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Clobetasol Propionate Cream

DEFINITION

Clobetasol Propionate Cream is Clobetasol Propionate in a suitable cream base. It contains NLT 90.0% and NMT 115.0% of the labeled amount of clobetasol propionate ($C_{25}H_{32}ClFO_5$).

IDENTIFICATION

• **A. Thin-Layer Chromatographic Identification Test ⟨201⟩**

Standard solution: 0.6 mg/mL of USP Clobetasol Propionate RS in chloroform

Test solution: Transfer a portion of Cream equivalent to 0.75 mg of clobetasol propionate to a 25-mL, plastic-stoppered centrifuge tube. Add 10 mL of methanol, and cap. Heat in a 60° water bath for 4 min, remove the tube from the bath, and shake vigorously. Repeat the heating and shaking. Cool to room temperature, add 3.5 mL of water, and mix. Centrifuge at 3500 rpm for 10 min. Transfer 5 mL of the supernatant to a 100-mL separator, add 1 g of sodium chloride and 10 mL of water, and mix. Extract with 5 mL of chloroform by shaking for 1 min, collect the lower layer, and evaporate with the aid of a stream of nitrogen to dryness. Dissolve the residue in 0.5 mL of chloroform.

Developing solvent system: Chloroform, acetone, and alcohol (100:10:5)

Acceptance criteria: The R_F value of the principal spot obtained from the *Test solution* corresponds to that from the *Standard solution*.

ASSAY

• **Procedure**

Buffer: 0.05 M monobasic sodium phosphate. Adjust with 50% sodium hydroxide solution to a pH of 5.5.

Mobile phase: Acetonitrile, methanol, and *Buffer* (95:20:85)

Internal standard solution: 0.2 mg/mL of beclomethasone dipropionate in methanol

System suitability solution: 0.001 mg/mL of USP Clobetasol Propionate Related Compound A RS and 0.1 mg/mL of USP Clobetasol Propionate RS in *Mobile phase*

Standard solution: 0.04 mg/mL of USP Clobetasol Propionate RS and 0.08 mg/mL of beclomethasone dipropionate prepared as follows. Transfer 1.0 mg of USP Clobetasol Propionate RS to a 25-mL volumetric flask, add 10.0 mL of the *Internal standard solution*, and dilute with methanol to volume.

Sample solution: Nominally 0.04 mg/mL of clobetasol propionate. In a suitable flask, dissolve a portion of Cream equivalent to 1.0 mg of clobetasol propionate in 10.0 mL of the *Internal standard solution* and 15.0 mL of methanol, and shake vigorously to disperse the Cream. Centrifuge at about 3500 rpm for 10 min, and pass a portion of the supernatant through a filter of 0.45-µm pore size.

Chromatographic system

(See *Chromatography ⟨621⟩, System Suitability*.)

Mode: LC

Detector: UV 240 nm

Column: 4.6-mm × 15-cm; packing L1

Flow rate: 1 mL/min

Injection size: 10 µL

System suitability

Sample: *System suitability solution*

[Note—The relative retention times for clobetasol propionate and clobetasol propionate related compound A are 1.0 and 1.1, respectively.]

Suitability requirements

Resolution: NLT 1.5 between clobetasol propionate and clobetasol propionate related compound A

Column efficiency: NLT 5000 theoretical plates for the clobetasol propionate peak

Tailing factor: NMT 2.0 for the clobetasol propionate peak

Relative standard deviation: NMT 2.0% for the clobetasol propionate peak

Analysis

Samples: *Standard solution* and *Sample solution*

[NOTE—The relative retention times for clobetasol propionate and beclomethasone dipropionate are 1.0 and 1.6, respectively.]

Calculate the percentage of clobetasol propionate ($C_{25}H_{32}ClFO_5$) in the portion of Cream taken:

$$\text{Result} = (R_U/R_S) \times (C_S/C_U) \times 100$$

R_U = ratio of the clobetasol propionate peak area to the internal standard peak area from the *Sample solution*

R_S = ratio of the clobetasol propionate peak area to the internal standard peak area from the *Standard solution*

C_S = concentration of USP Clobetasol Propionate RS in the *Standard solution* (mg/mL)

C_U = nominal concentration of clobetasol propionate in the *Sample solution* (mg/mL)

Acceptance criteria: 90.0%–115.0%

PERFORMANCE TESTS

• **MINIMUM FILL ⟨755⟩:** Meets the requirements

SPECIFIC TESTS

• **MICROBIAL ENUMERATION TESTS ⟨61⟩** and **TESTS FOR SPECIFIED MICROORGANISMS ⟨62⟩:** The total aerobic microbial count does not exceed 10^2 cfu/g. It meets the requirements of the tests for absence of *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia coli*, and *Salmonella* species.

• **pH ⟨791⟩:** 4.5–7.0

ADDITIONAL REQUIREMENTS

• **PACKAGING AND STORAGE:** Preserve in collapsible tubes or in tight containers. Store at controlled room temperature. Do not refrigerate.

• **USP REFERENCE STANDARDS ⟨11⟩**

USP Clobetasol Propionate RS

USP Clobetasol Propionate Related Compound A RS

9α-Fluoro-11β-hydroxy-16β-methyl 3-oxo-androsta-1,4-diene-17(*R*)-spiro-2'-[4'-chloro-5'-ethylfuran-3'(2'*H*)-one].

$C_{25}H_{30}ClFO_4$ 448.96

Auxiliary Information - Please check for your question in the FAQs before contacting USP.

Topic/Question	Contact	Expert Committee
CLOBETASOL PROPIONATE CREAM	Documentary Standards Support	SM52020 Small Molecules 5

Chromatographic Database Information: Chromatographic Database

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