DISODIUM 5'-INOSINATE

Prepared at the 41st JECFA (1993), published in FNP 52 Add 2 (1993) superseding specifications prepared at the 18th JECFA (1974), published in NMRS 54B (1975) and in FNP 52 (1992). Metals and arsenic specifications revised at the 57th JECFA (2001). A group ADI 'not specified' for inosinic acid and its Ca, K & Na salts, was established at the 29th JECFA (1985)

SYNONYMS Sodium 5'-inosinate, sodium inosinate, IMP, INS No. 631

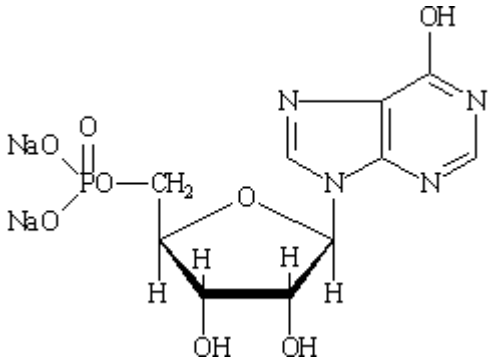
DEFINITION

Chemical names: Disodium inosine-5'-monophosphate

C.A.S. number: 4691-65-0

Chemical formula: $C_{10}H_{11}N_4Na_2O_8P \cdot x\ H_2O$ (x = approximately 7)

Structural formula:



Formula weight: 392.17 (anhydrous)

Assay: Not less than 97.0% and not more than 102.0% on the anhydrous basis

DESCRIPTION Odourless, colourless or white crystals, or a white crystalline powder

FUNCTIONAL USES Flavour enhancer

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4): Soluble in water, sparingly soluble in ethanol, practically insoluble in ether

Spectrophotometry (Vol. 4): A 1 in 50,000 solution of the sample in 0.01 N hydrochloric acid exhibits an absorbance maximum at 250±2nm. The ratio A250/A260 is between 1.55 and 1.65, and the ratio A280/260 is between 0.20 and 0.30.

Test for sodium (Vol. 4): Passes test

Test for ribose (Vol. 4): Passes test

Test for organic phosphate (Vol. 4)	Passes test Test 5 ml of a 1 in 20 soln
PURITY	
Water (Vol. 4)	Not more than 29% (Karl Fischer Method)
pH (Vol. 4)	7.0 - 8.5 (1 in 20 soln)
Amino acids	Not detectable by the following test: To 5 ml of a 1 in 1,000 solution add 1 ml of ninhydrin TS and heat for 3 min. No colour is produced.
Related foreign substances (Vol. 4)	Chromatographically not detectable Test 1 µl of a 1 in 200 soln
Lead (Vol. 4)	Not more than 1 mg/kg Determine using an atomic absorption technique appropriate to the specified level. The selection of sample size and method of sample preparation may be based on the principles of the method described in Volume 4, “Instrumental Methods.”

METHOD OF ASSAY

Weigh accurately about 500 mg of the sample, dissolve in and make to 1,000 ml with 0.01 N hydrochloric acid. Take 10.0 ml of this solution and dilute with 0.01 N hydrochloric acid to 250 ml. Determine the absorbance A of the solution in a 1-cm cell at the wave length of 250 nm using 0.01 N hydrochloric acid as the reference blank. Calculate the content of $C_{10}H_{11}N_4Na_2O_8P$, in % in the sample by the formula:

$$\frac{A}{310} \times \frac{250{,}000}{\text{weight of sample (mg)}} \times \frac{100}{100 - \text{water \%}} \times 100$$