

Draft Proposal for Comments and Inclusion in The Indian Pharmacopoeia

Copper Sulphate

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This draft proposal contains monograph text for inclusion in the Indian Pharmacopoeia (IP). The content of this draft document is not final, and the text may be subject to revisions before publication in the IP. This draft does not necessarily represent the decisions or the stated policy of the IP or Indian Pharmacopoeia Commission (IPC).

Manufacturers, regulatory authorities, health authorities, researchers, and other stakeholders are invited to provide their feedback and comments on this draft proposal. Manufacturers are also invited to submit samples of their products to the IPC to ensure that the proposed monograph adequately controls the quality of the product(s) they manufacture. Comments and samples received after the last date will not be considered by the IPC before finalizing the monograph.

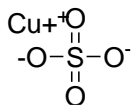
Please send any comments you may have on this draft document to lab.ipc@gov.in, with a copy to Dr. Gaurav Pratap Singh (email: gpsingh.ipc@gov.in) before the last date for comments.

Document History and Schedule for the Adoption Process

Description	Details
Document version	2.0
Monograph proposed for inclusion	IP 2026
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First draft published on IPC website for public comments	06.06.2024
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Further follow-up action as required.	

Copper Sulphate

Cupric Sulphate



CuSO_4

$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

Mol. Wt. 159.6 (anhydrous)

Mol. Wt. 249.7 (pentahydrate)

Sulphuric acid, copper (2+) salt (1:1), pentahydrate; Copper (2+) sulphate (1:1) pentahydrate.

Copper Sulphate is anhydrous or contains five molecules of water of hydration.

Copper Sulphate contains not less than 98.5 per cent and not more than 100.5 per cent of CuSO_4 , calculated on the dried basis.

Category. Algaecide, bactericide and fungicide

Description. A deep blue, triclinic crystals or blue, crystalline granules or powder.

Identification

Solution A. A 10 per cent w/v solution in *water*

A. Solution A gives reactions of sulphate (2.3.1).

B. To 10 ml of solution A, add an excess of *6M ammonium hydroxide*, produces first a bluish precipitate and then a deep-colored solution.

Tests

Solution B. Dissolve 40 g of the substance under examination in *water*, swirl to dissolve, add 5 ml of *nitric acid* and dilute to 200.0 ml with *water*.

Sodium. Not more than 0.02 per cent.

Determine by atomic absorption spectrometry (2.4.2),

Test solution. To three 25-ml volumetric flask, add a volume of solution B equivalent to the sample weight given in Table 1. To two of the flasks, add the amounts of reference analyte ion specified in Table 1. Add 2 ml of 5 per cent w/v solution of *potassium chloride* to each flask and dilute with *water* to volume.

Potassium. Not more than 0.01 per cent.

Determine by atomic absorption spectrometry (2.4.2),

Test solution. To three 25-ml volumetric flask, add a volume of solution B equivalent to the sample weight given in Table 1. To two of the flasks, add the amount of reference analyte ion specified in Table 1 and dilute with *water* to volume.

Table 1

Limit test	Wavelength (nm)	Sample weight (g)	Reference Ion added	Flame type	Background Correction

			(mg)		
Sodium	589.0	0.05	0.005 / 0.01	Air-acetylene	No
Potassium	766.5	0.4	0.02 / 0.04	Air-acetylene	No
Calcium	422.7	0.8	0.02 / 0.04	Nitrous oxide-acetylene	No
Iron	248.3	4.0	0.12 / 0.2	Air-acetylene	Yes
Nickel	232.0	4.0	0.1 / 0.2	Air-acetylene	No

Calcium. Not more than 0.005 per cent.

Determine by atomic absorption spectrometry (2.4.2),

Test solution. To three 25-ml volumetric flask, add a volume of solution B equivalent to the sample weight given in Table 1. To two of the flasks, add the amount of reference analyte ion specified in Table 1 and dilute with *water* to volume.

Iron. Not more than 0.003 per cent

Determine by atomic absorption spectrometry (2.4.2),

Test solution. To three 25-ml volumetric flask, add a volume of solution B equivalent to the sample weight given in Table 1. To two of the flasks, add the amount of reference analyte ion specified in Table 1 and dilute with *water* to volume.

Nickel. Not more than 0.005 per cent.

Determine by atomic absorption spectrometry (2.4.2),

Test solution. To three 25-ml volumetric flask, add a volume of solution B equivalent to the sample weight given in Table 1. To two of the flasks, add the amount of reference analyte ion specified in Table 1 and dilute with *water* to volume.

Loss on drying (2.4.19). Not more than 1.0 per cent (for anhydrous) and 33.0 to 36.5 per cent (for pentahydrate), determined on 1.0 g by drying in an oven at 250° for 3 hours.

Assay. Transfer 0.65 g of the substance under examination, in a glass-stoppered flask and dissolve in 50 ml of *water*, add 4 ml of 6*M acetic acid* and add 3 g of *potassium iodide*. Titrate the liberated iodine with 0.1 *M sodium thiosulphate*, add about 2 g of *potassium thiocyanate* and 3 ml of *starch solution* near to the end point. Carry out the blank titration.

1 ml of 0.1 *M sodium thiosulphate* is equivalent to 0.01596 g of copper sulphate (CuSO₄).