
**Pesticides — Lambda-cyhalothrin
Part 2:
Emulsifiable concentrates (EC) —
Specification**

ICS: 65.100.10

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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).

The standard is Cancels and replaces of the Ethiopian Standard ES 716-2:2002 "*Pesticides - Lambda-cyhalothrin Part 2: Emulsifiable concentrates (EC) - 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:

FAO specifications and evaluations for plant protection products, Lambela-cyhalothrin emulsifiable concentrates, FAO specification 463/EC (1999).

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

Pesticides — Lambda-cyhalothrin

Part 2: Emulsifiable concentrates (EC)—Specification

1 Scope

This Ethiopian Standard specifies the requirements for the lambda-cyhalothrin emulsifiable concentrates (for plant protection 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, *Pesticides – Terminology.*

ES 694, *Pesticides – Methods of sampling.*

ES 695, *Pesticides – Packaging.*

ES 696, *Pesticides – Guidelines on good labelling practice.*

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

ES 700, *Pesticides – Guidelines for the bulk quantities of obsolete pesticides.*

ES 717, *Pesticides - Standard waters specification.*

ES 716-1, *Pesticides – Lambda-cyhalothrin-Part 1: Technical material - Specification*

ES 745, *Pesticides – Determination of specification gravity, density and weight per millilitre.*

ES 751, *Pesticides – Determination of stability of characteristics of emulsifiable concentrate.*

ES 752, *Pesticides – Determination of stability of liquid formulation at 0°C.*

ES 753, *Pesticides – Determination of accelerated storage stability.*

ES 754, *Pesticides – Determination of persistent foaming.*

ES 757, *Pesticides – Determination of P^H value.*

ES 779, *Pesticides – Determination of lambda-cyhalothrin content.*

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

3 Definitions

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

4 GENERAL INFORMATION

COMMON NAMES:

Lambda-cyhalothrin (draft E-ISO)

Lambda-cyhalothrine (draft F-ISO)

CHEMICAL NAMES

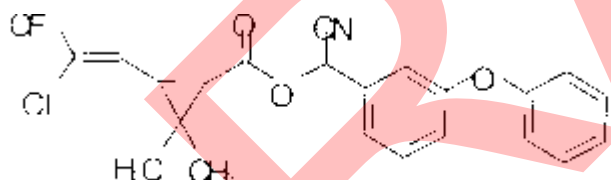
(I UPA C):

alpha-cyano-3-phenoxybenzyl 3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylate, a 1:1 mixture of the (Z)-(1R,3R),S-ester and the (Z)-(1S,3S),R-ester

CA:

[1-alpha(S),3-alpha(Z))-cyano(3-phenoxyphenyl)methyl-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate (9C1)

STRUCTURAL FORMULA:



EMPIRICAL FORMULA: $C_{23}H_{19}ClF_3NO_3$

CHEMICAL GROUP: Pyrethroid

USE CATEGORY: Insecticide

WHO CLASS¹⁾:

RELATIVE MOLECULAR MASS: 449.9

CAS REGISTRY NUMBER: 91465-08-6

CIPAC NUMBER: 463

¹⁾ Based on the technical material

5. Requirements

5.1 Description

The material shall consist of technical lambda-cyhalothrin, complying with the requirements of E 716-1, dissolved in suitable solvents together with any other necessary formulants. It shall be in the form of a clear to slightly hazy, stable homogeneous liquid, free from visible suspended matter and sediment, to be applied as an emulsion after dilution with water.

5.1.1 Identity tests

The active ingredient shall comply with an identity test and, where the identity remains in doubt determine by ES 779, and shall comply with at least one additional test.

5.1.2 Lambda-cyhalothrin content

The lambda-cyhalothrin content shall be declared (g/l at $20 \pm 2^\circ\text{C}$, Note 1) and when determined in accordance with ES 779 the content obtained shall not differ from that declared by more than the following amounts:

Declared content (g/l at $20 \pm 2^\circ\text{C}$)	Permitted tolerance
Up to 25 g/l	$\pm 15\%$ of the declared content
above 25 g/l up to 100 g/l	$\pm 10\%$ of the declared content
Note: In each range the upper limit is included	

NOTE 1: The mass per milliliter is expected to be in the range 0.895 to 0.915 g/ml at $20 \pm 2^\circ\text{C}$ but, in cases of doubt, the actual mass per milliliter should be determined (using ES 745) and used in the calculation. Where doubt remains, or in cases of dispute, the content should be expressed as g/kg.

5.2 Physical properties

5.2.1 pH range (1% aqueous dispersion)

When determined in accordance with ES 757 the pH range shall be 6.0 to 8.0.

5.2.2 Emulsion stability and re-emulsification

The formulation, when diluted at $30 \pm 2^\circ\text{C}$ in accordance with ES 751 with Standard Waters A and D (ES 717), shall comply with the following:

Time after dilution	Limits of stability
0 h	Initial emulsion complete
0.5 h	'Cream', maximum: 1 ml
2.0 h	'Cream', maximum: 2 ml
	'Free oil, maximum: trace'
24 h	Re-emulsification complete
24.5 h	'Cream', maximum: 2 ml
	'Free oil', maximum trace
Note: tests after 24 h are required only where the results at 24 h are in doubt	

NOTE 2: In applying ES 751, tests after 24 hours are required only where results at 2 hours are in doubt. Field dilution rates include concentrations below 5% but the clause 6.1.1 test has been shown to be indicative of performance over the recommended range of dilutions.

NOTE 3: Samples taken before and after this test should be analyzed concurrently to reduce analytical error.

5.2.3 Persistent foam

when determined in accordance with ES 754, there shall be a maximum of 15 ml after 1 minute.

5.3 Storage stability

5.3.1 Stability at 0° C

After storage at $0 \pm 2^{\circ}\text{C}$ for 7 days, (in accordance with ES 752) the volume of solid or liquid which separates shall not be more than 0.3 ml.

5.3.2 Stability at elevated temperature

After storage at $54 \pm 2^{\circ}\text{C}$ for 14 days, (in accordance with ES 753) the determined average active ingredient content shall not be lower than 95%, relative to the determined average content found under (clause 5.1.2) before storage, and the formulation shall continue to comply with pH range (clause 5.2.1) and emulsion stability and re emulsification (clause 5.2.2), as described above (Note 3).

NOTE 4: The flash point should not be lower than 38°C (ES 760). Attention is drawn to the appropriate national and international regulations on handling and transport of flammable materials.

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 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.

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 1998.

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 Standard 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.

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More Information?

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