Doc: FAD 01(25626)WC
July 2024

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

भारतीय मानक मसौदा

कापर ऑक्सीक्लोराईड ऑयल डीस्पर्सीबल पाउडर (ओ पी) — विशिष्टि

(*आइ एस 12873 का पहला पुनरीक्षण*)

Draft Indian Standard

COPPER OXYCHLORIDE OIL DISPERSIBLE POWDER (OP) — SPECIFICATION

(*First Revision of IS 12873*)

ICS No. 65.100.30

Pesticides Sectional Committee, FAD 01 Last Date of Comments**: 11 September 2024**

FOREWORD

(*Formal clauses would be added later*)

Copper oxychloride oil dispersible powder (OP) is largely used as a fungicide for the control of plant diseases. It is used, in particular, in rubber plantations and manufactured to contain 40 or 50 or 56 percent (*m*/*m*) of copper.

This standard was published in 1990. In this revision, the standard has been brought out in the latest style and format of the Indian Standards, and references to Indian Standards wherever applicable have been updated. It also incorporates three amendments issued to the previous version of this standards.

In the preparation of this standard, due consideration has been given to the provisions of the *Insecticides Act*, 1968 and the Rules framed thereunder. However, this standard is subject to the restrictions imposed under these, wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022. 'Rules for rounding off numerical values (*second revision*)' This number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for copper oxychloride oil dispersible powder (OP).

2 REFERENCES

The following Indian Standards contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
IS 1070 : 2023	Reagent grade water — Specification (*fourth revision*)
IS 1486 : 202X	Copper oxychloride, technical — Specification (*third revision*) [*Under preparation Doc: FAD 01(25460)WC*]
IS 1506 : 202X	Copper oxychloride dusting powders — Specification (*third revision*) [*Under preparation Doc: FAD 01(25459)WC*]
IS 8069 : 2023	Textiles - High density polyethylene (HDPE) polypropylene (PP) woven sacks for packing pesticides — Specification (*fourth revision*)
IS 8190 (Part 1) : 1988	Requirements for packing of pesticides: Part 1 Solid pesticides (*second revision*)
IS 10627 : 1983	Methods for sampling of pesticidal formulations

3 REQUIREMENTS

3.1 Constituents

3.1.1 Copper oxychloride, technical employed in the formulation of this material shall conform to IS 1486.

3.1.2 The spray oil shall not contain less than 70 percent by volume of unsulphonated residues when tested by the method given in Annex A.

3.2 Description

The material shall be in the form of free flowing homogeneous powder devoid of hard lumps and bluish green colour. It shall wet readily on mixing with spray oil, providing a suspension suitable for use as a spray.

3.3 The material shall also comply with the requirements given in Table 1**.**

Table 1 Requirements of Copper Oxychloride Oil Dispersible Powder (OP)

(*Clause* 3.3)

Sl. No.	**Characteristic**	**Requirements**	**Method of Test, Ref to**
(1)	(2)	(3)	(4)
i)	Copper content, percent by mass, *Min*	Nominal value as declared on the container	IS 1506

		(*see* **3.4**)	
ii)	Suspensibility, percent by mass, *Max*	85	Annex B

3.4 Copper Content

When determined by the method prescribed in Annex A of IS 1506, the observed copper content, percent (*m*/*m*), of any of the samples shall not differ from the nominal value by more than the percent tolerance applied to the declared nominal value as given below:

Nominal Value, percent	*Tolerance limit, percent*	
Up to 9	+10 − 5	of the nominal value
Above 9 and below 50	±5	
50 and above	+5 − 3	

The actual value of copper content shall be calculated to two decimal places and then rounded off to one decimal place before applying the tolerance.

4 PACKING

The material shall be packed in HDPE woven sacks conforming to IS 8069. It shall also comply with the general requirements given in IS 8190 (Part 1).

5 MARKING

5.1 The containers shall be securely closed and shall bear legibly and indelibly the following information:

a) Name of the material;
b) Name and address of the manufacturer;
c) Batch number;
d) Date of manufacture;
e) Date of expiry;
f) Net quantity;
g) Nominal copper content, percent (*m*/*m*);
h) Cautionary notice as worded in the *Insecticides Act*, 1968, and Rules framed thereunder; and
j) Any other information required under the *Legal Metrology* (*Packaged Commodities*) *Rules*, 2011.

5.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

6 SAMPLING

When freshly manufactured material in bulk quantity is offered for inspection, representative samples of the material shall be drawn and tested as prescribed in IS 10627 within 90 days of its manufacture. When the material is offered for inspection after 90 days of its manufacture, sampling shall be done as prescribed in IS 10627. However, the criteria for conformity of the material when tested, shall be the limits of tolerances, as applicable over the declared nominal value and given under **3.4**.

7 TESTS

Tests shall be carried out by the appropriate methods referred to in **3.4** and col (4) of Table 1.

8 QUALITY OF REAGENTS

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be employed in tests.

NOTE – 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

ANNEX A

(*Clause* 3.1.2)

DETERMINATION OF UNSULPHONATED RESIDUE (USR) OF SPRAY OILS

A-1 APPARATUS

A-1.1 Sulphonation Flask, see Fig. 1.

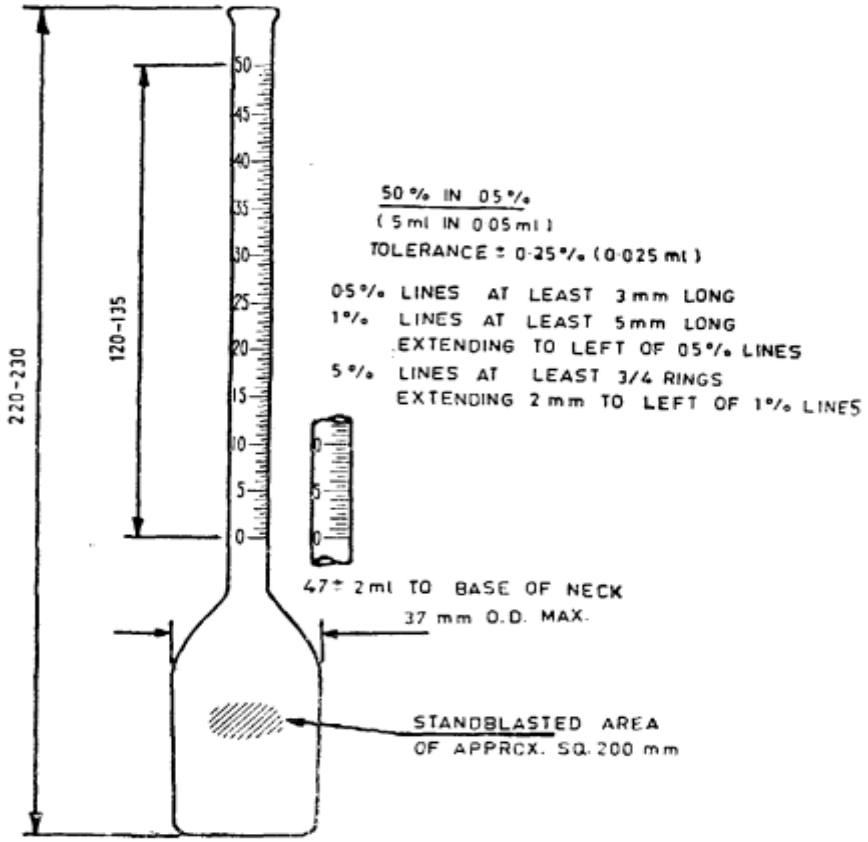

FIG. 1 SULPHONATION FLASK

A-1.2 Centrifuge

A-2 REAGENTS

A-2.1 Sulphuric Acid, 98.61 percent (prepared by mixing oleum and concentrated sulphuric acid).

A-2.2 Sulphuric Acid Concentrated, 95 percent by volume.

A-3 METHOD

A-3.1 Adjust the temperature of the boiling water bath to (99.5 – 100) ^{o}C and maintain the temperature throughout the experiment. Determine the density of the sample. Weigh 4.9 g to 5.1 g of the sample accurately to the nearest 0.005 g using a pipette. Calculate the volume of the sample

A-3.2 Slowly introduce (20 ± 0.5) ml of sulphuric acid (**A-2.1**) in such a way that oil if any adhering to the neck of the sulphonation flask will be washed down. Transfer the flask to the boiling water bath, immersing to a point between 0 and 10 marks. Note the time of immersion.

A-3.3 After 10 min, remove the flask from the water bath and shake at the rate of 7 to 8 shakings per second for 10 sec. Return the flask to the bath as quickly as possible. Repeat the shaking at 10 min intervals for a total of 6 shakings so that an hour is elapsed between the time of placing the flask in the bath and removal for final shaking.

A-3.4 Cool the flask to room temperature and add sufficient sulphuric acid (**A-2.2**) to raise the oil level to the neck of the flask nearly to the top graduation. Centrifuge the flask for 10 min at 1500 rotations per min. Transfer the flask to a water bath maintained at (25 ± 0.5) °C. Using a suitable light source and viewing lens, record the reading on the graduated neck at the top (*A*) and bottom (*B*) of the oil column accurately. Repeat centrifuging and temperature equilibrium until constant readings are obtained.

A-4 CALCULATION

Unsulphonated residues, percent by volume = $\frac{(A-B)}{V} \times 100$

where

A = corrected scale reading at upper oil level in ml;

B = corrected scale reading at lower oil level in ml; and

V = volume of sample in ml.

ANNEX B

[*Table* 1, *Sl No.* (ii)]

DETERMINATION OF SUSPENSIBILITY

B-1 METHOD

7 g of the material is completely dispersed in 20-25 ml spray oil in a 100 ml beaker and quantitatively transferred into a 50 ml graduated cylinder. The beaker is washed with 5-10 ml spray oil into the cylinder and the total volume is made up to 40 ml mark with spray oil. Suspensibility test is carried out by 20 times sharp inversions of the cylinder followed by 60 min rest. Top 30 ml of the suspension is drawn out and copper content is estimated in the remaining 10 ml by extraction with nitric acid.

B-2 CALCULATION

Suspensibility, percent by mass = $\frac{(W_1-W_2)}{W_1} \times 100 \times \frac{4}{3}$

where

W_1 = copper content in the material taken for suspension; and

W_2 = copper content of 10 ml of material left in the cylinder.