

**Pesticides — Metalaxylm-
Specification**

ICS: 65.100.01

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This Ethiopian Standard has been prepared under the direction of the Technical Committee for pesticide (TC 19) and published by the Ethiopian Standards Agency (ESA).

This standard Cancels and replace the Ethiopian Standard ES 704-1:2002 - *Pesticides - Deltamethrin Part 1: Ultra low volume liquids (ULV) - Specification*, with some editorial changes without altering the technical contents in the former text.

In the preparation of this standard reference has been made to the following:

- AGP: CP/243:1991, FAO specification for plant protection products, "Deltamethrin technical, FAO specification 333/TC/S (1990)", published by the Food and Agriculture Organization of the United Nations (FAO), Rome.

Acknowledgement is made for the use of information from the above publication.

Pesticides— Deltamethrin Part1: Technical material (TC) Specification

1. Scope

This Ethiopian Standard specifies the requirements for the technical material of deltamethrin (for agricultural purpose).

2. Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ES 693:2002, Pesticides - Terminology.

ES 694:2002, Pesticides - Methods of sampling.

ES 695:2002, Pesticides - Packaging.

ES 696:2002, Pesticides - Guideline on good labelling practice.

ES 697:2002, Pesticides - Guideline for retail distribution, storage and handling.

ES 700:2002, Pesticides – Guideline on the disposal of bulk quantities of obsolete pesticides.

ES 761:2002, Pesticides - Determination of *deltamethrin content*.

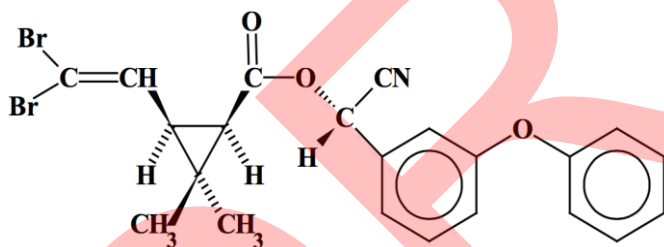
3. Definitions

For the purpose of this Ethiopian Standard terms defined in ES 693 shall apply.

4. General information

COMMONNAME: Deltamethrin (ISO)

STRUCTURAL FORMULA:



EMPIRICALFORMULA: $C_{22}H_{19}Br_2NO_3$

RMM: 505.2

CASREGISTRYNUMBER: (52918-63-5)

CIPACCODENUMBER: 333

CHEMICALNAMES:

IUPAC Name: (S)- α -cyano-3-phenoxybenzyl(1R,3R)-3-(2,2-dibromovinyl)-2,2-dimethylcyclopropanecarboxylate

CA Name: (IR)-[12(S*)32]-cyano(3-phenoxyphenyl)methyl-3-(2,2-dibromoethenyl)-2,2-dimethylcyclopropanecarboxylate

CHEMICAL GROUP: Pyrethroid

USE CATEGORY: Insecticide

WHO CLASS: ii

5. Requirements

5.1. Description

The material shall consist of deltamethrin together with related manufacturing impurities and shall be a white to cream coloured crystalline powder free from visible extraneous matter and added modifying agents.

5.2. Active ingredient

5.2.1. Identity tests

Where the identity of the active ingredient is in doubt, it shall be determined in accordance with ES761 and then it shall comply with at least one additional test.

Physical and chemical properties of the pure active ingredient

Characteristic properties	Deltamethrin
Colour	Colourless crystal
Physical state	Solid
Melting points:	When determined in accordance with WD ⁵⁾ the maximum melting point of the product shall be 101°C
Boiling point	Decomposes before boiling
Solubility in water at 20°C	0.0002 mg/L
Solubility in organic solvents at 20°C:	Acetone: 450000 g/L Xylene: 175000 g/L Methanol: 8150 g/L n-heptane: 2470 g/L
Vapor pressure in (mPa) at 20°C	1.24 x10 ⁻⁵
Henry's Law constant at 25°C (Pa m ³ mol ⁻¹)	3.10 x10 ⁻²
Octanol-water partition coefficient:	Log P _{ow} 4.6 (pH 7, 20°C)
Optical rotation	When determined in accordance with WD ⁴⁾ the optical rotation of the product shall be 20°C = 57+1.5°C.D
Maximum UV-vis absorption L mol ⁻¹ cm ⁻¹	267, 271 and 278nm, Low to very low absorption at 290-300nm.

5.2.2. Deltamethrin

The Deltamethrin content shall be declared in g/kg (not less than 980g/kg) and, when determined in accordance with ES761, the content obtained shall not differ from that declared by more than +/- 25g.

5.3. Impurities

5.3.1. Deltamethrin R isomer

When determined in accordance with WD¹⁾ the maximum content of Deltamethrin R isomer shall be 10g/kg.

5.3.2. Acid chloride corresponding to Deltamethrin

When determined in accordance with WD2) the maximum acid chloride content shall be 2g/kg.

5.3.3. Acid + anhydride corresponding to Deltamethrin

When determined in accordance with WD3) the maximum acid + anhydride content shall be 10g/kg.

6. Handling

Pesticides shall be handled in accordance with ES 697.

7. Sampling

Samples shall be taken in accordance with ES 694.

8. Packaging

Pesticides shall be packed in accordance with ES 695.

9. Labelling

Pesticides labelling shall be in accordance with ES 696.

10. Disposal

Disposal of bulk quantities of obsolete pesticides shall be in accordance with ES700.

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BIBLIOGRAPHY

WD¹⁾, *Pesticides – Determination of R-isomer in deltamethrin.*

WD²⁾, *Pesticides – Determination of acid chloride in deltamethrin.*

WD³⁾, *Pesticides – Determination of acid + anhydride in deltamethrin.*

WD⁴⁾, *Pesticides – Determination of optical rotation of deltamethrin.*

WD⁵⁾, *Pesticides – Determination of deltamethrin melting point.*

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Organization and Objectives

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- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

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