DIPOTASSIUM 5'-GUANYLATE

Prepared at the 29th JECFA (1985), published in FNP 34 (1986) and FNP 52 (1992). Metals and arsenic specifications revised at the 57th JECFA (2001). A group ADI 'not specified' for guanylic acid and its Ca, K & Na salts, was established at the 29th JECFA (1985)

SYNONYMS   Potassium guanylate, potassium 5'-guanylate, INS No. 628

DEFINITION

Chemical names   Dipotassium guanosine-5'-monophosphate
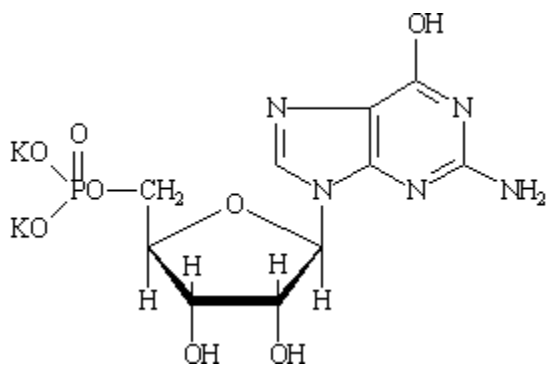
C.A.S. number   3254-39-5

Chemical formula $C_{10}H_{12}K_2N_5O_8P$

Structural formula

Formula weight   439.40

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

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

FUNCTIONAL USES Flavour enhancer

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4)   Freely soluble in water; practically insoluble in ethanol

Spectrophotometry (Vol. 4)   A 1 in 50,000 solution of the sample in 0.01 N hydrochloric acid exhibits an absorbance maximum at 256±2nm. The ratio A250/A260 is between 0.95 and 1.03, and the ratio A280/260 is between 0.63 and 0.71.

Test for potassium (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 solution

PURITY

Loss on drying (Vol. 4)   Not more than 5% (120°, 4 h)

pH (Vol. 4)   7.0 - 8.5 (1 in 20 soln)

Related foreign   Chromatographically not detectable
substances (Vol. 4)   Test 1 µl of a 1 in 200 solution

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   Weigh accurately about 0.5 g of the sample, dissolve in and make to 1,000
ASSAY   ml with 0.01 N hydrochloric acid. Take 10 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 260 nm using 0.01 N
hydrochloric acid as the reference. Calculate the content of $C_{10}H_{12}K_2N_5O_8P$,
in % by the formula:

$$\frac{A}{268.6} \; x \; \frac{250,000}{weight\ of\ sample\ (mg)} \; x \; \frac{100}{100 - loss\ on\ drying\ (\%)} \; x\ 100$$