SRI LANKA STANDARD 466 : PART 20 : 1985

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SPECIFICATION FOR

PLANT PROTECTION PRODUCTS

PART 20 - MCPA

SRI LANKA STANDARDS INSTITUTION

SPECIFICATION FOR PLANT PROTECTION PRODUCTS

PAPT 20 : MCPA

SLS 466:Part 20:1985

Gr. 7

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SRI LANKA STANDARD

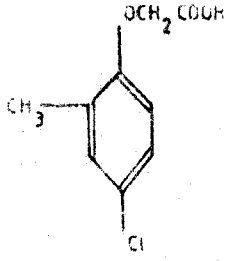
SPECIFICATION FOR PLANT PROTECTION PRODUCTS

PART 20 : MCPA

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.

MCPA is the common name accepted by the International Organization for Standardization (ISO) for 4-chloro, 2-methyl phenoxyacetic acid.



This specification is based on the Food and Agriculture Organization of the United Nations (FAO) Specification on MCPA.

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 (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 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 back ground 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 MCPA technical, MCPA potassium and/or sodium or amine salt aqueous solutions, MCPA potassium and/or sodium salt water soluble powders, MCPA technical esters and MCPA ester emulsifiable concentrates.

2 REFERENCES

CS 124 Test sieves

SLS 592 Methods for sampling of pesticidal products

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

SECTION 1 - MCPA TECHNICAL

3 DESCRIPTION

The material shall consist of technical grades of MCPA which are white to brown granular solids, free flowing powders or wet cakes which may contain a slight odour.

4 ACTIVE INGREDIENT

4.1 Identity tests *(CIPAC 1; Method 2/1/m/1.9; see Note 1)*

Where the identity of the material is in doubt, the identity shall be established with the test.

4.2 Extractable acids *(CIPAC 1, page 475, Method 2/1/M1/1.2* **except** that chloroform should be used in place of di-ethyl ether for extraction **or** *page 483, Method 2/1/M2/1.2; see Note 2)*

4.2.1 *Minimum content*

Minimum : 75 per cent.

4.2.2 *Declared content*

The extractable acid content, expressed as MCPA, shall be declared and when determined, the content obtained shall not differ from the declared by more than ±2 percentage units.

4.3 MCPA *(CIPAC 1, page 477, Method 2/1/M1/1.3 on page 483, Method 2/1/M2/1.3; see Note 3)*

4.3.1 *Minimum content*

Minimum : 80 per cent of the acid content declared under **4.2.2** (see Note 4).

4.3.2 *Declared content*

The MCPA content shall be declared and when determined, the content obtained shall not differ from that declared by ±4 percentage units.

5 IMPURITIES

5.1 Free phenols *(CIPAC 1, page 481, Method 2/1/M1/1.5)*

Maximum : 1.5 per cent expressed as 4-chloro-2-methyl-phenol (see Note 5), of the MCPA content declared under **4.3** (see Note 6).

5.2 Water *(CIPAC 1, page 482, Method 2/1/M1/1.6)*

Maximum : 25 per cent.

5.3 Material insoluble in NaOH *(CIPAC 1, page 1 003, MT/71.1* - **except** that 5N Sodium hydroxide solution is used)

A Sodium hydroxide solution of the material shall not leave more than 0.05 per cent residue on a 150 - µm test sieve conforming to **CS 124** and the sieved solution shall be clear and free from sediment.

5.4 Sulphated ash *(CIPAC 1, page 482, Method 2/1/M1/1.7)*

Maximum : 1 per cent of the acid content declared under **4.2** (see Note 7).

6 PACKAGING

The containers shall comply with the requirements stipulated **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 - MCPA POTASSIUM AND/OR SODIUM AND AMINE SALT AQUEOUS SOLUTIONS

8 DESCRIPTION

The product shall consist of an aqueous solution containing MCPA potassium, sodium or amine salts, including mixtures, for example: mixed potassium-sodium salt solutions, as the only active ingredients, together with any necessary formulants. It shall be free from visible suspended matter and sediment.

It shall be formulated with potassium and/or sodium or amine salts made from MCPA technical of quality complying with the specification for *MCPA technical* (Section 1).

9 ACTIVE INGREDIENTS

9.1 Salts

The name of the MCPA metal or amine salt(s) present shall be stated.

9.2 **Extractable acids** *(CIPAC 1, page 490, Method 2.1 Na/13/M/1.3* **except** that chloroform should be used in place of diethyl ether for extraction).

The maximum extractable acid content (per cent *m/m* and/or g/l at 20 °C), expressed as MCPA, shall be declared. This shall be not more than 1.25 $\bar{x}$ where $\bar{x}$ is the amount of MCPA found under **9.3** (see Note 14).

9.3 MCPA *(CIPAC 1, page 493, Method 2.1 Na/13/M/1.4)*

The MCPA content shall be declared (per cent *m/m* and/or g/l at 20 °C) 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 *m/m* **or** 500 g/l	±5 per cent of the declared content
Above 50 per cent *m/m* **or** 500 g/l	±2.5 percentage units **or** ±25 g/l.

10 IMPURITIES

10.1 **Free phenols** *(CIPAC 1, page 495, Method 2.1 Na/13/M/1.6)*

Maximum : 1.5 per cent, expressed as 4-chloro-2-methyl-phenol (see Note 5) of the MCPA content declared under **7.3** (see Note 6).

10.2 **Material insoluble in water** *(CIPAC 1, page 495, Method 2.1 Na/13/M/1.7).*

All the insoluble material shall pass through a 250-µm test sieve, conforming to **CS 124**, and not more than 0.1 per cent shall remain on a 150-µm test sieve, conforming to CS 124.

11 PHYSICAL PROPERTIES

Stability on dilution *(CIPAC 1, page 495, Method 2.1 Na /13/M/1.9)* After dilution with CIPAC Standard Water C, the product shall give a reasonably clear solution (i.e. free from sediment and visible particles of solid).

12 STORAGE STABILITY

Low temperature stability *(CIPAC 1, page 495, Method 2.1 Na/13/M/1.8)* After storage at 0 °C (see Note 13), for 7 days, there shall be no separation of material.

13 PACKAGING

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

14 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 - MCPA POTASSIUM AND/OR SODIUM SALT WATER SOLUBLE POWDERS

15 DESCRIPTION

The product shall consist of solid products containing MCPA potassium and/or sodium salts as the only active ingredients, together with any necessary formulants, for use in sprays.

It shall be formulated with potassium and/or sodium salts made from MCPA technical of quality complying with the specification for *MCPA technical* (Section 1).

16 ACTIVE INGREDIENTS

16.1 Salt

The MCPA salt(s) present shall be stated.

16.2 Extractable acids *(CIPAC 1, page 486, Method 2.1 Na/16/M/1.2* except that chloroform should be used in place of diethyl ether for extraction).

The maximum extractable acid content, expressed as MCPA, shall be declared. This shall be not more than 1.25 $\underline{X}$, where $\underline{X}$ is the content declared under **16.3** (see Note 15).

16.3 MCPA *(CIPAC 1, page 488, Method 2.1 Na/16/M/1.3)*

The MCPA content 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.

17 IMPURITIES

17.1 Free phenols *(CIPAC 1, page 489, Method 2.1 Na/16/M/1.6)*

Maximum : 1.5 per cent, expressed as 4-chloro-2-methyl-phenol (see Note 5), of the MCPA content declared under **16.2**.

17.2 Material insoluble in water *(CIPAC 1, page 490, Method 2.1 Na/16/M/1.8)*

All the insoluble material shall pass completely through a 250-µm test sieve, conforming to CS 124, and not more than 0.05 per cent shall remain on a 150-µm test sieve conforming to CS 124. The sieved solution shall be clear or opalescent and free from sediment.

18 PHYSICAL PROPERTIES

18.1 Rate of solution *(CIPAC 1, page 490, Method 2.1 Na/16/M/1.9)*

All the product, other than the insoluble residue found under **17.2** shall dissolve in 5 minutes in CIPAC Standard Water C, at 20 ± 1 °C, and the resulting solution, after standing for 18 h, shall contain not more than a trace of additional sediment.

19 PACKAGING

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

20 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 - MCPA TECHNICAL ESTERS

21 DESCRIPTION

The product shall consist of technical grades of MCPA esters which shall be free from visible water and suspended matter.

22 ACTIVE INGREDIENT

22.1 Esters

The MCPA ester(s) present shall be stated.

22.2 Extractable acids *(CIPAC 1, Method 2.3/1/M/1.7; see Note 1)*

The extractable acid content shall be declared (per cent *m/m*) and, when determined, the content obtained shall not differ from that declared by more than ±3 per cent of the declared content.

22.3 MCPA *(CIPAC 1, page 497, Method 2.3/1/M/1.2)*

The MCPA content shall be declared (per cent *m/m*) and when determined, the content obtained shall not differ from that declared by more than ±5 per cent of the declared content.

23 IMPURITIES

23.1 Free acidity *(CIPAC 1, page 498, Method 2.3/1/M/1.4)*

Maximum : 3 per cent *m/m*, expressed as MCPA, of the acid content declared under **22.2**.

23.2 Suspended solids *(CIPAC 1, page 498, Method 2.3/1/M/1.6)*

Maximum : 0.1 per cent *m/m*.

23.3 Water content *(CIPAC 1, page 498, Method 2.3/1/M/1.5)*

No visible water shall be present in the material.

24 PACKAGING

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

25 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 5 - MCPA ESTER EMULSIFIABLE CONCENTRATES

26 DESCRIPTION

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

It shall be formulated from MCPA technical esters of quality complying with the specification for *MCPA Technical Esters* (Section 4).

27 ACTIVE INGREDIENT

27.1 Esters

The name(s) of the MCPA ester(s) shall be declared (see Note 8).

27.2 Extractable acids *(CIPAC 1, Method 2.3/5/M/1.12; see Note 1)*

The maximum extractable acid content (per cent *m/m* **and/or** g/l at 20 °C), expressed as MCPA, shall be declared. This shall be not more than 1.25 X, where X is the amount of MCPA declared under **27.3**.

27.3 MCPA *(CIPAC 1, page 497, Method 2.3/1/M/1.2* or *page 499, Method 2.3/5/M/1.3; see Note 9)*

The MCPA content shall be declared (per cent *m/m* and/or g/l at 20 °C) and when determined, the content obtained shall not differ from that declared by more than ±5 per cent of the declared content.

28 IMPURITIES

28.1 Free acidity *(CIPAC 1, Method 2.3/5/M/1.11; see Note 1)*

Maximum : 3 per cent, expressed as MCPA, of the acid content declared under 27.3.

28.2 Material insoluble in oil *(CIPAC 1, page 502, Method 2.3/5/M/1.5)*

The product shall give a clear, or opalescent, homogeneous solution, which shall pass completely through a 150-µm test sieve, conforming to CS 124.

28.3 Water *(CIPAC 1, page 502, Method 2.3/5/M/1.4)*

Maximum : 0.5 per cent.

29 PHYSICAL PROPERTIES

29.1 Emulsion stability and re-emulsification *(CIPAC 1, page 502, Method 2.3/5/M/1.9)*

After the heat stability test (30.2), the product, when diluted at 30 °C (see Note 10), with the specified CIPAC Standard Waters, shall comply with the following :

Time after dilution	Limits of stability
0	Initial emulsifiability : complete
0.5 h	Cream : maximum 2 ml
2.0 h	(Cream : maximum 4 ml (Free oil : nil
24.0 h	Re-emulsification : complete
24.5 h	(Cream : maximum 4 ml (Free oil : maximum 0.5 ml

The product shall be tested in Standard Water A and in Standard Water C (see Note 11).

29.2 **Flash point*** *(CIPAC 1, page 502, Method 2.3/5/M/1.7)*

The flash point of the product shall be not lower than the minimum declared flash point (see Note 12). The prodecure shall be stated (for example, Abel method).

29.3 **Volatility** *(CIPAC 1, page 502, Method 2.3/5/M/1.6)*

It shall be stated whether the volatility of the product is high or low.

30 STORAGE STABILITY

30.1 **Low temperature stability** *(CIPAC 1, page 502, Method 2.3/5/M/1.8)*

After storage at 0 °C (see Note 13), for 7 days, the volume of solid and/or liquid which separates shall be not more than 0.3 per cent.

30.2 **Heat stability** *(CIPAC 1, page 502, Method 2.3/5/M/1.10)*

After storage at 54 ± 2 °C for 14 days, the concentrate shall continue to comply with 27.2, 28.1, 28.2, 29.1, 29.2 and 30.1.

31 PACKAGING

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

32 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 6 - SAMPLING AND CONFORMITY TO STANDARD

33 SAMPLING

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

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

a) MCPA technical - 600 g;

b) MCPA potassium and/or sodium or amine salt aqueous solutions - Sample containing 150 g of MCPA salts;

* *For information*

c) MCPA potassium and/or sodium salt water soluble powders - sample containing 150 g of MCPA;

d) MCPA technical esters - 600 g; and

e) MCPA ester emulsifiable concentrates - 1 800 ml.

34 CONFORMITY TO STANDARD

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

34.1 All containers selected as in 33.1 conform to the packaging and marking requirements.

34.2 The composite sample drawn as in 33.2 when tested, satisfies the requirements given in the relevant section.

NOTES

1 Method not included in CIPAC 1.

2 In case of dispute method 2/1/M1/1.2 shall be the "referee method".

3 In case of dispute method 2/1/M1/1.3 shall be the "referee method".

4 On a declared content of 75 per cent total acids, the minimum MCPA content permitted would be 60.0 per cent of the product.

5 The content of free phenols has been limited to avoid possible taint of neighbouring crops.

6 If the declared content of MCPA is 60 per cent then the maximum content of free phenols permitted would be 0.9 per cent of the product.

7 If the declared content of total acids in 75 per cent, then the maximum amount of sulfated ash permitted would be 0.75 per cent of the product.

8 For products based on mixed esters, the approximate percentage of each ester shall be declared.

9 In case of dispute, method 2.3/5/M/1.3 shall be the "reference method".

10 Unless another temperature is specified.

11 Unless other CIPAC Standard Waters are specified.

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

13 A test temperature of 0 ^{o}C may not be suitable for products intended for use in cold climates and, in such cases, an alternative test temperature may be specified.

14 For an MCPA content of 50 per cent m/m, the maximum permitted extractable acid content would be 50 x 1.25 (i.e. 62.5 per cent m/m) and for 400 g/l, the maximum would be 500 g/l).

15 On an MCPA content of 70 per cent, the maximum permitted extractable acid content would be 87.5; (70 x 1.25).

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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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.

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