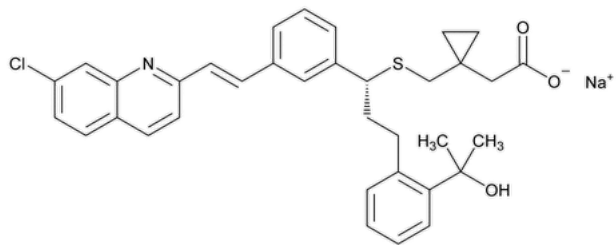


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Montelukast Sodium



$C_{35}H_{35}ClNaO_3S$ 608.17
Cyclopropaneacetic acid, 1-[[[1-[3-[2-(7-chloro-2-quinolinyl)ethenyl]phenyl]-3-[2-(1-hydroxy-1-methylethyl)phenyl]propyl]thio]methyl]-, sodium salt, [R, (E)];
Sodium 1-[[[(R) -m-[(E)-2-(7-chloro-2-quinolyl)vinyl]-α-[o-(1-hydroxy-1-methylethyl)phenethyl]benzyl]thio]-methyl]cyclopropaneacetate CAS RN®: 151767-02-1; UNII: U103J18SFL.
 $C_{35}H_{36}ClNO_3S$ 586.18
Montelukast CAS RN®: 158966-92-8; UNII: MHM278SD3E.

DEFINITION
Montelukast Sodium contains NLT 98.0% and NMT 102.0% of $C_{35}H_{35}ClNaO_3S$, calculated on the anhydrous and solvent-free basis.

IDENTIFICATION

Change to read:

- **A.**▲ [SPECTROSCOPIC IDENTIFICATION TESTS \(197\)](#), [Infrared Spectroscopy](#): 197A, 197K, or 197M▲ (CN 1-May-2020)
- **B.** [IDENTIFICATION TESTS—GENERAL, Sodium \(191\)](#).
Sample: 100 mg
Analysis: Ignite the *Sample* in a crucible until an almost white residue is obtained. Take up the residue in 2 mL of water, and filter.
Acceptance criteria: The filtrate meets the requirements of test A.
- **C.** Meets the requirements of the test for *Enantiomeric Purity*.

ASSAY

[NOTE—Avoid exposure of the samples to light. Use low-actinic glassware.]

• **PROCEDURE**

- Solution A:** Add 1.5 mL of trifluoroacetic acid to 1 L of water.
Solution B: Add 1.5 mL of trifluoroacetic acid to 1 L of acetonitrile.
Mobile phase: See [Table 1](#). Return to original conditions and re-equilibrate the column.

Table 1

Time (min)	Solution A (%)	Solution B (%)
0	60	40
3.0	60	40
16.0	49	51

Diluent: Methanol and water (9:1)
Standard solution: 0.13 mg/mL of [USP Montelukast Dicyclohexylamine RS](#) in *Diluent*
Sample solution: 0.1 mg/mL of Montelukast Sodium in *Diluent*
Chromatographic system
(See [Chromatography \(621\), System Suitability](#).)
Mode: LC

Detector: UV 238 nm**Column:** 4.6-mm × 5-cm; 1.8-μm packing L11**Column temperature:** 30°**Flow rate:** 1.2 mL/min**Injection size:** 10 μL**System suitability****Sample:** *Standard solution***Suitability requirements****Relative standard deviation:** NMT 0.73%**Analysis****Samples:** *Standard solution* and *Sample solution*Calculate the percentage of montelukast sodium (C₃₅H₃₅ClNNaO₃S) in the portion of Montelukast Sodium taken:

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

 r_U = peak area from the *Sample solution* r_S = peak area from the *Standard solution* C_S = concentration of the *Standard solution* (mg/mL) C_U = concentration of the *Sample solution* (mg/mL) M_{r1} = molecular weight of montelukast sodium, 608.17 M_{r2} = molecular weight of montelukast dicyclohexylamine, 767.50**Acceptance criteria:** 98.0%–102.0% on the anhydrous and solvent-free basis**IMPURITIES****• ORGANIC IMPURITIES**

[NOTE—Avoid exposure of the samples to light. Use low-actinic glassware.]

Solution A, Solution B, Mobile phase, Diluent, and Chromatographic system: Proceed as directed in the Assay.**Impurity solution:** 1 mg/mL of [USP Montelukast for Peak Identification RS](#) in *Diluent***System suitability solution:** Transfer 1 mL of the *Impurity solution* to a colorless glass vial, and expose to ambient light for approximately 20 min to generate the *cis*-isomer of montelukast.**Sample solution:** 1 mg/mL of Montelukast Sodium in *Diluent***Sensitivity solution:** 0.5 μg/mL of Montelukast Sodium in *Diluent* from the *Sample solution***System suitability****Samples:** *System suitability solution* and *Sensitivity solution***Suitability requirements****Resolution:** NLT 2.5 between the *cis*-isomer and montelukast; NLT 1.5 between montelukast and the methylketone impurity, *System suitability solution***Signal-to-noise ratio:** NLT 10, *Sensitivity solution***Analysis****Sample:** *Sample solution*

Calculate the percentage of each impurity in the portion of Montelukast Sodium taken:

$$\text{Result} = (r_U/r_T) \times 100$$

 r_U = peak response of each impurity from the *Sample solution* r_T = sum of all the peak responses from the *Sample solution***Acceptance criteria:** See [Table 2](#).**Reporting level for impurities:** 0.05%**Table 2**

Name	Relative Retention Time	Acceptance Criteria, NMT (%)
Sulfoxide impurity ^a	0.4	