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Topiramate Compounded Oral Suspension

DEFINITION

Topiramate Compounded Oral Suspension contains NLT 90.0% and NMT 110.0% of the labeled amount of topiramate ($C_{12}H_{21}NO_8S$).

Prepare Topiramate Compounded Oral Suspension 20 mg/mL as follows (see *Pharmaceutical Compounding—Nonsterile Preparations* ⟨795⟩).

Topiramate tablets[a] or powder, equivalent to	2 g
Vehicle: a 1:1 mixture of Ora-Sweet[b] and Ora-Plus,[b] a sufficient quantity to make	100 mL

[a] Topiramate 200-mg tablets, Torrent Pharmaceuticals LTD, Kalamazoo, MI.

[b] Perrigo, Minneapolis, MN.

If using tablets, comminute the tablets to a fine powder in a suitable mortar or other mechanical means, or add *Topiramate powder* to the mortar. Wet the powder with a small amount of *Vehicle*, and triturate to make a smooth paste. Add increasing volumes of the *Vehicle* to make the mortar contents pourable. Transfer the contents of the mortar, stepwise and quantitatively, to a calibrated container using the remainder of the *Vehicle*. Add sufficient *Vehicle* to bring to final volume. Shake to mix well.

ASSAY

• **Procedure**

Solution A: Weigh 6.24 g of monobasic sodium phosphate dihydrate, and transfer to a 1-L volumetric flask. Dissolve in 800 mL of water, add 30 mL of triethylamine, and adjust with phosphoric acid to a pH of 2.8. Dilute with water to volume, and mix thoroughly.

Solution B: Weigh 6.25 g of boric acid and 7.5 g of potassium chloride, and transfer to a 1-L volumetric flask. Dissolve in 900 mL of water, and adjust with potassium hydroxide to a pH of 7.8. Dilute with water to volume, and mix thoroughly.

Solution C: Transfer 50 mg of 9-fluorenylmethyl chloroformate to a 10-mL volumetric flask, and dilute with acetonitrile to volume. Store at 4°, and protect from light.

Solution D: Transfer 100 mg of glycine to a 10-mL volumetric flask, and dilute with water to volume.

Mobile phase: Acetonitrile and *Solution A* (48:52). Filter, and degas.

Standard stock solution: 1 mg/mL of USP Topiramate RS in acetonitrile

Standard solution: Transfer 1 mL of *Standard stock solution* into a 10-mL volumetric flask, dilute with *Solution B* to volume, and mix well.

Sample solution: Shake thoroughly each bottle of Oral Suspension. Transfer 0.5 mL of the Oral Suspension into a 10-mL volumetric flask, add 2 mL of water and 5 mL of acetonitrile, and sonicate for 10 min. Dilute with water to volume, and mix well. Pass through a PVDF filter of 0.45-µm pore size, discarding the first 3 mL of filtrate. Mix 1 mL of the filtrate with 9 mL of *Solution B*. Transfer 100 µL of the resulting solution into a HPLC vial, add 50 µL of *Solution C*, and mix on a vortex mixer for 20 s. Incubate at 50° for 15 min. Immediately add 100 µL of *Solution D* to the vial to terminate the reaction. Mix on a vortex mixer for 10 s, and allow to stand for at least 1 min prior to analysis.

Chromatographic system

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

Mode: LC

Detector: UV 264 nm

Column: 4.6-mm × 15-cm; 5-µm packing L1

Column temperature: 52°

Flow rate: 1.0 mL/min

Injection volume: 50 µL

System suitability

Sample: *Standard solution*

[Note—The retention time for topiramate is about 8.8 min.]

Suitability requirements

Tailing factor: NMT 2.0

Relative standard deviation: NMT 2.0%

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of topiramate ($C_{12}H_{21}NO_8S$) in the portion of Oral Suspension taken:

$$\text{Result} = (r_U/r_S) \times (C_S/C_U) \times 100$$

r_U = peak response of topiramate from the *Sample solution*

r_S = peak response of topiramate from the *Standard solution*

C_S = concentration of topiramate in the *Standard solution* (mg/mL)

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

Acceptance criteria: 90.0%–110.0%

SPECIFIC TESTS

• **pH** ⟨791⟩**:** 3.9–4.9

ADDITIONAL REQUIREMENTS

• **Packaging and Storage:** Package in tight, light-resistant containers. Store at 2°–8° or at controlled room temperature.

• **Labeling:** Label it to indicate that it is to be well-shaken before use, and to state the *Beyond-Use Date*.

• **Beyond-Use Date:** NMT 90 days after the date on which it was compounded when stored at 2°–8° or controlled room temperature.

• **USP Reference Standards** ⟨11⟩

USP Topiramate RS

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

Topic/Question	Contact	Expert Committee
TOPIRAMATE COMPOUNDED ORAL SUSPENSION	Brian Serumaga Science Program Manager	CMP2020 Compounding 2020
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	CMP2020 Compounding 2020

Chromatographic Database Information: Chromatographic Database

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