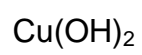


AGP:CP/362, 1998

COPPER HYDROXIDE



INFORMATION

COMMON NAME: copper hydroxide

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

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)

COPPER HYDROXIDE TECHNICAL

FAO Specification 44/TC/S/F (1998)

.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.

.2 ACTIVE INGREDIENT

.2.1 Identity test¹

An identity test is required if the identity of the active ingredient is in doubt.

.2.2 Total copper (44/TC/M3.1, CIPAC E, p.42 (Referee method) or 44/TC/M3.2, CIPAC E, p.44)

The total copper content shall be declared (not less than 573 g/kg) and when determined, the content obtained shall not differ from the declared by more than ± 25 g/kg.

.3 IMPURITIES

.3.1 Arsenic¹

Maximum: $0.1 \times X$ mg/kg where X is the copper content in g/kg found under .2.2.

.3.2 Lead (MT 92, CIPAC F, p.224)

Maximum: $0.5 \times X$ mg/kg where X is the copper content in g/kg found under .2.2.

.3.3 Cadmium¹

Maximum: $0.1 \times X$ mg/kg where X is the copper content in g/kg found under .2.2.

1. Method available from the Pesticide Information Officer, FAO Plant Production and Protection Division.

COPPER HYDROXIDE WETTABLE POWDERS

FAO Specification 44/WP/S/F (1998)

.1 DESCRIPTION

The material shall consist of a homogeneous mixture of technical copper hydroxide complying with the requirements of FAO specification 44/TC/S/F (1998) together with fillers and any other necessary formulants. It shall be in the form of a fine powder free from visible extraneous matter and hard lumps.

.2 ACTIVE INGREDIENT

.2.1 Identity test¹

An identity test is required if the identity of the active ingredient is in doubt.

.2.2 Total copper (44/WP/M3.1, CIPAC E, p.46 (Referee method) or 44/WP/M3.2, CIPAC E, p.46)

The total copper content shall be declared (g/kg) and when determined, the content obtained shall not differ from the declared by more than the following amount;

<u>Declared content</u>	<u>Permitted tolerance</u>
Above 250 up to 500 g/kg	± 5 % of the declared content
Above 500 g/kg	± 25 g/kg

.3 IMPURITIES

.3.1 Arsenic¹

Maximum: 0.1 x X mg/kg where X is the copper content in g/kg found under .2.2.

.3.2 Lead (MT 92, CIPAC F, p.224)

Maximum: 0.5 x X mg/kg where X is the copper content in g/kg found under .2.2.

1. Method available from the Pesticide Information Officer, FAO Plant Production and Protection Division.

.3.3 Cadmium¹

Maximum: 0.1 x X mg/kg where X is the copper content in g/kg found under .2.2.

.4 PHYSICAL PROPERTIES

.4.1 pH range (MT 75.2, CIPAC F, p.206)

pH range: 7.0 to 10.5.

.4.2 Wet sieve test (MT 59.3, CIPAC F, p.179)

Maximum: 2% of the copper content found under .2.2 retained on a 75 µm test sieve.

.4.3 Wettability of the product (MT 53.3.1, CIPAC F, p.165)

The product shall be completely wetted in one minute without swirling.

.4.4 Suspensibility (MT 15.1, CIPAC F, p.45. Note 1)

A minimum of 60% of the copper content found under .2.2 shall be in suspension after 30 minutes in CIPAC standard water D (MT 18.1.4) at 30°± 2°C.

.4.5 Persistent foam (MT 47, CIPAC F, p.152. Note 2)

Maximum: 10 ml after 1 minute.

.5 STORAGE STABILITY

.5.1 Stability at 54°C (MT 46.1.1, CIPAC F, p.149. Note 3)

After storage at 54°± 2°C for 14 days (Note 4) the product shall continue to comply with .2.2, 4.1, .4.2 and .4.4.

1. Method available from the Plant Protection Officer, FAO Plant Production and Protection Service

NOTES

1. *The product should be tested at the highest and lowest rates of use recommended by the supplier, provided this is consistent with the conditions given in the method.*
2. *The mass of sample to be used in the test should correspond to the highest rate of use recommended by the supplier.*
3. *Samples of the product taken before and after the storage stability test should be analysed together after the test to reduce the analytical error.*
4. *Unless other temperatures and/or times are specified.*

COPPER HYDROXIDE WATER DISPERSIBLE GRANULES

FAO Specification 44/WP/S/F (1998)

.1 DESCRIPTION

The material shall consist of a homogeneous mixture of technical copper hydroxide complying with the requirements of FAO specification 44/TC/S/F (1998) together with fillers and any other necessary formulants. It shall be in the form of granules for application after disintegration and dispersion in water. The product shall be dry, free-flowing and free from visible extraneous matter and hard lumps.

.2 ACTIVE INGREDIENT

.2.1 Identity test¹

An identity test is required if the identity of the active ingredient is in doubt.

.2.2 Total copper (44/WP/M3.1, CIPAC E, p.46 (Referee method) or 44/WP/M3.2, CIPAC E, p.46)

The total copper content shall be declared (g/kg) and when determined, the content obtained shall not differ from the declared by more than the following amount;

<u>Declared content</u>	<u>Permitted tolerance</u>
Above 250 up to 500 g/kg	± 5 % of the declared content
Above 500 g/kg	± 25 g/kg

.3 IMPURITIES

.3.1 Arsenic¹

Maximum: $0.1 \times X$ mg/kg where X is the copper content in g/kg found under .2.2.

1. Method available from the Pesticide Information Officer, FAO Plant Production and Protection Division.

.3.2 Lead (MT 92, CIPAC F, p.224)

Maximum: $0.5 \times X$ mg/kg where X is the copper content in g/kg found under .2.2.

.3.3 Cadmium¹

Maximum: $0.1 \times X$ mg/kg where X is the copper content in g/kg found under .2.2.

.4 PHYSICAL PROPERTIES

.4.1 pH range (MT 75.2, CIPAC F, p.206)

pH range: 7.0 to 10.5.

.4.2 Wet sieve test (MT 59.3, CIPAC F, p.179)

Maximum: 2% of the copper content found under .2.2 retained on a 75 μm test sieve.

.4.3 Suspensibility (MT 15.1, CIPAC F, p.45. Note 1)

A minimum of 60% of the copper content found under .2.2 shall be in suspension after 30 minutes in CIPAC standard water D (MT 18.1.4) at $30^{\circ} \pm 2^{\circ}\text{C}$.

.4.4 Persistent foam (MT 47, CIPAC F, p.152. Note 2)

Maximum: 60 ml after 1 minute.

.4.5 Dispersion of the product (MT 174, CIPAC F, p.435)

The product shall have a minimum dispersibility of 80% under the conditions of the test method.

.4.6 Dustiness (MT 171, CIPAC F, p.425)

The product shall comply with category 1 or 2 under the conditions of the test.

1. Method available from the Pesticide Information Officer, FAO Plant Production and Protection Division.

.4.7 Flowability (MT172, CIPAC F, p.430)

The product shall have no residue on a 4 mesh (4.76 mm) sieve after 2 weeks at $54 \pm 2^\circ\text{C}$. under the conditions of the test method.

.5. STORAGE STABILITY

5.1 Stability at 54°C (MT 46.1.1, CIPAC F, p.149. Note 3)

After storage at $54 \pm 2^\circ\text{C}$ for 14 days (Note 4) the product shall continue to comply with 2.2, 4.1, 4.2, 4.3, 4.5 and 4.7.

NOTES

1. *The product should be tested at the highest and lowest rates of use recommended by the supplier, provided this is consistent with the conditions given in the method.*
2. *The mass of sample to be used in the test should correspond to the highest rate of use recommended by the supplier.*
3. *Samples of the product taken before and after the storage stability test should be analysed together after the test to reduce the analytical error.*
4. *Unless other temperatures and/or times are specified.*

COPPER HYDROXIDE SUSPENSION CONCENTRATES

FAO Specification 44/SC/S/F (1998)

.1 DESCRIPTION

The material shall consist of a blue suspension of fine particles of technical copper hydroxide complying with the requirements of FAO specification 44/TC/S/F (1998), in an aqueous phase together with suitable formulants. After gentle agitation the material shall be homogeneous and suitable for further dilution in water.

.2 ACTIVE INGREDIENT

.2.1 Identity test¹

An identity test is required if the identity of the active ingredient is in doubt.

.2.2 Total copper (44/WP/M3.1, CIPAC E, p.46 (Referee method) or 44/WP/M3.2, CIPAC E, p.46)

The total copper content shall be declared (g/kg) and when determined, the content obtained shall not differ from the declared by more than the following amount;

<u>Declared content</u>	<u>Permitted tolerance</u>
Above 100 up to 250 g/l or g/kg	± 6 % of the declared content
Above 250 up to 500 g/l or g/kg	± 5 % of the declared content

.3 IMPURITIES

.3.1 Arsenic¹

Maximum: 0.1 x X mg/kg where X is the copper content in g/kg found under .2.2.

1. Method available from the Pesticide Information Officer, FAO Plant Production and Protection Division.

.3.2 Lead (MT 92, CIPAC F, p.224)

Maximum: 0.5 x X mg/kg where X is the copper content in g/kg found under .2.2.

.3.3 Cadmium¹

Maximum: 0.1 x X mg/kg where X is the copper content in g/kg found under .2.2.

.4 PHYSICAL PROPERTIES

.4.1 pH range (MT 75.2, CIPAC F, p.206)

pH range: 7.0 to 10.5.

.4.2 Pourability (MT 148, CIPAC F, p.348)

Maximum residue: 5%.

.4.3 Rinsability (CIPAC, MT 148.1)¹

Maximum rinsed non-volatile residue: 0.6%.

.4.4 Wet sieve test (MT 59.3, CIPAC F, p.179)

Maximum: 1% of the copper content found under .2.2 retained on a 75 µm test sieve.

.4.5 Suspensibility (MT 15.1, CIPAC F, p.45. Note 1)

A minimum of 60% of the copper content found under .2.2 shall be in suspension after 30 minutes in CIPAC standard water D (MT 18.1.4) at 30°± 2°C.

.4.6 Persistent foam (MT 47.2, CIPAC F, p.152. Note 2)

Maximum: 60 ml after 1 minute.

1. Method available from the Pesticide Information Officer, FAO Plant Production and Protection Division.

.5. STORAGE STABILITY

5.1 Stability at 54°C (MT 46.1.1, CIPAC F, p.149. Note 3)

After storage at $54 \pm 2^\circ\text{C}$ for 14 days (Note 4)the product shall continue to comply with 2.2, 4.1, 4.2, 4.3, 4.4 and 4.5.

NOTES

1. *The product should be tested at the highest and lowest rates of use recommended by the supplier, provided this is consistent with the conditions given in the method.*
2. *The mass of sample to be used in the test should correspond to the highest rate of use recommended by the supplier.*
3. *Samples of the product taken before and after the storage stability test should be analysed together after the test to reduce the analytical error.*
4. *Unless other temperatures and/or times are specified.*