

**SRI LANKA STANDARD 466 Part 9:1980**  
**UDC 632.951**

**SPECIFICATION FOR**  
**PLANT PROTECTION PRODUCTS**  
**PART 9 - PROPOXUR**

**BUREAU OF CEYLON STANDARDS**



SPECIFICATION FOR PLANT PROTECTION PRODUCTS  
PART 9:PROPOXUR

SLS 466:Part 9:1980

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BUREAU OF CEYLON STANDARDS  
53, Dharmapala Mawatha,  
Colombo 3,  
Sri Lanka

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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 9:PROPOXUR

FOREWORD

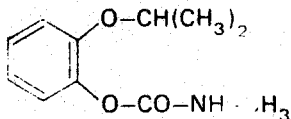
This Sri Lanka Standard Specification was authorised for adoption and publication by the Council of the Bureau of Ceylon Standards on 1980-09-29, after the draft, finalised by the Drafting Committee on Pesticides, has been approved by the Agricultural and Chemicals Divisional Committee.

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

Propoxur is the common name accepted by the International Organization for Standardization (ISO) for the pesticidal chemical

2 - isopropoxyphenyl methyl carbamate.

The structural formula is



Wherever possible, standards for apparatus and common names for pesticides are those approved by the ISO.

This standard is based on the FAO specification on Propoxur.

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 (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 Specifications for Plant Protection Products*.

## 1 SCOPE

This part prescribes requirements and methods of test for propoxur technical, propoxur dusts, propoxur dispersible powders and propoxur emulsifiable concentrates.

## SECTION 1 - PROPOXUR TECHNICAL

## 2 DESCRIPTION

The material shall consist, essentially, of propoxur, together with related manufacturing impurities, and shall be colourless to cream crystals free from extraneous materials or added modifying agents.

## 3 ACTIVE INGREDIENT

3.1 Identity (*see CIPAC 1, p. 824, MT/2*)

3.1.1 *Melting point range, 86 °C to 91.5 °C*

The melting point shall not be depressed on admixture with an equal quantity of pure propoxur.

3.1.2 *Other tests (Method 80/1/m/1.2, see Note 1)*  
It shall comply.

3.2 Propoxur (*Method 80/1/M/1.3, see Note 1*)

3.2.1 *Minimum content*

*Minimum : 95.0 per cent.*

3.2.2 *Declared content*

The propoxur content shall be declared and, when determined the content obtained shall not differ from that declared by more than  $\pm 2$  per cent.

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**WARNING**

*Propoxur is toxic. Strict precautions should be taken for the protection of personnel.*

#### 4 IMPURITIES

4.1 Acidity or alkalinity (*see CIPAC 1, p. 903, MT/31.1.1*)

*Maximum acidity* : 0.1 per cent, calculated as sulphuric acid.

*Maximum alkalinity* : 0.1 per cent, calculated as sodium hydroxide.

4.2 Material insoluble in acetone (*Ibid., p. 894, MT/27*)

*Maximum* : 0.5 per cent.

4.3 Water (*Ibid., p. 897, MT/30.1*)

*Maximum* : 0.5 per cent.

4.4 *o*-isopropoxyphenol (*Method 80/1/M/1.8, see Note 1*)

*Maximum* : 3.0 per cent.

#### 5 PACKAGING AND MARKING

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

### SECTION 2 - PROPOXUR DUSTS

#### 6 DESCRIPTION

The product shall consist of a homogeneous mixture containing propoxur as the only active ingredient, together with suitable carriers and any necessary formulants. It shall be a fine, free-flowing,



dustable powder, free from visible extraneous matter and hard aggregates (see Note 2).

It shall be formulated from propoxur of quality complying with the specification for *Propoxur Technical* (see Section 1).

## 7 ACTIVE INGREDIENT

### 7.1 Identity (Method 80/2/m/1.2, see Note 1)

It shall comply.

### 7.2 Propoxur (Method 80/2/m/1.3; see Note 1)

The propoxur content of the product shall be declared and when determined, the content obtained shall not differ from that declared by more than the following amounts:

| Declared content   | Permitted tolerance                   |
|--------------------|---------------------------------------|
| Up to 2.5 per cent | ± 15 per cent of the declared content |
| Above 2.5 per cent | ± 10 per cent of the declared content |

## 8 IMPURITIES

### 8.1 Acidity or alkalinity (see CIPAC 1, p. 903, MT/31.1.2)

*Maximum acidity* : 0.1 per cent, calculated as sulphuric acid.

*Maximum alkalinity* : 0.2 per cent, calculated as sodium hydroxide.

8.2 o-isopropoxyphenol (Method 80/2/M/1.5, see Note 1)

Maximum : 0.4 per cent.

## 9 PHYSICAL PROPERTIES

9.1 Flowability (see CIPAC 1, p. 948, (MT) 44)

Maximum flow number : 12.

9.2 Dry sieve test (Ibid., p. 978, MT/59.1)

Minimum : Not less than 95 per cent of the product shall pass through a 75- $\mu$ m test sieve.

Not more than 0.15 X per cent of the mass of the sample used for the determination shall be present as propoxur in the residue on the 75- $\mu$ m test sieve, where X is the percentage of propoxur declared under 7.2 (see Note 3).

## 10 STORAGE STABILITY

10.1 Heat stability (Ibid., p. 953, MT/46.1.4)

After storage at  $54 \pm 2$  °C for 14 days, the product shall continue to comply with 7.2 (except that the minimum permitted propoxur content shall be 90 per cent of that found under 7.2), 8.1, 9.1, and 9.2 .

## 11 PACKAGING AND MARKING

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

## 12 BIOLOGICAL PROPERTIES

### 12.1 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.

## SECTION 3 - PROPOXUR DISPERSIBLE POWDERS

### 13 DESCRIPTION

The product shall consist of a homogeneous mixture containing propoxur as the only active ingredient, together with suitable fillers and any necessary formulants. It shall be a fine powder, free from visible extraneous materials and hard aggregates (see Note 2).

It shall be formulated from propoxur of quality complying with the specification for *Propoxur Technical* (see Section 1).

### 14 ACTIVE INGREDIENT

#### 14.1 Identity (*Method 80/3/m/1.2 : see Note 1*)

It shall comply.

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\* *For information*

14.2 Propoxur (*Method 80/3/M/1.3 : see Note 1*)

The propoxur content of the product shall be declared and, when determined, the content obtained shall not differ from that declared by more than the following amounts :

| Declared content  | Permitted tolerance                      |
|-------------------|--|
| Up to 50 per cent | $\pm 5$ per cent of the declared content |
| Above 50 per cent | $\pm 2.5$ percentage units               |

15 IMPURITIES

15.1 Acidity or alkalinity (*see CIPAC 1, p. 903, MT/31.1.2*)

*Maximum acidity* : 0.3 per cent, calculated as sulphuric acid (see Note 5).

*Maximum alkalinity* : 0.2 per cent, calculated as sodium hydroxide.

15.2 o-isopropoxyphenol (*Method 80/3/m/1.5; see Note 1*)

*Maximum* : 3 per cent of the active ingredient content declared under 14.2.

16 PHYSICAL PROPERTIES

16.1 Wet sieve test (*see CIPAC 1, p. 981, MT/59.3*)

*Minimum* : Not less than 98 per cent of the product shall pass through a 75- $\mu$ m test sieve.

## 16.2 Suspending Ability (*Ibid.*, p. 861, MT/15.1)

A minimum of 70 per cent of the propoxur content, declared under 14.2 shall be in suspension after 30 min in CIPAC Standard Water A, when determined on the product as received, and a minimum of 60 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.

## 16.3 Wettability of the product (*Ibid.*, p. 967, MT/53.3.1)

It shall be completely wetted in 2.5 minutes, without swirling.

## 16.4 Persistent foam (*Ibid.*, p. 954, MT/47)

*Maximum* : 25 ml of foam after 1 minute.

## 17 STORAGE STABILITY

### 17.1 Heat stability (*Ibid.*, p. 951, MT/46.1.1)

After storage at  $54 \pm 2$  °C for 14 days, the product shall continue to comply with 14.2 (except that the minimum permitted propoxur content shall be 95 per cent of that found under 14.2), 15.1, 15.2 (except that the permitted maximum content shall be 6.5 per cent of the propoxur found under 14.2), 16.1 and 16.3.

## 18 PACKAGING AND MARKING

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

## 19 BIOLOGICAL PROPERTIES

### 19.1 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.

### 19.2 Wetting of crops\* (*Ibid.*, p. 965, MT/53.2)

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 pests, no specific figures can be assigned to wetting of crops, but this test may prove useful.

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\* *For information*

SECTION 4 - PROPOXUR EMULSIFIABLE  
CONCENTRATES

## 20 DESCRIPTION

The product shall consist of an emulsifiable concentrate based on propoxur as the only active ingredient, together with suitable solvents and any necessary formulants. It shall be free from visible suspended matter and sediment.

It shall be formulated from propoxur of quality complying with the specification for *Propoxur Technical* (see Section 1).

## 21 ACTIVE INGREDIENT

21.1 Identity (*Method 80/5/M/1.2; see Note 1*)

It shall comply.

21.2 Propoxur (*Method 80/5/M/1.4; see Note 1*)

The propoxur content shall be declared (% m/m and/or g/l at 20 °C, see Note 6) and, when determined, the content obtained shall not differ from that declared by more than the following amounts:

| Declared content                | Permitted tolerance                     |
|---------------------------------|---|
| Up to 20 per cent or<br>200 g/l | ± 6 per cent of the declared<br>content |
| Above 20 per cent or<br>200 g/l | ± 1.2 percentage units or<br>± 12 g/l   |

## 22 IMPURITIES

22.1 *o*-isopropoxyphenol (Method 80/5/m/1.5; see Note 1)

*Maximum* : 3 per cent of the propoxur content declared under 21.2.

22.2 Acidity or alkalinity (see CIPAC 1, p. 904, MT/31.1.3)

*Maximum acidity* : 0.2 per cent, calculated as sulphuric acid.

*Maximum alkalinity* : 0.1 per cent, calculated as Sodium hydroxide.

22.3 Water (*Ibid.*, p. 897, MT/30.1)

*Maximum* : 0.2 per cent.

## 23 PHYSICAL PROPERTIES

23.1 Emulsion stability and re-emulsification (*Ibid.*, p. 952, MT/46.1.3)

After the heat stability test (24.2), the product, when diluted at 30 °C (see Note 7) with the specified



CIPAC Standard Waters, shall comply with the following :

| Time after dilution | Limits of stability                               |
|---------------------|---|
| 0 h                 | Initial emulsifiability;<br>complete              |
| 0.5 h               | Cream : maximum 2 ml                              |
| 2.0 h               | Cream : maximum 4 ml<br>Free oil : maximum 0.5 ml |
| 24.0 h              | Re-emulsification : complete                      |
| 24.5 h              | Maximum cream : 4 ml<br>Free oil : maximum 0.5 ml |

The product shall be tested in Standard Water A and in Standard Water C (see Note 8).

### 23.2 Flash point (*Ibid.*, p. 846, MT/12)

The flash point of the product shall not be lower than the minimum declared flash point (see Note 9). The procedure used shall be stated (for example : Abel method).

## 24 STORAGE STABILITY

### 24.1 Low temperature stability (*Ibid.*, p. 930, MT/39.1)

After storage at 0 °C for 7 days, the volume of solid and/or liquid which separates shall be not more than 0.3 per cent for products containing up to 180 g/l of active ingredient (see Note 10).

**24.2 Heat stability** (*Ibid.*, p. 952, MT/46.1.3)

After storage at  $54 \pm 2$  °C for 14 days, the concentrate shall continue to comply with 21.2 (except that the minimum permitted propoxur content shall be 95 per cent of that found under 21.2), 22.1 (except that the maximum permitted content of o-isopropoxyphenol shall be 6.5 per cent of the propoxur content found under 21.2), and 22.2.

**25 PACKAGING AND MARKING**

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

**26 BIOLOGICAL PROPERTIES**

**26.1 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.

**26.2 Wetting of crops\*** (*Ibid.*, p. 965, MT/53.2)

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

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\* For information

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

## SECTION 5 - SAMPLING AND CRITERIA FOR CONFORMITY

### 27 SAMPLING

27.1 Representative samples of the material for ascertaining conformity to the requirements of this specification shall be drawn as prescribed in SLS 592 Methods of sampling of pesticidal products.

### 28 CRITERIA FOR CONFORMITY

28.1 The lot shall be considered as conforming to the requirements of this specification if the sample tested as in 27.1 satisfies all the requirements.

#### NOTES

- 1 Method not included in CIPAC 1, but will appear in IA. Pending such publication, a copy of method may be obtained on request from FAO Secretariat.
- 2 If required, the product shall contain a dye in agreement with national legislation.
- 3 If the dust contains a declared content, of 5 per cent propoxur and 20 g of sample is used in the test, then the amount of propoxur in the residue

on the sieve should not exceed 0.15 g, i. e.,

$$\frac{(0.15 \quad X) \times \text{weight of sample}}{100} \text{ g}$$

4 Maximum acidity only applies for products not containing an acid stabilizer.

5 If the customer requires both % m/m and g/l at 20 °C, then, in cases of dispute the analytical results shall be expressed as % m/m.

6 Unless another temperature is specified.

7 Unless other CIPAC Standard Waters are specified.

8 Attention is drawn to the appropriate national and international regulations concerning handling and transport of flammable materials.

9 If a product with a content of more than 180 g/l propoxur has been stored below + 5 °C, it will possibly need to be made homogeneous by agitating the container before use.

## **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.