SRI LANKA STANDARD 466 : 1979
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SPECIFICATION FOR
PLANT PROTECTION PRODUCTS
PART 5 - SULPHUR

BUREAU OF CEYLON STANDARDS

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SLS 466:Part 5:1979

Gr. 4

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Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

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

SRI LANKA STANDARD
SPECIFICATION FOR PLANT PROTECTION PRODUCTS
PART 1 : SULPHUR

FOREWORD

This Sri Lanka Standard Specification was authorized for adoption and publication by the Council of the Bureau of Ceylon Standards on 1979-12-21, after the draft, finalized by the Drafting Committee on Pesticides, had been approved by the Agricultural and Chemicals Divisional Committee.

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

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

This standard is based on the FAO specification on sulphur.

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 volume 1 (1970) and volume 1A (1971).

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 Ltd., Cambridge, United Kingdom.

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 test for sulphur dusts, sulphur dispersible powders and sulphur aqueous dispersions.

SECTION 1 SULPHUR DUSTS

2 DESCRIPTION

The product shall be a homogeneous mixture containing sulphur as the only active ingredient, together with suitable fillers and any necessary formulants. It shall be a fine, free flowing, dustable powder, free from visible extraneous matter and hard aggregates.

3 ACTIVE INGREDIENT *(see Note 8)*

3.1 Sulphur *(See CIPAC 1, p. 636, section 1.2, method 18/2/M/1.2)*

The sulphur content of the product shall be declared and, when determined, the content obtained shall not differ from that declared by more than ± 2.5 per cent of the declared content.

4 IMPURITIES

4.1 Arsenic *(Ibid., p. 637, section 1.4, method 18/2/M/1.4)*

Maximum: 5.0 $\underline{X}$ µg/g, where $\underline{X}$ is the percentage of sulphur declared under **3.1** (see Note 1).

5 PHYSICAL PROPERTIES

5.1 Flowability *(Ibid., p. 637, section 1.5, method 18/2/M/1.5)*

Under consideration.

5.2 Wet sieve test *(Ibid., p. 637, section 1.3, method 18/2/M/1.3)*

Minimum: Not less than 98 per cent of the product shall pass completely through a 53 µm test sieve.

6 STORAGE STABILITY

6.1 Heat stability *(Ibid., p. 637, section 1.6, method 18/2/M/1.6)*

After storage at 54 ± 2 °C for 14 days, the product shall continue to comply with **3.1**, **5.1** and **5.2**.

7 PACKAGING AND MARKING

The containers shall comply with the requirements stipulated in SLS ..... Packaging and labelling of containers for pesticides.

8 BIOLOGICAL PROPERTIES

8.1 Phytotoxicity*

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

When a certain crop is not specifically mentioned in the instructions for use, purchasers should check with the supplier to ensure that the product is suitable, always provided that the proposed use is not restricted or legally forbidden.

SECTION 2 SULPHUR DISPERSIBLE POWDERS

9 DESCRIPTION

The product shall consist of a homogeneous mixture containing sulphur as the only active ingredient, together with suitable carriers and any necessary formulants. It shall be a free flowing powder, free from visible extraneous materials and hard aggregates.

10 ACTIVE INGREDIENT *(see Note 8)*

10.1 Sulphur *(See CIPAC 1, p. 637, section 1.2, method 18/3/M/1.2)*

10.1.1 *Minimum:* 70 per cent

10.1.2 *Declared content*

The sulphur content of the product shall be declared and, when determined, the content obtained shall not

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**For information*

differ from that declared by more than ± 2.5 percentage units.

11 IMPURITIES

11.1 Arsenic *(Ibid., p.640, section 1.6, method 18/3/M/1.6)*

Maximum: 5.0 X µg/g, **where X** is the percentage of sulphur declared under **10.1.2** (see Note 2)

12 PHYSICAL PROPERTIES

12.1 Wet sieve test *(Ibid., p.640, section 1.5, method 18/3/M/1.5)*

Maximum: Not more than 0.05 per cent of the product shall remain on a 75 µm test sieve.

12.2 Particle size distribution *(Ibid., p. 637, section 1.3, method 18/3/M/1.3)*

The sulphur shall be present in particles of diameters as follows:

Minimum: 40 per cent of 6 µm, or less.

Minimum: 9 per cent of 2 µm, or less *(see Note 3)*

12.3 Suspensibility *(Ibid., p. 639, section 1.4, method 18/3/M/1.4)*

A minimum of 80 per cent of the sulphur content declared under **10.1.2** shall be in suspension after 30 minutes in CIPAC Standard Water A, when determined on the product as received, and 80 per cent in CIPAC Standard Water C, after the heat stability test.

Alternatively, if the buyer requires other CIPAC Standard Waters to be used, he should specify accordingly when ordering.

12.4 Wettability of the product *(Ibid., p. 640, section 1.7, method 18/3/M/1.7)*

It shall be completely wetted in 1 minute without swirling.

12.5 Persistent foam *(Ibid., p. 640, section 1.8, method 18/3/M/1.8)*

Maximum: 25 ml of foam after 1 minute.

13 STORAGE STABILITY

13.1 Heat stability *(Ibid., p.640, section 1.10, method 18/3/M/1.10)*

After storage at 54 ± 2 °C for 14 days the product shall continue to comply with 10.1, 12.1 (see Note 7) **12.2 and 12.4.**

14 PACKAGING AND MARKING

The containers shall comply with the requirements stipulated in SLS..... Packaging and labelling of containers for pesticides.

15 BIOLOGICAL PROPERTIES

15.1 Phytotoxicity*

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

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

15.2 Wetting of crops* *(Ibid., p. 640, section 1.9, method 18/3/M/1.9)*

The dilute spray shall satisfactorily wet the leaves of the specified crops when used in accordance with the instructions.

However, owing to wide variations in crops and diseases, no specific figures can be assigned to wetting of crops, but this test may prove useful.

SECTION 3 SULPHUR AQUEOUS DISPERSIONS

16 DESCRIPTION

The product shall consist of an aqueous dispersion containing sulphur as the only active ingredient, together with any necessary formulants.

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17 ACTIVE INGREDIENTS *(see Note 1)*

17.1 Sulphur *(See CIPAC 1, p. 641, section 1.2, method 18/7/M/1.2)*

17.1.1 *Minimum content*

Minimum: 40 per cent.m/m.

17.1.2 *Declared content*

The sulphur content of the product shall be declared and when determined, the content obtained shall not differ from that declared by more than ± 5 per cent of the declared content.

18 IMPURITIES

18.1 Arsenic *(Ibid., p. 641, section 1.6, method 18/7/M/1.6)*

Maximum: 5.0 $\underline{X}$ µg/g, where $\underline{X}$ is the percentage of sulphur declared under 17.1.2 (see Note 5).

19 PHYSICAL PROPERTIES

19.1 Wet sieve test *(Ibid., p. 641, section 1.5, method 18/7/M/1.5)*

Maximum: Not more than 0.05 per cent of the product shall remain on a 75 µm *test sieve.*

19.2 Particle size distribution *(Ibid., p. 641, section 1.3, method 18/7/M/1.3)*

The sulphur shall be present in particles of diameters, as follows:

Minimum: 90 per cent 6 µm, or less.

Minimum: 55 per cent of 2 µm, or less (see Note 6).

19.3 Suspensibility *(Ibid., p. 641, section 1.4, method 18/7/M/1.4)*

A minimum of 80 per cent of the sulphur content, declared under **17.1.2**, shall be in suspension after 30 min in CIPAC Standard Water A, when determined on the product as received, and 80 per cent in CIPAC Standard Water C, after the heat stability test.

Alternately, if the buyer requires other CIPAC Standard Waters to be used, he should specify accordingly when ordering.

20 STORAGE STABILITY

20.1 Heat stability *(Ibid., p. 641, section 1.8, method 18/7/M/1.8)*

After storage at 54 ± 2 °C 14 days in a closed container, the product shall continue to comply with **17.1**, **19.1** and **19.2**.

21 PACKAGING AND MARKING

The containers shall comply with the requirements stipulated in SLS..... Packaging and labelling of pesticides.

22 BIOLOGICAL PROPERTIES

22.1 Phytotoxicity*

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

**For information.*

When a certain crop is not specifically mentioned in the instructions for use, purchasers should check with the supplier to ensure that the product is suitable, always provided that the proposed use is not restricted or legally forbidden.

22.2 Wetting of crops* *(Ibid., p. 641, section 1.7, method 18/7/M/1.7)*

The dilute spray shall satisfactorily wet the leaves of the specified crops when used in accordance with the instructions.

However, owing to wide variations in crops and diseases, no specific figures can be assigned to wetting of crops, but this test may prove useful.

SECTION 4 SAMPLING AND CRITERIA FOR CONFORMITY

23 SAMPLING

23.1 Representative samples of the material for ascertaining conformity to the requirements of this specification shall be drawn as prescribed in SLS.... Methods of sampling of pesticides and their formulations.

24 CRITERIA FOR CONFORMITY

24.1 The lot shall be considered as conforming to the requirements of this specification if the sample tested as in 23.1 satisfies all the requirements.

NOTES

1 On a declared content of 50 per cent sulphur, the maximum permitted amount of arsenic would be 50 x 5 µg/g that is: 250 µg/g.

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2 On a declared content of 70 per cent sulphur, the maximum permitted amount of aresenic would be 70 x 5 µg/g that is: 350 µg/g.

3 On a declared content of 70 per cent sulphur, the minimum permitted percentage of particles of 6 µm or less in diameter would be 28 per cent and that of less than 2 µm would be 6.3 per cent. For a declared content of 80 per cent, the respective figures would be 32 per cent and 7.2 per cent.

4 Because of variation in the nature and size of the container, its destination, and other factors, it is not possible to specify the thickness of the polyethylene, but as a guideline, for a container with 50 kg of product the inner liner should be not less than 0.07 mm thick.

5 On a declared content of 40 per cent sulphur, the maximum permitted amount of aresenic would be 40 x 5 µg/g that is: 200 µg/g.

6 On a declared content of 40 per cent sulphur, the minimum permitted amount of sulphur present in the form of particles of 6 µm or less would be 36 per cent, and that of less than 2 µm would be 22 per cent. For a declared content of 50 per cent, the respective, figures would be 45 per cent and 27.5 per cent.

7 In hot climates particles should be somewhat coarser than in cold climates.

8 For solids, technical liquids, volatile liquids (of minimum boiling point 50 °C) and viscous liquids (with minimum viscosity of 1000 centipoises at 20° C), this specification shall be based on a per cent mass/mass expression of content. For all other liquids the active ingredient content of the product shall be declared in terms of grams per litre at 20 °C. The content may also be requested in terms of mass/mass and density.

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.*

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SRI LANKA STANDARDS INSTITUTION

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