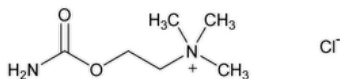


Status: Currently Official on 14-Feb-2025
 Official Date: Official as of 01-May-2021
 Document Type: USP Monographs
 DocId: GUID-2C176246-ADB7-4D6B-8598-28B0BC5E3505_5_en-US
 DOI: https://doi.org/10.31003/USPNF_M12480_05_01
 DOI Ref: 3nz2m

© 2025 USPC
 Do not distribute

Carbachol



$C_6H_{15}ClN_2O_2$ 182.65

Ethanaminium, 2-[(aminocarbonyl)oxy]-N,N,N-trimethyl-, chloride;

Choline chloride, carbamate CAS RN®: 51-83-2; UNII: 8Y164V895Y.

DEFINITION

Carbachol contains NLT 99.0% and NMT 101.0% of carbachol ($C_6H_{15}ClN_2O_2$), calculated on the dried basis.

IDENTIFICATION

- **A. [SPECTROSCOPIC IDENTIFICATION TESTS \(197\)](#), [Infrared Spectroscopy](#):** 197K

Change to read:

- **B. [IDENTIFICATION TESTS—GENERAL \(191\)](#), [Chemical Identification Tests, Chloride](#)**

Sample solution: ▲ 50 mg/mL of Carbachol in [water](#) ▲ (USP 1-May-2021)

Acceptance criteria: Meets the requirements ▲ (USP 1-May-2021)

ASSAY

Change to read:

PROCEDURE

Sample: 150 mg of Carbachol

Titrimetric system

▲ (See [Titrimetry \(541\)](#).) ▲ (USP 1-May-2021)

Mode: Direct titration

Titrant: ▲ [0.1 N perchloric acid in glacial acetic acid VS](#) ▲ (USP 1-May-2021)

Endpoint detection: Potentiometric

Blank: 10 mL of [glacial acetic acid TS](#) and 40 mL of [acetic anhydride](#)

Analysis: Dissolve the *Sample* in a mixture of 10 mL of [glacial acetic acid TS](#) and 40 mL of [acetic anhydride](#). Titrate with *Titrant*. Perform a blank determination, and make any necessary correction ▲ (USP 1-May-2021). Each mL of 0.1 N perchloric acid is equivalent to 18.27 mg of carbachol ($C_6H_{15}ClN_2O_2$).

Acceptance criteria: 99.0%–101.0% on the dried basis

IMPURITIES

- **[RESIDUE ON IGNITION \(281\)](#):** NMT 0.1%

Change to read:

- **[ORDINARY IMPURITIES \(466\)](#)**

Solvent: [Methanol](#) and [water](#) (80:20)

Eluant: [Alcohol](#)

Visualization: 17

Analysis

Samples: *Test Solution* and *Standard Solutions*

Proceed as directed in the chapter except use a thin-layer chromatographic plate coated with ▲ [acid-washed aluminum oxide](#) ▲ (USP 1-May-2021)

Acceptance criteria: Meets the requirements

SPECIFIC TESTS

- **[MELTING RANGE OR TEMPERATURE \(741\)](#):** 200°–204°, with some decomposition
- **[LOSS ON DRYING \(731\)](#)**

Sample: 1 g of Carbachol
Analysis: Dry the *Sample* at 105° for 2 h.
Acceptance criteria: NMT 2.0%

ADDITIONAL REQUIREMENTS

- **PACKAGING AND STORAGE:** Preserve in tight containers.
- **USP REFERENCE STANDARDS (11).**
[USP Carbachol RS](#)

Auxiliary Information - Please [check for your question in the FAQs](#) before contacting USP.

Topic/Question	Contact	Expert Committee
CARBACHOL	Documentary Standards Support	SM42020 Small Molecules 4

Chromatographic Database Information: [Chromatographic Database](#)

Most Recently Appeared In:
Pharmacopeial Forum: Volume No. 45(2)

Current DocID: GUID-2C176246-ADB7-4D6B-8598-28B0BC5E3505_5_en-US
DOI: https://doi.org/10.31003/USPNF_M12480_05_01
DOI ref: [3nz2m](#)

OFFICIAL