127 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® E 127 can form viscous liquids 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 Dehypon® E 127 at 23 °C as a function of concentration in water)

Water content (%)	Viscosity (mPa·s)
10	390
20	450
30	700
40	1300
50	1600
60	1500
70	450
80	220
90	100

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) Dehypon® E 127 should be stored indoors in a dry place. Storage rooms must not be overheated.

b) Dehypon® E 127 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® E 127 is a solid and becomes clear liquid at 40 °C

d) Dehypon® E 127 should be heated to 50 – 70 °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 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.

f) Dehypon® E 127 must be blanketed with nitrogen if they are stored in heated tanks (at 40 – 50 °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, Dehypon® E 127 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 Dehypon® E 127 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® E 127 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

September 2014