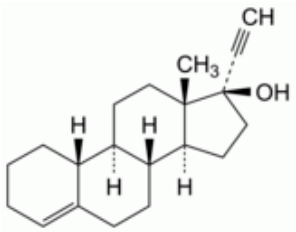
Edition: BP 2025 (Ph. Eur. 11.6 update)

Lynestrenol

General Notices

(Ph. Eur. monograph 0558)



$C_{20}H_{28}O$ 284.4 *52-76-6*

Action and use

Progestogen.

Ph Eur

DEFINITION

19-Nor-17α-pregn-4-en-20-yn-17-ol.

Content

98.0 per cent to 102.0 per cent (dried substance).

CHARACTERS

Appearance

White or almost white, crystalline powder.

Solubility

Practically insoluble in water, soluble in acetone and in ethanol (96 per cent).

IDENTIFICATION

Infrared absorption spectrophotometry (*2.2.24*).

Comparison *lynestrenol CRS*.

TESTS

Appearance of solution

The solution is clear (*2.2.1*) and colourless (*2.2.2, Method II*).

Dissolve 0.2 g in *ethanol (96 per cent) R* and dilute to 10 mL with the same solvent.

Specific optical rotation (*2.2.7*)

-9.5 to -11 (dried substance).

Dissolve 0.900 g in *ethanol (96 per cent) R* and dilute to 25.0 mL with the same solvent.

Related substances

Gas chromatography (*2.2.28*).

Test solution Dissolve 0.250 g of the substance to be examined in *ethyl acetate R* and dilute to 25.0 mL with the same solvent.

Reference solution (a) Dilute 1.0 mL of the test solution to 100.0 mL with *ethyl acetate R*. Dilute 1.0 mL of this solution to 10.0 mL with *ethyl acetate R*.

Reference solution (b) Dissolve 10 mg of *lynestrenol for peak identification CRS* (containing impurities A, B and C) in 1.0 mL of *ethyl acetate R*.

Column:

— *material*: fused silica;

— *size*: *l* = 50 m, Ø = 0.32 mm;

— *stationary phase*: *phenyl(5)methyl(95)polysiloxane R* (film thickness 1.0 µm).

Carrier gas *helium for chromatography R*.

Flow rate 3.0 mL/min.

Split ratio 1:34.

Temperature:

	Time (min)	Temperature (°C)
Column	0 - 30	80 → 230
	30 - 32	230 → 310

	Time (min)	Temperature (°C)
	32 - 42	310
Injection port		150
Detector		300

Detection Flame ionisation.

Injection 1.0 µL.

Identification of impurities Use the chromatogram supplied with *lynestrenol for peak identification CRS* and the chromatogram obtained with reference solution (b) to identify the peaks due to impurities A, B and C.

Relative retention With reference to lynestrenol (retention time = about 38 min): artefact degradation peak = about 0.97; impurity A = about 0.99; impurity B = about 1.005; impurity C = about 1.01.

System suitability Reference solution (b):

— *peak-to-valley ratio*: minimum 2.5, where H_p = height above the baseline of the peak due to impurity B and H_v = height above the baseline of the lowest point of the curve separating this peak from the peak due to lynestrenol.

Limits:

— *impurity A*: not more than 3 times the area of the principal peak in the chromatogram obtained with reference solution (a) (0.3 per cent);

— *impurity C*: not more than twice the area of the principal peak in the chromatogram obtained with reference solution (a) (0.2 per cent);

— *unspecified impurities*: for each impurity, not more than the area of the principal peak in the chromatogram obtained with reference solution (a) (0.10 per cent);

— *total*: not more than 10 times the area of the principal peak in the chromatogram obtained with reference solution (a) (1.0 per cent);

— *disregard limit*: 0.5 times the area of the principal peak in the chromatogram obtained with reference solution (a) (0.05 per cent). Disregard the artefact peak, which may be generated in the injection system.

Loss on drying (*2.2.32*)

Maximum 0.5 per cent, determined on 0.500 g by drying in an oven at 105 °C.

ASSAY

Dissolve 0.150 g in 40 mL of *tetrahydrofuran R* and add 5.0 mL of a 100 g/L solution of *silver nitrate R*. Titrate with *0.1 M sodium hydroxide*. Determine the end-point potentiometrically (*2.2.20*), using a glass indicator electrode and as comparison electrode a silver-silver chloride double-junction electrode with a saturated solution of *potassium nitrate R* as junction liquid. Carry out a blank titration.

1 mL of *0.1 M sodium hydroxide* is equivalent to 28.44 mg of $C_{20}H_{28}O$.

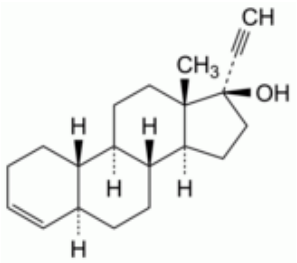
STORAGE

Protected from light.

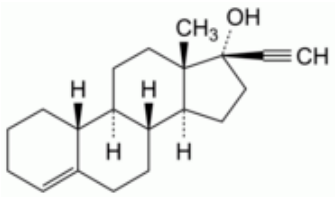
IMPURITIES

Specified impurities A, C.

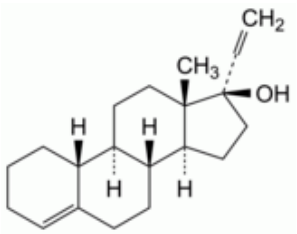
Other detectable impurities (the following substances would, if present at a sufficient level, be detected by one or other of the tests in the monograph. They are limited by the general acceptance criterion for other/unspecified impurities and/or by the general monograph Substances for pharmaceutical use (2034). It is therefore not necessary to identify these impurities for demonstration of compliance. See also 5.10. Control of impurities in substances for pharmaceutical use) B.



A. 19-nor-5α,17α-pregn-3-en-20-yn-17-ol,



B. 19-norpregn-4-en-20-yn-17-ol,



C. 19-nor-17α-pregna-4,20-dien-17-ol.