

**ETHIOPIAN
STANDARD**

ES 6805 :2021

First edition
xx-xx-2021

**Pesticides — Copper hydroxide
Part1: Technical Material (TC)-
Specifications**

ICS: 65.100.10

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Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee for pesticide (TC 19) and published by the Ethiopian Standards Agency (ESA).

The standard is developed of Ethiopian Standard ES 6805:2021 for "*Pesticides – copper hydroxide* Part 1: *Technical Material (TC) - Specifications*" to be published.

In the preparation of this standard reference has been made to the following:

CIPAC handbook: Analysis of technical and formulated pesticides. Volume E compiled by A. Martijn and W. Dobrat (ED.). Collaborative International Pesticides Analytical Council, Black Bear Press, Cambridge, United Kingdom, 1993 - 416 pages,

AGP: CP 362:1998, Specification for plant protection products. Food and Agriculture Organization of the United Nations (FAO), Rome.

AGP:CP/243:1991, FAO specification for plant protection products, "copper hydroxide technical, FAO specification 44/TC/SF(1998)", published by the Food and Agriculture Organization of the United Nations (FAO), Rome.

Acknowledgement is made for the use of information from the above publication.

Pesticides- Copper hydroxide Part1:Technical material (TC)- Specification

1 Scope

This Ethiopian Standard specifies the requirements for the technical material of copper hydroxide (for agricultural purpose).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ES 693, *Pesticides - Terminology.*

ES 694, *Pesticides - Methods of sampling.*

ES 695, *Pesticides - Packaging.*

ES 696, *Pesticides - Guidelines on good labelling practice.*

ES 697, *Pesticides - Guidelines for retail distribution, storage and handling.*

ES 700, *Pesticides - Guideline for the disposal of bulk quantities of obsolete pesticides.*

ES 737, *Pesticides - Determination of material insoluble in acetone.*

ES 749, *Pesticides - Determination of water content.*

ES 750, *Pesticides - Determination of free acidity or alkalinity.*

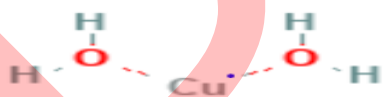
3 Definitions

For the purpose of this Ethiopian Standard terms defined in ES 693 shall apply.

4 General information

COMMONNAME: copper hydroxide

(ISO) STRUCTURALFORMULA: $\text{Cu}(\text{OH})_2$



EMPIRICAL FORMULA: $\text{Cu}(\text{OH})_2$

RMM: 97.6

CAS REGISTRY NUMBER: (20427-59-2)

CIPAC CODE NUMBER: 44

CHEMICAL NAMES:

copper hydroxide, copper (II) hydroxide, cupric
hydroxide (IUPAC)

copper hydroxide (CA)

CHEMICALGROUP:

Inorganic compound

USECATEGORY:

Fungicide

WHOCCLASS:

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5 Requirements**5.1 Description**

The material shall consist of copper hydroxide, $\text{Cu}(\text{OH})_2$, together with related manufacturing impurities, which is a light blue powder free from visible extraneous matter and added modifying agents other than stabilizers.

5.2 Active ingredient**5.2.1 Identity tests**

Where the identity of the active ingredient is in doubt, it shall be determined in accordance with reference method (44/TC/M3.1, CIPAC E, p.42) or 44/TC/M3.2, CIPAC E, p.44

5.2.2 Total Copper hydroxide

The total copper content shall be declared (not less than 573 g/kg) and when determined in accordance with (44/TC/M3.1, CIPAC E, p.42) or 44/TC/M3.2, CIPAC E, p.44, the content obtained shall not differ from the declared by more than ± 25 g/kg.

5.3 Impurities**5.3.1 Copper hydroxide R isomer**

When determined in accordance with WD¹⁾ the maximum content of copper hydroxide R isomer shall be 10g/kg.

5.3.2 Lead

Maximum lead content in copper hydroxide technical grade when determined in accordance with MT 92, CIPAC F p.224 shall be $0.5 \times X$ mg/kg where X is the copper content in g/kg found under 5.2.2

6 Physical properties**Optical rotation**

When determined in accordance with WD⁴⁾ the optical rotation of the product shall be $20^\circ\text{C} = 57 + 1.5^\circ\text{C.D}$

Table 1. Physical and chemical data of copper hydroxide (active ingredient)

S/N	Parameters	Typical Value	Test method
1	Appearance	a light blue powder free from visible extraneous matter and added modifying agents	visual
2	Solubility - In water at 20 °C (mg l^{-1})	0.506	EEC A6; OECD 105
3	Solubility - In organic solvents at 20 °C (mg l^{-1})	Highly insoluble in most organic solvent	flask method
4	Melting point (°C)	Decompose before boiling	OECD 105, OPPTS

5	Boiling point (°C)	Decompose before boiling	796.1840, EEC A.6
6	Flashpoint (°C)	Not expected to self ignite; Not highly flammable	EEC A1; OECD 102;
7	Specific gravity (g ml ⁻¹)	No data available	differential scanning calorimetry (DSC)
8	Stability	No data available	OECD 103, OPPTS
9	Henry's law constant at 25 °C (Pa m ³ mol ⁻¹)	no data available	830.7220, EEC A.2

7 Handling

Pesticides shall be handled in accordance with ES 697.

8 Sampling

Samples shall be taken in accordance with ES 694.

9 Packaging

Pesticides shall be packed in accordance with ES 695.

10 Labeling

Pesticides labeling shall be in accordance with ES 696.

11 Disposal

Disposal of bulk quantities of obsolete pesticides shall be in accordance with ES 700.

BIBLOGRAPY

- WD¹⁾, Pesticides – Determination of R-isomer in copper hydroxide.
WD²⁾, Pesticides – Determination of acid chloride in copper hydroxide.
WD³⁾, Pesticides – Determination of acid + anhydride in copper hydroxide.
WD⁴⁾, Pesticides – Determination of optical rotation of copper hydroxide.
WD⁵⁾, Pesticides – Determination of copper hydroxide melting point.

Organization and Objectives

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- ❖ Develop Ethiopian standards and establish a system that enable to check whether goods and services are in compliance with the required standards,
- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational Institutions, research institutes, government organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes.

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More Information?

Contact us at the following address.

The Head Office of ESA is at Addis Ababa.

☎ 011- 646 06 85, 011- 646 05 65

☎ 011-646 08 80

✉ 2310 Addis Ababa, Ethiopia

E-mail: info@ethiostandards.org,

Website: www.ethiostandards.org



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