Amiloride hydrochloride (Amiloridi hydrochloridum)

2018-01

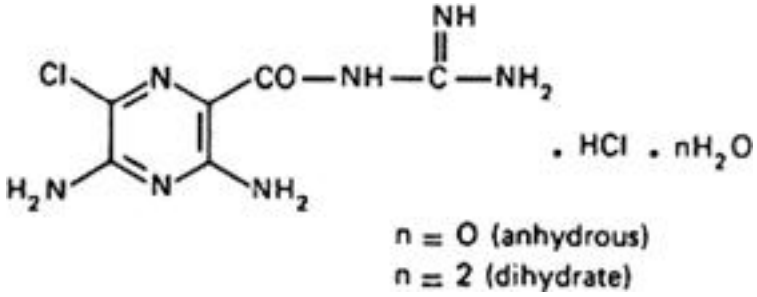
Amiloride hydrochloride, anhydrous

Amiloride hydrochloride dihydrate

Molecular formula. $C_6H_8ClN_7O,HCl$ (anhydrous); $C_6H_8ClN_7O,HCl,2H_2O$ (dihydrate).

Relative molecular mass. 266.1 (anhydrous); 302.1 (dihydrate).

Graphic formula.



Chemical name. *N*-Amidino-3,5-diamino-6-chloropyrazinecarboxamide monohydrochloride; 3,5-diamino-*N*-(aminoiminomethyl)-6-chloropyrazinecarboxamide monohydrochloride; 3,5-diamino-6-chloro-*N*-(diaminomethylene)pyrazinecarboxamide monohydrochloride; CAS Reg. No. 2016-88-8 (anhydrous). *N*-Amidino-3,5-diamino-6-chloropyrazinecarboxamide monohydrochloride dihydrate; 3,5-diamino-*N*-(aminoiminomethyl)-6-chloropyrazinecarboxamide monohydrochloride dihydrate; 3,5-diamino-6-chloro-*N*-(diaminomethylene)-pyrazinecarboxamide monohydrochloride dihydrate; CAS Reg. No. 17440-83-4 (dihydrate).

Description. A pale yellow to greenish yellow powder; odourless or almost odourless.

Solubility. Slightly soluble in water and ethanol (~750 g/l) TS; practically insoluble in ether R.

Category. Diuretic.

Storage. Amiloride hydrochloride should be kept in a well-closed container, protected from light.

Requirements

Definition. Amiloride hydrochloride contains not less than 98.0% and not more than 101.0% of $C_6H_8ClN_7O,HCl$, calculated with reference to the dried substance.

Identity tests

• Either tests A and C or tests B and C may be applied.

A. Carry out the examination as described under 1.7 Spectrophotometry in the infrared region. The infrared absorption spectrum is concordant with the spectrum obtained from amiloride hydrochloride RS or with the *reference spectrum* of amiloride hydrochloride.

B. The absorption spectrum of a 5.0 µg/mL solution in hydrochloric acid (0.1 mol/l) VS, when observed between 230 nm and 380 nm, exhibits maxima at about 285 nm and 361 nm; the absorbances of a 1-cm layer at the maximum wavelength of 285 nm and 361 nm are about 0.28 and 0.31, respectively.

C. A 5 mg/mL solution yields reaction A described under 2.1 General identification tests as characteristic of chlorides.

Sulfated ash. Not more than 1.0 mg/g.

Water. Determine as described under 2.8 Determination of water by the Karl Fischer method, Method A, using about 0.2 g of the substance; for the dihydrate the water content is not less than 110 mg/g and not more than 130 mg/g.

Free acid. Dissolve 1.0 g in a mixture of 50 mL of methanol R and 50 mL of water, and titrate with sodium hydroxide (0.1 mol/l) VS determining the end-point potentiometrically; not more than 0.3 mL is required.

Related substances. Carry out the test as described under *1.14.1 Chromatography*, Thin-layer chromatography, using silica gel R1 as the coating substance and a mixture of 15 volumes of tetrahydrofuran R and 2 volumes of ammonia (~50 g/l) TS as the mobile phase. Apply separately to the plate 5 µl of each of 2 solutions in a mixture of 4 volumes of methanol R and 1 volume of chloroform R containing (A) 0.40 mg of the test substance per mL, (B) 4.0 µg of the test substance per mL. After removing the

plate from the chromatographic chamber, allow it to dry in air and examine the chromatogram in ultraviolet light (365 nm). Any spot obtained with solution A, other than the principal spot, is not more intense than that obtained with solution B.

Assay. Dissolve 0.20 g, accurately weighed, in a mixture of 5.0 mL of hydrochloric acid (0.01 mol/L) VS and 50 mL of dehydrated ethanol R. Carry out a potentiometric titration using sodium hydroxide (0.1 mol/L) VS, as described under *2.6 Non-aqueous titration*. Read the volume added between the two points of inflexion.

1 mL of sodium hydroxide (0.1 mol/L) VS is equivalent to 26.61 mg of $C_6H_8ClN_7O,HCl$.