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Meglumine Amidotrizoate Injection

General Notices

Action and use

Organic base used in the preparation of organic acids.

DEFINITION

Meglumine Amidotrizoate Injection is a sterile solution of the Meglumine salt of Amidotrizoic Acid Dihydrate in Water for Injections.

The injection complies with the requirements stated under Parenteral Preparations and with the following requirements.

Content of meglumine amidotrizoate, $C_{11}H_9I_3N_2O_4,C_7H_{17}NO_5$

97.0 to 103.0% of the stated amount.

CHARACTERISTICS

A colourless to pale yellow, slightly viscous liquid.

IDENTIFICATION

A. Evaporate 2 mL of the injection to dryness and heat 50 mg of the residue. Violet vapours of iodine are evolved.
B. To 20 mg of the residue obtained by evaporating the injection to dryness add 5 mL of 1M *sodium hydroxide* and boil gently under a reflux condenser for 10 minutes. Cool, add 5 mL of 2M *hydrochloric acid* and cool in ice for 5 minutes. Add 4 mL of a 1% w/v solution of *sodium nitrite*, cool in ice for 5 minutes, add 0.3 g of *sulfamic acid*, swirl gently until effervescence ceases and add 2 mL of a 0.4% w/v solution of N-*(1-naphthyl)ethylenediamine dihydrochloride*. An orange-red colour is produced.
C. To a quantity containing 1 g of meglumine amidotrizoate add 50 mL of *water* and a slight excess of 2M *hydrochloric acid* and filter. Evaporate the filtrate to dryness on a water bath, dissolve the residue in a small quantity of boiling *ethanol (90%)*, filter and cool the filtrate in ice. The *melting point* of the dried precipitate is about 146°, Appendix V A.

TESTS

Acidity or alkalinity

pH, 6.0 to 7.0, Appendix V L.

Meglumine

22.9 to 25.3% of the stated content of meglumine amidotrizoate when determined by the following method. Measure the *optical rotation* of the injection, Appendix V F, using a 2-dm tube. Calculate the percentage content of meglumine using the expression 2.104*R* where *R* is the numerical value of the rotation.

Free amine

To a quantity containing 1 g of meglumine amidotrizoate in a 50 mL glass-stoppered graduated flask add sufficient *water* to produce 5 mL, 10 mL of 0.1M *sodium hydroxide* and 25 mL of *dimethyl sulfoxide*. Stopper the flask, mix the contents by gentle swirling and cool in ice, protected from light. After 5 minutes add slowly 2 mL of *hydrochloric acid*, mix and allow to stand for 5 minutes. Add 2 mL of a 2% w/v solution of *sodium nitrite*, mix and allow to stand for 5 minutes. Add 1 mL of an 8% w/v solution of *sulfamic acid*, mix and allow to stand for 5 minutes. Add 2 mL of a 0.1% w/v solution of N-*(1-naphthyl)ethylenediamine dihydrochloride* in a 70% v/v solution of *propane-1,2-diol* and mix. Remove the flask from the ice and allow to stand in water at 22° to 25° for 10 minutes, occasionally shaking gently. Add sufficient *dimethyl sulfoxide* to produce 50 mL and mix. Within 5 minutes of diluting to 50 mL measure the *absorbance* of the resulting solution at the maximum at 470 nm, Appendix II B, using in the reference cell a solution prepared by treating 5 mL of *water* in the same manner. The absorbance is not more than 0.40.

Inorganic iodide

Dilute a quantity containing 0.80 g of meglumine amidotrizoate to 10 mL with *water*, add sufficient 2M *nitric acid* dropwise to ensure complete precipitation of the iodinated acid and add 3 mL in excess. Filter, wash the precipitate with 5 mL of *water*, add to the filtrate 1 mL of *hydrogen peroxide solution (100 vol)* and 1 mL of *chloroform* and shake. Any purple colour in the chloroform layer is not more intense than that obtained by adding 2 mL of *iodide standard solution (20 ppm I)* to a mixture of 3 mL of 2M *nitric acid* and sufficient *water* to equal the volume of the test solution, adding 1 mL of *hydrogen peroxide solution (100 vol)* and 1 mL of *chloroform* and shaking (50 ppm).

Bacterial endotoxins

Carry out the *test for bacterial endotoxins*, Appendix XIV C. The endotoxin limit concentration is less than 1.0 IU per mL of Meglumine Amidotrizoate Injection.

ASSAY

Mix a quantity containing 0.5 g of meglumine amidotrizoate with 12 mL of 5M *sodium hydroxide* and 20 mL of *water*, add 1 g of *zinc powder* and boil under a reflux condenser for 30 minutes. Cool, rinse the condenser with 30 mL of *water*, filter through absorbent cotton and wash the flask and filter with two 20 mL quantities of *water*. To the combined filtrate and washings add 80 mL of *hydrochloric acid*, cool and titrate with *0.05M potassium iodate VS* until the dark brown solution becomes light brown. Add 5 mL of *chloroform* and continue the titration, shaking well after each addition, until the chloroform becomes colourless. Each mL of *0.05M potassium iodate VS* is equivalent to 26.97 mg of $C_{11}H_9I_3N_2O_4$,$C_7H_{17}NO_5$. Determine the *weight per mL* of the injection, Appendix V G, and calculate the percentage w/v of $C_{11}H_9I_3N_2O_4$,$C_7H_{17}NO_5$.

STORAGE

Meglumine Amidotrizoate Injection should be protected from light.

LABELLING

The strength is stated as the percentage w/v of meglumine amidotrizoate.