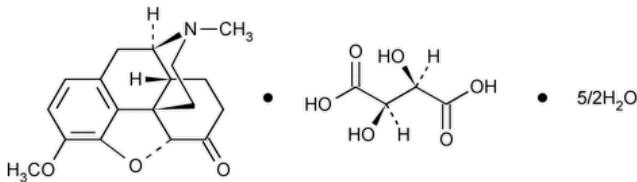


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Hydrocodone Bitartrate



$C_{18}H_{21}NO_3 \cdot C_4H_6O_6 \cdot 2\frac{1}{2}H_2O$ 494.49

Morphinan-6-one, 4,5-epoxy-3-methoxy-17-methyl-, (5 α)-, [R-(R*,R*)]-2,3-dihydroxybutanedioate (1:1), hydrate (2:5).

4,5 α -Epoxy-3-methoxy-17-methylmorphinan-6-one tartrate (1:1) hydrate (2:5) CAS RN®: 34195-34-1; 6190-38-1; UNII: NO70W886KK.

Anhydrous 449.46 CAS RN®: 143-71-5; UNII: 9GU1G05Y03.

» Hydrocodone Bitartrate, dried in vacuum at 105° for 2 hours, contains not less than 98.0 percent and not more than 102.0 percent of

$C_{18}H_{21}NO_3 \cdot C_4H_6O_6$.

Packaging and storage—Preserve in tight, light-resistant containers.

USP REFERENCE STANDARDS (11)—

[USP Dihydrocodeine Bitartrate RS](#)

[USP Hydrocodone Bitartrate RS](#)

Identification—

Change to read:

A: ▲[Spectroscopic Identification Tests \(197\), Infrared Spectroscopy: 197M](#)▲ (CN 1-May-2020) .

Change to read:

B: ▲[Spectroscopic Identification Tests \(197\), Ultraviolet-Visible Spectroscopy: 197U](#)▲ (CN 1-May-2020)

Solution: 100 μ g per mL.

Medium: 0.1 N sulfuric acid.

SPECIFIC ROTATION (781S):

between -79° and -84° .
Test solution: 20 mg, undried, per mL, in water. Calculate the result on the basis of the undried aliquot.

pH (791): between 3.2 and 3.8, in a solution (1 in 50).

Loss on drying—Dry it in vacuum at 105° for 2 hours [NOTE—See the Note in the Assay for precautions regarding handling of the dried material.]; it loses not less than 7.5% and not more than 12.0% of its weight.

Residue on ignition (281): not more than 0.1%.

Chloride—To 10 mL of a solution (1 in 100), acidified with nitric acid, add a few drops of silver nitrate TS: no opalescence is produced immediately.

Assay—[NOTE—Dry both the [USP Hydrocodone Bitartrate RS](#) and the Hydrocodone Bitartrate materials in vacuum at 105° for 2 hours.

Immediately transfer the dried materials to a desiccator containing phosphorus pentoxide. Weigh each dried material individually within 1 minute, and proceed with the Assay.]

Mobile phase—Prepare a mixture of acetonitrile, water, and diethylamine (800:4:1). Prepare a filtered and degassed mixture of this solution and methanol (55:45). Make adjustments if necessary (see *System Suitability* under [Chromatography \(621\)](#)).

Standard preparation—Transfer about 10 mg of previously dried USP Hydrocodone Bitartrate RS, accurately weighed, to a 10-mL volumetric flask, add 5 mL of water, and mix to dissolve. Dilute with methanol to volume, and mix to obtain a solution having a known concentration of about 1 mg per mL.

Assay preparation—Transfer an accurately weighed quantity of previously dried Hydrocodone Bitartrate, equivalent to about 100 mg of hydrocodone bitartrate, $C_{18}H_{21}NO_3 \cdot C_4H_6O_6$, to a 100-mL volumetric flask, add 50 mL of water, and mix to dissolve. Dilute with methanol to volume, and mix.

Resolution solution—Prepare a solution in methanol containing about 0.4 mg of USP Dihydrocodeine Bitartrate RS and 0.6 mg of [USP Hydrocodone Bitartrate RS](#) per mL. Prepare a mixture of this solution and water (1:1).

Chromatographic system (see [CHROMATOGRAPHY \(621\)](#))—The liquid chromatograph is equipped with a 280-nm detector and a 4.6-mm \times 25-cm column that contains packing L3. The flow rate is about 1.5 mL per minute. Chromatograph the *Resolution solution*, and record the responses as directed for *Procedure*: the relative retention times are about 0.7 for hydrocodone and 1.0 for dihydrocodeine; and the resolution, *R*,

between hydrocodone and dihydrocodeine is not less than 3.0. Chromatograph the *Standard preparation*, and record the peak responses as directed for *Procedure*: the relative standard deviation for replicate injections is not more than 1.0%.

Procedure—Separately inject equal volumes (about 20 μ L) of the *Standard preparation* and the *Assay preparation* into the chromatograph, record the chromatograms, and measure the responses for the major peaks. Calculate the quantity, in mg, of $C_{18}H_{21}NO_3 \cdot C_4H_6O_6$ in the portion of Hydrocodone Bitartrate taken by the formula:

$$(100C)(r_U/r_S)$$

in which C is the concentration, in mg per mL, of USP Hydrocodone Bitartrate RS in the *Standard preparation*; and r_U and r_S are the peak responses obtained from the *Assay preparation* and the *Standard preparation*, respectively.

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

Topic/Question	Contact	Expert Committee
HYDROCODONE BITARTRATE	Documentary Standards Support	SM22020 Small Molecules 2
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM22020 Small Molecules 2

Chromatographic Database Information: [Chromatographic Database](#)

Most Recently Appeared In:

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