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Oleyl Alcohol



[General Notices](#)

(Ph. Eur. monograph 2073)

Action and use

Nonionic surfactant.

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DEFINITION

Mixture of unsaturated and saturated long-chain fatty alcohols consisting mainly of octadec-9-enol (oleyl alcohol and elaidyl alcohol; $C_{18}H_{36}O$; M_r 268.5). It may be of vegetable or animal origin.

CHARACTERS

Appearance

Colourless or light yellow liquid.

IDENTIFICATION

- A. Hydroxyl value (see Tests).
- B. Composition of fatty alcohols (see Tests).

TESTS

Appearance

The substance to be examined is clear ([2.2.1](#)) and not more intensely coloured than reference solution B₆ ([2.2.2, Method II](#)).

Refractive index (2.2.6)

1.458 to 1.461, determined at 25 °C.

Cloud point

Maximum 10 °C.

Introduce about 60 g into a cylindrical flat-bottomed container, 30-33.5 mm in internal diameter and 115-125 mm high. Heat to 30 °C, cool, and immerse the container in iced water with the surfaces of the water and the sample at the same level. Insert a thermometer and, using it as a stirring rod, begin stirring rapidly and steadily when the temperature falls below 20 °C. Keep the thermometer immersed throughout the test, and remove and examine the container at regular intervals. The cloud point is the temperature at which the immersed portion of the thermometer, positioned vertically in the centre of the container, is no longer visible when viewed horizontally through the container and sample.

Acid value (2.5.1)

Maximum 1.0, determined on 5.0 g.

Hydroxyl value (2.5.3, Method A)

205 to 215.

Saponification value (2.5.6)

Maximum 2.0.

Composition of fatty alcohols

Gas chromatography ([2.2.28](#)): use the normalisation procedure.

Test solution Mix 25 mg of the substance to be examined and 1.0 mL of [methylene chloride R](#).

Reference solution (a) Dissolve 25 mg of each of [arachidyl alcohol R](#), α-linolenyl alcohol R, [linoleyl alcohol R](#), [oleyl alcohol R](#), [cetyl alcohol R](#) and [stearyl alcohol R](#) in [methylene chloride R](#) and dilute to 5 mL with the same solvent. Dilute 1 mL of this solution to 5 mL with [methylene chloride R](#).

Reference solution (b) Dissolve 10 mg of [linoleyl alcohol R](#) and 1 g of [oleyl alcohol R](#) in [methylene chloride R](#) and dilute to 40 mL with the same solvent.

Column:

- *material:* fused silica;
- *size:* $l = 30$ m, $\varnothing = 0.32$ mm;
- *stationary phase:* [methylpolysiloxane R](#) (film thickness 1 µm).

Carrier gas [helium for chromatography R](#).

Flow rate 1 mL/min.

Split ratio 1:11.

Temperature:

	Time (min)	Temperature (°C)
Column	0 - 1	170
	1 - 9	170 → 210
	9 - 65	210
Injection port		270
Detector		280

Detection Flame ionisation.

Injection 1 µL.

Identify the peaks using the chromatogram obtained with reference solution (a).

Relative retention With reference to oleyl alcohol (retention time = about 30 min): cetyl alcohol = about 0.67; linoleyl alcohol = about 0.98; α-linolenyl alcohol = about 0.99; stearyl alcohol = about 1.06; arachidyl alcohol = about 1.80 (elaidyl alcohol may co-elute with oleyl alcohol).

System suitability Reference solution (b):

- peak-to-valley ratio: minimum 1.2, where H_p = height above the baseline of the peak due to linoleyl alcohol and H_v = height above the baseline of the lowest point of the curve separating this peak from the peak due to oleyl alcohol.

Limits:

- cetyl alcohol: maximum 8.0 per cent;
- stearyl alcohol: maximum 5.0 per cent;
- oleyl alcohol (sum of oleyl and elaidyl alcohols): minimum 80.0 per cent;
- linoleyl alcohol: maximum 3.0 per cent;
- α-linolenyl alcohol: maximum 0.5 per cent;
- arachidyl alcohol: maximum 0.3 per cent.

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