

Indian Standard

MONOCROTOPHOSSL-SPECIFICATION

(*Second Revision*)

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards on 25 May 1990, after the draft finalized by the Pesticides Sectional Committee had been approved by the Food and Agricultural Division Council.

Monocrotophos EL is largely used in the control of insect and acarine pests of agricultural crops.

Monocrotophos SL is generally manufactured to contain 36 percent (m/m) of monocrotophos.

This standard was published in 1976 and first revised in 1983. It has been revised again to update its various requirements in the light of the experience gained. The third revision is being brought out considering the increasing issue of toxicity and regulatory reformations around the world related to monocrotophos. This revision proposes alternate method for estimation of monocrotophos. It also proposes the introduction of toxicology requirement and its alignment with WHO/FAO guidelines.

In the preparation of this standard, due consideration has been given to the provisions of the Insecticides Act, 1968 and Rules framed there under. However, this standard is subject to the restrictions imposed under these, wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (revised)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for monocrotophos SL.

2 REFERENCE

2.1 The Indian Standards listed in Annex A are necessary adjuncts to this standard.

3 REQUIREMENTS

3.1 The material shall consist of monocrotophos, technical, dissolved in suitable solvent(s).

3.1.1 Monocrotophos, technical, employed in the formulation of this material shall conform to IS 8025 : 1990.

3.2 Physical

The material shall comply with the following physical requirements.

3.2.1 Description

The material shall be in the form of reddish brown liquid. One percent (m/v) solution of the material in water may have small oily droplets.

3.2.2 Cold Test

No turbidity or separation of solid matter shall occur when the material is subjected to cold test at 10°C as prescribed in 13.1 of IS 6940 : 1982 or any other lower temperature as agreed to between the purchaser and the vendor.

3.2.3 Flash Point (Abel)

When determined by the method prescribed in IS 1448 (part 20) : 2019, the flash point of the material shall be above 24.5°C.

3.3 Chemical

The material shall comply with the following chemical requirements.

3.3.1 Monocrotophos Content

When determined by the method prescribed in Annex B of IS 8025 : 1990 or alternative CIPAC

method, 1990 for estimation of Monocrotophos, the observed monocrotophos content, percent by mass, of any of the samples shall not differ from the declared nominal value by more than the tolerance limits indicated below:

Nominal Value, Percent	Tolerance Limit, Percent	Of the nominal value
Upto 9	+10	Of the nominal value
	-5	
Above 9 and below 50	±5	
50 and above	+5	
	-3	

3.3.1.1 The actual value of the monocrotophos content in the formulations shall be calculated to the second decimal place and then rounding off to the first decimal place before applying the tolerances given in 3.3.1.

3.3.1.2 The average monocrotophos content of all the samples taken shall not be less than the declared nominal content.

Note : Alternative CIPAC method, 1990 for estimation of monocrotophos is used to determine monocrotophos through reversed phase liquid chromatography with UV detection. It is basically a HPLC method based estimation.

3.3.2 Free Aceto-Acetic Acid Monomethyl-amide (MMA) Content

When determined by the method prescribed in Annex C of IS 8025 : 1990, the free MMA content shall be not more than 4.0 percent by mass.

Note : Pre harvest interval (PHI) studies may be carried out by the manufacturer to estimate the residual limit of free MMA content in crops after application. The same may be conducted for the estimation of residue Monocrotophos content in crops, plants after application.

3.3.3 Acidity

When determined by the method prescribed in 13.5.4 of IS 6940 : 1982, acidity (as H₂SO₄), shall be not more than 2.5 percent by mass.

3.4 Toxicology

The material for commercial use should have compliance with the specified toxicity limits as per WHO/FAO/FSSAI regulations.

4 PACKING

4.1 The material shall be packed as per the requirements given in IS 8190 (Part 2) : 1988.

5 MARKING

5.1 The containers shall be securely closed and shall bear legibly and indelibly the following information in addition to the information required under the Insecticides Act, 1968 and Rules framed thereunder:

- a) Name of the material;
- b) Indication of the source of manufacture;
- c) Date of manufacture and date of expiry;
- d) Batch number;
- e) Net volume of contents;
- f) Nominal monocrotophos content, percent (m/m);
and

g) The cautionary notice worded as in Insecticide Act, 1968 and Rules framed there under.

h) The residual content of monocrotophos and free MMA estimated after PHI study, if conducted.

6 SAMPLING

6.1 Representative samples of the material shall be drawn as prescribed in IS 10627:1983.

7 TESTS

7.1 Tests shall be carried out as prescribed in 3.2.1, 3.2.2,3.2.3, 3.3.1, 3.3.2 and 3.3.3.

7.2 For determination of monocrotophos content and free aceto-acetic acid monomethyl - amide (MMA) content, weigh about 8.0 g of sample. The absorbance of the complex formed may be measured at 544 nm.

7.3 Quality of Reagents Unless specified otherwise, pure chemicals and distilled water (See IS 1070 : 1992) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

ANNEX A

(Clause 2)

IS No.	Title	IS 10627 : 1983	Methods for sampling of pesticidal formulations.
IS 1070 : 1992	Reagent Grade water-Specifications (Third revision)		
IS 1448 : Part 20 : 2019	Methods of Test for Petroleum and its Products [P : 20] Determination of Flash Point — Abel Closed-Cup Method (Third Revision)		
IS 6940 : 1982	Methods of test for pesticides and their formulations (First Revision)		
IS 8025 : 1990	Monocrotophos,technical specification (Second Revision)		
IS 8190 (Part 2) : 1988	Requirement for packing of pesticides : Part 2 Liquid pesticides (second revision)		