RIBOFLAVIN 5'-PHOSPHATE SODIUM

Prepared at the 31st JECFA (1987), published in FNP 38 (1988) and in FNP 52 (1992). Metals and arsenic specifications revised at the 59th JECFA (2002). Add 6. A group ADI 0-0.5 mg/kg bw for riboflavin from Bacillus subtilis, synthetic riboflavin and riboflavin-5-phosphate was established at the 51st JECFA (1998).

SYNONYMS Riboflavin 5'-phosphate ester monosodium salt, Vitamin B_2 phosphate ester monosodium salt; INS No. 101(ii)

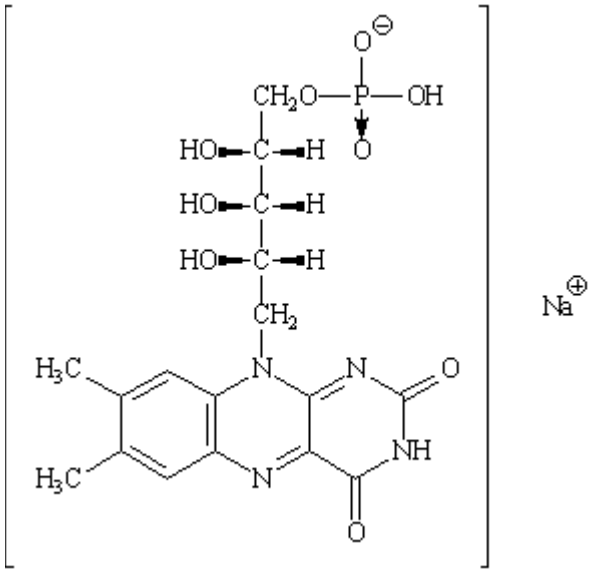
DEFINITION These specifications apply to riboflavin 5'-phosphate sodium together with minor amounts of free riboflavin and riboflavin diphosphate sodium.

Chemical names Monosodium (2R,3R,4S)-5-(3')10'-dihydro-7',8'-dimethyl-2',4'-dioxo-10'-benzo[g]pteridinyl)-2,3,4-trihydroxypentyl phosphate; monosodium salt of 5'-monophosphate ester of riboflavin.

C.A.S. number 130-40-5 (anhydrous), 6184-17-4 (dihydrate)

Chemical formula $C_{17}H_{20}N_4NaO_9P \cdot 2H_2O$

Structural formula



Formula weight 514.36

Assay Not less than 95% of total colouring matters calculated as $C_{17}H_{20}N_4NaO_9P \cdot 2H_2O$

DESCRIPTION Yellow to orange crystalline hygroscopic powder, with slight odour

FUNCTIONAL USES Colour

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4)	Soluble in water; insoluble in ethanol
Spectrophotometry (Vol. 4)	Using the aqueous solution from the Assay, determine the absorbance (A) at 267 nm, 375 nm and 444 nm. The ratio A_{375}/A_{267} is between 0.30 and 0.34. The ratio A_{444}/A_{267} is between 0.35 and 0.40.
Specific rotation	[alpha] 20, D: Between +38° and +42° (1.5% w/v solution of dried sample in 20% w/v hydrochloric acid)
Test for sodium (Vol. 4)	Passes test Use the sulfated ash for the test

PURITY

Loss on drying (Vol. 4)	Not more than 8% (100°, 5 h in a vacuum over phosphorus pentoxide)
Sulfated ash (Vol. 4)	Not more than 25% Test 0.5 g of the sample
Inorganic phosphate	Not more than 1% calculated as PO_4 on a dried basis See description under TESTS
Subsidiary colouring matters	Not more than 6% of each of free riboflavin and riboflavine disphosphate See description under TESTS Passes test for absence of lumiflavin
Primary aromatic amines (Vol. 4)	Not more than 70 mg/kg calculated as aniline
Lead (Vol. 4)	Not more than 2 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.”

TESTS

PURITY TESTS

Inorganic phosphate	Standard preparation: Transfer 220.0 mg of monobasic potassium phosphate KH_2PO_4, to a 1000 ml volumetric flask, dissolve in and dilute to volume with water and mix. Transfer 20.0 ml of this solution to a 100 ml volumetric flask, dilute to volume with water and mix. Test preparation: Transfer 300.0 mg of the sample to a 100 ml volumetric flask, dissolve in and dilute to volume with water, and mix