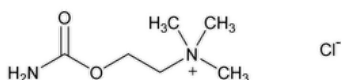


Status: Currently Official on 14-Feb-2025  
 Official Date: Official as of 01-May-2021  
 Document Type: USP Monographs  
 DocId: GUID-2C176246-ADB7-4D6B-8598-28B0BC5E3505\_5\_en-US  
 DOI: [https://doi.org/10.31003/USPNF\\_M12480\\_05\\_01](https://doi.org/10.31003/USPNF_M12480_05_01)  
 DOI Ref: 3nz2m

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# 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      | <a href="#">Documentary Standards Support</a> | 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](https://doi.org/10.31003/USPNF_M12480_05_01)  
**DOI ref:** [3nz2m](#)

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