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Codeine Phosphate Compounded Oral Solution

DEFINITION
Codeine Phosphate Compounded Oral Solution contains NLT 90.0% and NMT 110.0% of the labeled amount of codeine phosphate ($C_{18}H_{21}NO_3 \cdot H_3PO_4 \cdot \frac{1}{2}H_2O$).

Prepare Codeine Phosphate Compounded Oral Solution 3 mg/mL as follows (see [Pharmaceutical Compounding—Nonsterile Preparations \(795\)](#)).

Codeine Phosphate	300 mg
Purified Water	1.3 mL
Ora-Sweet, ^a a sufficient quantity to make	100 mL

^a Paddock Laboratories, Minneapolis, MN.

Calculate the required quantity of each ingredient for the total amount to be prepared. Place *Codeine Phosphate* powder in a suitable calibrated container. Add *Purified Water* and mix to dissolve. Add the *Ora-Sweet* to bring to final volume, and mix well.

ASSAY

- PROCEDURE**
Buffer: 25 mM monobasic potassium phosphate adjusted with phosphoric acid to a pH of 2.5
Mobile phase: Methanol and *Buffer* (30:70). Filter and degas.
Internal standard solution: 0.5 mg/mL of theophylline
Standard stock solution: 1.0 mg/mL of [USP Codeine Phosphate RS](#)
Standard solution: Pipet 0.5 mL of the *Standard stock solution* into a 100-mL volumetric flask, add 0.6 mL of the *Internal standard solution*, dilute with water to volume, and pass through a membrane filter of 0.2-µm pore size to obtain a solution with nominal concentrations of 5 µg/mL of codeine phosphate and 3 µg/mL of theophylline.
Sample solution: Shake the Oral Solution thoroughly by hand. Transfer 2 mL of Oral Solution from each bottle into a 50-mL volumetric flask, and dilute with water to volume. Transfer 4.17 mL of the diluted sample to a 100-mL volumetric flask, add 0.6 mL of *Internal standard solution*, dilute with water to volume, and filter to obtain a solution with nominal concentrations of 5 µg/mL of codeine phosphate and 3 µg/mL of theophylline.

Chromatographic system
(See [Chromatography \(621\)](#), [System Suitability](#).)

- Mode:** LC
Detector: UV 210 nm
Column: 4.6-mm × 10-cm; 5-µm packing L1
Flow rate: 1.0 mL/min
Injection volume: 10 µL

System suitability

- Sample:** *Standard solution*
[NOTE—The retention times for codeine phosphate and theophylline are about 1.9 and 3.8 min, respectively.]

Suitability requirements
Relative standard deviation: NMT 2.0% for replicate injections

Analysis

- Samples:** *Standard solution* and *Sample solution*
Calculate the percentage of the labeled amount of codeine phosphate ($C_{18}H_{21}NO_3 \cdot H_3PO_4 \cdot \frac{1}{2}H_2O$) in the portion of Oral Solution taken:



$$\text{Result} = (R_U/R_S) \times (C_S/C_U) \times (M_{r1}/M_{r2}) \times 100$$

R_U = peak response ratio of codeine phosphate to the internal standard from the *Sample solution*

R_S = peak response ratio of codeine phosphate to the internal standard from the *Standard solution*

C_S = concentration of [USP Codeine Phosphate RS](#) in the *Standard solution* (µg/mL)

C_U = nominal concentration of codeine phosphate in the *Sample solution* (µg/mL)

M_{r1} = molecular weight of codeine phosphate hemihydrate, 406.37

M_{r2} = molecular weight of anhydrous codeine phosphate, 397.37

Acceptance criteria: 90.0%–110.0%

SPECIFIC TESTS

- **pH** (791): 3.7–4.7

ADDITIONAL REQUIREMENTS

- **PACKAGING AND STORAGE:** Package in tight, light-resistant containers. Store at controlled room temperature.
- **BEYOND-USE DATE:** NMT 90 days after the date on which it was compounded, when stored at controlled room temperature
- **LABELING:** Label it to indicate the *Beyond-Use Date*.
- **USP REFERENCE STANDARDS** (11)
[USP Codeine Phosphate RS](#)

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

Topic/Question	Contact	Expert Committee
CODEINE PHOSPHATE COMPOUNDED ORAL SOLUTION	Brian Serumaga Science Program Manager	CMP2020 Compounding 2020

Chromatographic Database Information: [Chromatographic Database](#)

Most Recently Appeared In:

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