
Pesticides – Cypermethrin
Part 1:
Technical material (TC) – Specification

Foreword

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

This standard cancels and replace Ethiopian Standard ES 702-1:2002 - *Pesticides - Cypermethrin Part 1: Technical (TC) - Specification*, with some editorial changes without altering the technical contents in the former text.

In preparing this Ethiopian Standard reference has been made to the following:

- AGP:CP/316:1995, FAQ specification for plant protection products, "Cypermethrin emulsifiable concentrates, FAQ specification 332/EC/S/F (1993)", published by the Food and Agriculture Organization of the United Nations (FAQ), Rome.

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

Pesticides — Cypermethrin Part 1: Technical material (TC) — Specification

1. Scope

This Ethiopian Standard specifies the requirements for the technical material of cypermethrin (for plant protection purpose).

2. Normative references

The following Ethiopian Standards contain provisions which, through reference in this text, constitute the provisions of this Ethiopian Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this Ethiopian Standard are encouraged to investigate the possibility of applying the most recent editions of the Ethiopian Standards indicated below. Registers of currently valid standards are maintained in the Ethiopian Standards Agency (ESA).

ES 693, Pesticides - Terminology.

ES 694, Pesticides - Methods of sampling.

ES 695, Pesticides - Packaging.

ES 696, Pesticides - Guideline on good labelling practice.

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

ES 700, Pesticides - Guideline on the disposal of bulk quantities of obsolete pesticides.

ES 722, Pesticides - Determination of total cypermethrin content.

ES 723, Pesticides - Determination of total cypermethrin content and diastereomer ratio

ES 749, Pesticides - Determination of water content.

ES 750, Pesticides - Determination of acidity or alkalinity.

ES 760, Petroleum products and other liquids - Determination of flash point.

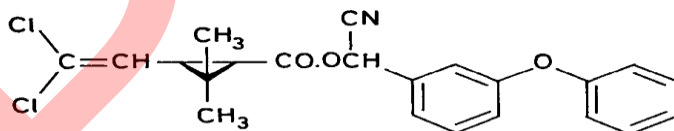
3. Definitions

For the purpose of this Ethiopian Standard, terms defined in ES 700 shall apply.

4. General information

COMMON NAME: Cypermethrin (ISO)

STRUCTURAL FORMULA:



EMPIRICAL FORMULA: $C_{22}H_{19}Cl_2NO_3$

RMM: 416.3

CAS REGISTRY NUMBER: 52315-07-8

CIPAC CODE NUMBER: 332

CHEMICAL NAMES:

(*RS*)- -cyano-3-phenoxybenzyl (*1RS*, 3*RS*; *1RS*, 3*SR*)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate (IUPAC)
(*RS*)- -cyano-3-phenoxybenzyl (*1RS*)-*cis-trans*-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate (Rothamsted IUPAC) cyano(3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate (CA)

CHEMICAL GROUP: Pyrethroid
USE CATEGORY: Insecticide
WHO CLASS: ii

5. Requirements

5.1. Description

The material shall consist of cypermethrin together with related manufacturing impurities and shall be a clear, dark brown liquid to semi-solid crystalline mass at 20 ° C, free from visible extraneous matter and added modifying agents.

5.2. Active ingredient

5.2.1. Identity tests

An identity test is required if the identity of the active ingredient is in doubt and it shall be determined in accordance with ES 722.

5.2.2. Cypermethrin

The total cypermethrin content shall be declared in g/kg (not less than 900 g/kg) and, when determined in accordance with ES 723, the content obtained shall not differ from that declared by more than ± 25 g/kg.

5.3. Cis-isomer

The *cis*- isomer content shall be declared and shall be between 40% minimum and 60% maximum of the declared cypermethrin content.

When determined in accordance with ES 723, the permitted tolerance shall be $\pm 10\%$ of the declared *cis*- isomer content.

5.4. Impurities

5.4.1. Water

The maximum water content in technical cypermethrin shall be 1g/kg when determined in accordance with clause 4.1 of ES 749.

5.5. Physical properties (Table 1)

5.5.1. Acidity

When determined in accordance with clause 6.1.3 of ES 750, the acid content, if any, calculated as H_2SO_4 shall not be more than 1.5g/kg. In case of dispute the electrometric determination shall be the 'reference method'.

5.5.2. Flash point

When determined in accordance with ES 760, the flash point of the technical cypermethrin shall not be lower than the minimum declared flash point (a closed cup method shall also be used).

Table 1. Physico-chemical properties of pure and technical cypermethrin

Parameter	Value(s) and conditions	Purity %	Method	Reference
Vapour pressure	9.0×10^{-6} Pa at 25°C	95%	EEC A.4	1 C.AMO.029
Melting point, boiling point and/or temperature of decomposition	Melting point: 81-83°C	95%	OECD guideline 102	2 C.AMO.027
Solubility in water	6 µg/L (at $20 \pm 0.5^\circ\text{C}$ and $\text{pH} \approx 7$)	97.8 %	OECD guideline 105	3 C.AMO.059
Octanol/water partition coefficient	$\log P_{\text{ow}} = 6.64$ at 25 °C	95%	OECD guideline 107	4 C.AMO.033
Hydrolysis characteristics	No information	95%	OECD Guideline 105	5 C.AMO.034
Photolysis characteristics	No information	95%	EPA guideline, "Photolysis of aqueous solution in sunlight CG-6000"	6 C.AMO.039
Dissociation characteristics	The structure indicates that it is unlikely to undergo dissociation	-	-	-

6. Handling

Pesticides shall be handled in accordance with ES 697.

NOTE 1 - Attention is drawn to the appropriate national and/or international regulations on the handling and transport of flammable materials.

7. Sampling

Samples shall be taken in accordance with ES 694.

8. Packaging

Pesticides shall be packed in accordance with ES 695.

9. Labeling

Pesticides labeling shall be in accordance with ES 696.

10. Disposal

Disposal of bulk quantities of obsolete pesticides shall be in accordance with ES 700.

11. Marking

Packages manufactured with the requirements of this Ethiopian Standard shall bear the Quality Mark upon approval by the responsible authority.

Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010. ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1970.

ESA's objectives are:-

- ❖ Develop Ethiopian standards and establish a system that enable to check whether goods and services are in compliance with the required standards,
- ❖ 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.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational Institutions, research institutes, government organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes.

Orders for all Ethiopian Standards, International Standards and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices. A catalogue of Ethiopian Standards is also available freely and can be accessed in from our website.

ESA has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of ESA.

International Involvement

ESA, representing Ethiopia, is a member of the International Organization for Standardization (ISO), and Codex Alimentarius Commission (CODEX). It also maintains close working relations with the international Electro-technical Commission (IEC) and American Society for Testing and Materials (ASTM). It is a founding member of the African Regional Organization for Standardization (ARSO).

More Information?

Contact us at the following address.

The Head Office of ESA is at Addis Ababa.

☎ 011- 646 06 85, 011- 646 05 65

☎ 011-646 08 80

✉ 2310 Addis Ababa, Ethiopia

E-mail: info@ethiostandards.org,

Website: www.ethiostandards.org



Standard Mark