

SRI LANKA STANDARD 466 : PART 21 : 1985

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**SPECIFICATION FOR
PLANT PROTECTION PRODUCTS
PART 21 — MANCOZEB**

SRI LANKA STANDARDS INSTITUTION

SPECIFICATION FOR PLANT PROTECTION PRODUCTS

PART 21 : MANCOZEB

SLS 466:Part 21:1985

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This standard does not purport to include all the necessary provisions of a contract.

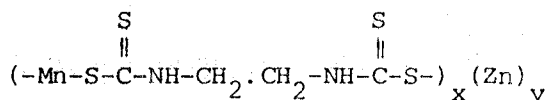
SRI LANKA STANDARD
SPECIFICATION FOR PLANT PROTECTION PRODUCTS

PART 21 : MANCOZEB

FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 1985-11-20, after the draft, finalized by the Drafting Committee on Pesticides, had been approved by the Agricultural and Food Products Divisional Committee.

Mancozeb is a complex of zinc and maneb containing 20 per cent of Manganese and 2.5 per cent of zinc. The empirical formula is;



This specification is based on the Food and Agriculture Organization (FAO) Tentative Specification on Mancozeb.

Methods of analysis and miscellaneous techniques referred to in this part have been developed and adopted by Collaborative International Pesticides Analytical Council Limited (CIPAC) and are found in CIPAC Handbook Vol. 1 (1970) and Vol. 1A (1980).

Information on standard waters for laboratory evaluation of pesticidal formulations will be found in "CIPAC Monograph 1, Standard Waters and an FAO Survey of naturally occurring waters (1972)", W. Heffer and Sons Limited Cambridge, United Kingdom.

Wherever possible, standards for apparatus and common names for pesticides are those approved by the International Standards Organization (ISO).

All standard values given in this part are in SI units.

This specification is subject to the provisions of the Control of Pesticides Act No. 33 of 1980 and regulations framed thereunder.

Other essential background information could be obtained from "Manual on the use of FAO Specification for Plant Protection Products".

1 SCOPE

This part prescribes requirements and methods of sampling and test for mancozeb technical, mancozeb dusts and mancozeb dispersible powders.

2 REFERENCES

SLS 592 Methods for sampling of pesticidal products

SLS ... Code of practice for packaging of pesticides (Under preparation).

SECTION 1 - MANCOZEB TECHNICAL

3 DESCRIPTION

The material shall consist of a zinc co-ordination product of maneb and may contain stabilizers or other processing aids and related manufacturing impurities. It shall be a yellowish powder free from extraneous material.

4 ACTIVE INGREDIENT

4.1 Identity tests

Where the identity of the material is in doubt, the material shall comply with any two of the following tests.

4.1.1 *Colorimetric tests (CIPAC 1A, page 1624, MF 130)*

The sample shall produce similar spots to those produced from a standard mancozeb.

4.1.2 *Amine (CIPAC 1A, Method 34/1/m/7.2.2, see Note 1)*

The amine produced from the sample shall be ethylenediamine (see Note 2).

4.1.3 *Manganese and zinc (CIPAC 1A, Method 34/1/m/7.2.3, see Note 1)*

The oxines produced from the sample shall be precipitated at the same pH and have the same colour as those from a standard mancozeb (see Note 2).

4.2 Mancozeb content (CIPAC 1A, page 1288, Method 34/1/M/7.3)

4.2.1 *Minimum content : 85.0 per cent.*

4.2.2 Declared content

The mancozeb content shall be declared and when the combined carbon disulfide content is determined (see Note 3) and expressed as mancozeb, the content obtained shall not differ from that declared by more than ± 3 percentage units.

4.3 Manganese (CIPAC 1A, page 1288, Method 34/1/M/7.4)

Minimum : 20 per cent of the mancozeb found under 4.2 (see Note 4).

4.4 Zinc (CIPAC 1A, page 1288, Method 34/1/M/7.4)

Minimum : 2 per cent of the mancozeb found under 4.2 (see Note 5).

5 IMPURITIES (see Note 6)

5.1 Water (CIPAC 1A, page 1290, Method 34/1/M/7.5)

5.2 Maximum content : 1.0 per cent.

6 PACKAGING

The containers shall comply with the requirements stipulated in SLS ... Code of practice for packaging of pesticides (Under preparation).

7 MARKING

The marking on the containers shall be in accordance with the *Control of Pesticides Act No. 33 of 1980* and regulations framed thereunder.

SECTION 2 - MANCOZEB DUSTS

8 DESCRIPTION

The product shall consist of a homogeneous mixture containing mancozeb as the active ingredient together with suitable carriers and any necessary formulants. It shall be a fine, free flowing, dustable material, free from visible extraneous materials and hard lumps.

It shall be formulated from mancozeb technical complying with Section 1.

9 ACTIVE INGREDIENTS

9.1 Identity tests

Where the identity of the material is in doubt, the material shall comply with any two of the following tests.

9.1.1 *Colorimetric tests (CIPAC 1A, page 1624, MTP 130)*

The sample shall produce similar spots to those produced from a standard mancozeb.

9.1.2 *Amine (CIPAC 1A, Method 34/2/m/6.2.2, see Note 1)*

The majority of the amine produced from the active ingredient shall be ethylenediamine (see Note 2).

9.1.3 *Manganese and zinc (CIPAC 1A, Method 34/2/m/6.2.3, see Note 1)*

The oxines produced from the sample shall be precipitated at the same pH and have the same colour as those from a standard mancozeb (see Note 2).

9.2 Mancozeb content (*CIPAC 1A, page 1290, Method 34/2/M/6.3*)

Mancozeb content shall be declared. When the combined carbon disulfide content is determined and expressed as mancozeb (see Note 3) the content obtained shall not differ from that declared by more than + 15 per cent or - 10 per cent.

9.3 Manganese (*CIPAC 1A, page 1290, Method 34/2/M/6.4*)

Minimum : 20 per cent of the mancozeb found under 9.2.

9.4 Zinc (*CIPAC 1A, page 1290, Method 34/2/M/6.4*)

Minimum : 2.5 per cent of the mancozeb found under 9.2.

10 IMPURITIES (See Note 6)

10.1 Water (*CIPAC 1A, page 1290, Method 34/2/M/6.5*)

10.2 **Maximum content:** 2.0 per cent.

11 PHYSICAL PROPERTIES

11.1 Dry sieve test (*CIPAC 1A, page 1290, Method 34/2/M/6.6*)

Maximum : 2 per cent retained on a 75- μ m test sieve

Not more than 0.06x per cent of the sample used for the determination shall be present as mancozeb in the residue on the 75- μ m sieve,

where x is the percentage mancozeb content declared under 9.2 (see Note 7).

11.2 Flowability (CIPAC 1A, page 948, MT 44)

Maximum flow number : 12 (see Note 8)

12 STORAGE STABILITY

12.1 Heat stability (CIPAC 1A, page 1291, Method 34/2/M/6.8)

After storage at 54 ± 2 °C for 14 days the product shall continue to comply with 9.2 (except that the minimum permitted mancozeb content shall be 90 per cent of that found under 9.2 and 11.1).

13 BIOLOGICAL PROPERTIES

13.1 Phytotoxicity*

At the present stage of our knowledge, no test can be specified to cover phytotoxicity of formulation to crops.

When a crop is not mentioned in the instructions for use, purchasers should check with the supplier that the material is suitable, always provided that such a use is not restricted or legally forbidden.

14 PACKAGING

The containers shall comply with the requirements stipulated in SLS ... Code of practice for packaging of pesticides (Under preparation).

15 MARKING

The marking on the containers shall be in accordance with the "Control of Pesticides Act No. 33 of 1980" and regulations framed thereunder.

SECTION 3 - MANCOZEB DISPERSIBLE POWDERS

16 DESCRIPTION

The product shall consist of a homogeneous mixture containing mancozeb as the active ingredient, together with fillers and any necessary formulants. It shall be a fine powder, free from visible extraneous material and hard lumps.

It shall be formulated with mancozeb technical complying with Section 1.

* For information.

17 ACTIVE INGREDIENT

17.1 Identity tests

Where the identity of the material is in doubt, the material shall comply with any two of the following tests.

17.1.1 *Colorimetric tests (CIPAC 1A, page 1624, MT 130)*

The sample shall produce similar spots to those produced from a standard mancozeb.

17.1.2 *Amine (CIPAC 1A, Method 34/3/m/6.2.2, see Note 1)*

The majority of the amine produced from the active ingredient shall be ethylenediamine (see Note 2).

17.1.3 *Manganese and zinc (CIPAC 1A, Method 34/3/m/6.2.3, see Note 1)*

The oxines produced from the sample shall be precipitated at the same pH and have the same colour as those from a standard mancozeb (see Note 2).

17.2 Mancozeb content (*CIPAC 1A, page 1291, Method 34/3/M/6.3*)

The mancozeb content shall be declared. When the combined carbon disulfide content is determined and expressed as mancozeb (see Note 3) the content obtained shall not differ from that declared by more than + 5 or - 2 percentage units.

17.3 Manganese (*CIPAC 1A, page 1291, Method 34/3/M/6.4*)

Minimum : 20 per cent of the mancozeb found under 17.2 (see Note 3).

17.4 Zinc (*CIPAC 1A, page 1291, Method 34/3/M/6.4*)

Minimum : 2.5 per cent of the mancozeb found under 17.2 (see Note 3).

18 IMPURITIES (see Note 6)

18.1 Water (*CIPAC 1A, page 1291, Method 34/3/M/6.5*)

18.2 Maximum content : 2.0 per cent.

19 PHYSICAL PROPERTIES

19.1 Wet sieve test (*CIPAC 1A, page 1291, Method 34/3/M/6.6*)

Maximum : 2 per cent retained on a 75- μ m sieve.

19.2 Suspensibility (*CIPAC 1A, page 1291, Method 34/3/M/6.7*)

A minimum of 50 per cent of the mancozeb content declared under 17.2 shall be in suspension after 30 minutes in CIPAC Standard Water A when determined on the product as received, and in CIPAC Standard Water C after the heat stability test (18).

Alternatively if the buyer requires other CIPAC Standard Waters to be used, then this shall be specified when ordering.

19.3 pH range of 1 per cent aqueous dispersion (*CIPAC 1A, page 1292, Method 34/3/M/6.8*)

5.0 to 9.0.

19.4 Wettability of the powder (*CIPAC 1A, page 1292, Method 34/3/M/6.9*)

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

19.5 Persistent foam (*CIPAC 1A, page 1292, Method 34/3/M/6.10*)

Maximum : 25 ml after 1 minute.

20 STORAGE STABILITY

20.1 Heat stability (*CIPAC 1A, page 1292, Method 34/3/M/6.11*)

After storage at 54 ± 2 °C for 14 days, the product shall continue to comply with 17.2 (except that the minimum permitted mancozeb content shall be 90 per cent of that found under 17.2) 19.1, 19.2, 19.3 and 19.4.

21 BIOLOGICAL PROPERTIES

21.1 Phytotoxicity*

At the present stage of our knowledge no test can be specified to cover the phytotoxicity of formulations to crops.

When a crop is not mentioned in the instructions for use, purchasers should check with the supplier that the material is suitable, always provided that such a use is not restricted or legally forbidden.

21.2 Wetting of crops (*CIPAC 1A, page 1292, Method 34/3/M/6.12*)

The dilute spray should satisfactorily wet the leaves of the specified crops when used in accordance with the instructions. The test described may be useful.

* For information.

22 PACKAGING

The containers shall comply with the requirements stipulated in SLS ... Code of practice for packaging of pesticides (Under preparation).

23 MARKING

The marking on the containers shall be in accordance with the *Control of Pesticides Act No. 33 of 1980* and regulations framed thereunder.

SECTION 4 - SAMPLING AND CONFORMITY TO STANDARD

24 SAMPLING

24.1 Representative samples of the material, for ascertaining conformity to the requirements of this specification shall be drawn as prescribed in SLS 592.

24.2 Minimum sizes of composite samples to be drawn shall be as follows:

- a) Mancozeb technical - 600 g;
- b) Mancozeb dusts - 600 g; and
- c) Mancozeb dispersible powders - 1500 g.

NOTE - Fill the sample bottles completely with the material and store them at a temperature below 25 °C (for not longer than 4 weeks).

25 CONFORMITY TO STANDARD

A lot shall be declared as conforming to the requirements of this specification, if the following conditions are satisfied.

25.1 All containers selected as in 24.1 conform to the packaging and marking requirements.

25.2 The composite sample drawn as in 24.2, when tested, satisfies the requirements given in the relevant section.

NOTES

1 Method not included in CIPAC I or IA, but will appear in subsequent volumes of CIPAC Handbook. Pending such publications a copy of the method may be obtained on request from the FAO Secretariat.

2 These tests are for information only pending further analytical work.

3 1.00 per cent of carbon disulfide is equivalent to 1.78 per cent of mancozeb.

4 On a result of 86 per cent of mancozeb found, the minimum permitted manganese content would be 17.2 per cent.

5 On a result of 86 per cent of mancozeb found, the minimum permitted zinc content would be 2.15 per cent.

6 During the manufacture of mancozeb technical a small amount of ethylene thiourea (ETU) is also produced. In good manufacturing practice this should not exceed, at the time of manufacture, 0.5 per cent of the mancozeb. During storage more ETU may be formed by decomposition. To minimize decomposition all products containing mancozeb should be stored under cool dry conditions.

7 If the dust contains a declared content of 20 per cent mancozeb and 20 g of sample is used in the test, then the amount of mancozeb in the residue on the sieve should not exceed 0.24 g.

$$\text{i.e. } \frac{(0.06x) \text{ mass of the sample}}{100} \text{ g}$$

8 This test is not applicable when the sand and the product cannot be mixed uniformly.

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI which includes surveillance inspection of the factory, testing of both factory and market samples.

Further particulars of the terms and conditions of the permit may be obtained from the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.



SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science & Technology.

The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.