



**RWANDA  
STANDARD**

**DRS  
593-1**

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**Lambda-cyhalothrin pesticides —  
Specification —**

**Part 1: Technical material**

ICS 65.100.10

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Reference number

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In order to match with technological development and to keep continuous progress in industries, standards are subject to periodic review. Users shall ascertain that they are in possession of the latest edition

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## Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 593-1 was prepared by Technical Committee RSB/TC 64, *Pesticides*.

In the preparation of this standard, reference was made to the following standards:

- 1) IS 14509: Lambda-cyhalothrin, Technical — Specification
- 2) ES 716-1: Pesticides — Lambda-cyhalothrin, Part 1: Technical material (TC) — Specification

The assistance derived from the above source is hereby acknowledged with thanks.

DRS 593 consists of the following parts, under the general title *Lambda-cyhalothrin — Specification*:

- *Part 1: Technical material*
- *Part 2: Emulsifiable concentrates (EC)*
- *Part 3: Water dispersible granules*
- *Part 4: Rapid-release capsule suspension*

## Committee membership

The following organizations were represented on the Technical Committee on *Pesticides* (RSB/TC 64) in the preparation of this standard.

Rwanda Food and Drugs Authority

Rwanda Forensic Institute

University of Rwanda/College of Sciences and Technology

Standards of Sustainability

CYIRA Ltd

Rwanda Inspectorate, Competition and Consumer Protection Authority

Rwanda Investigation Bureau

Rwanda Agriculture and Inputs Organization (RAIDO)

Rwanda Standards Board (RSB) – Secretariat

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## Introduction

A paragraph.

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## Lambda-cyhalothrin pesticides — Specification — Part 1: Technical material

### 1 Scope

This Draft Rwanda Standard specifies the requirements, sampling and test methods for technical material of Lambda-cyhalothrin.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

RS 406, *Pesticides — Terminology*

DRS 594, *Pesticides — Determination of lambda-cyhalothrin content*

ASTM E1064-12, *Standard Test Method for water in organic liquids by Coulometric Karl Fischer Titration*

RS 565-2, *Packaging of Pesticides — Requirements — Part 2: Liquid pesticides*

FDRS 578, *Pesticides — Guidelines on good labelling practices*

FDRS 579, *Pesticides — Guidelines for retail, distribution, storage and handling*

FDRS 589, *Pesticides — Guidelines for the disposal of bulk quantities of obsolete pesticides*

RS 405, *Pesticides — Sampling*

### 3 Terms and definitions

For the purposes of this standard, the terms and definitions given in RS 406 apply.

## 5.4 Requirements

### 5.4.1 General requirements

4.1.1 The material shall consist of technical lambda-cyhalothrin, together with related manufacturing impurities and shall be a viscous brown/green semi-solid mass, which is liquid at 50 °C and contains not more than a trace of insoluble matter.

4.1.2 The material shall be free from visible extraneous matter and added modifying agents.

#### 5.24.2 Specific requirements

The material shall comply with specific requirements given in table 1 when tested according to the method prescribed therein.

Table 1 – Specific requirements for technical material of lambda-cyhalothrin

S/N	Parameters	Requirements	Test methods
i.	Lambda-cyhalothrin content, % by mass, min.	81	DRS 594
ii.	Moisture content, % by mass, max.	0.3	ASTM E1064-12
iii.	Acidity (as H <sub>2</sub> SO <sub>4</sub> ), % by mass, max.	0.3	Annex A

#### 65 Packaging

The material shall be packaged in accordance with RS 565-2.

#### 76 Labelling

Reference to the requirements of FDRS 578, the product shall bear legibly and indelibly the following information:

- a) Name of the material
- b) Name and address of the manufacturer
- c) Batch number
- d) Date of manufacture
- e) Date of expiry
- f) Net mass of contents
- g) Nominal lambda-cyhalothrin content
- h) A cautionary notice
- i) Any other information required under the standard of weights and measures.



### **87** Retail, distribution, storage and handling

The material shall be handled in accordance with FDRS 579.

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

### **98** Sampling

Representative samples of the material shall be drawn as prescribed in RS 405.

### **109** Disposal

Disposal of bulk quantities of obsolete pesticides shall be in accordance with FDRS 589.

## Annex A (normative)

### Determination of acidity and alkalinity

#### A.1 Qualitative test

**Procedure** – Take about 0.5 g of the material in a test-tube and mix with about 1 ml of water. Test the mixture for acidity or alkalinity with a litmus paper. Determine the acidity or alkalinity, as the case may be.

#### A.2 Determination of acidity

##### A.2.1 Reagents

A.2.1.1 Methyl red indicator solution-aqueous – one percent (m/v)

A.2.1.2 Bromocresol purple indicator solution – one percent (m/v) in ethyl alcohol

A.2.1.3 Standard sodium hydroxide solution – 0.05N

A.2.1.4 Standard hydrochloric acid – 0.05N

##### A.2.2 Procedure

Weigh accurately 10.0 g of the material into a dry conical flask, add 25 ml of acetone and mix. Warm the flask gently to effect the solution of the active ingredient present. Add 75 ml of water and let it stand for an hour. Filter the supernatant aqueous extract and take 50 ml filtrate. Titrate immediately with the standard sodium hydroxide solution using methyl red or bromocresol purple as the indicator. Alternatively, the end point may be determined electrometrically.

Carry out a blank determination on an aliquot of 50 ml made from 25 ml acetone and 75 ml water.

##### A.2.3 Calculation

$$\text{Acidity (as H}_2\text{SO}_4\text{), \% m/m} = \frac{4.9 \times 2(V-v)N}{M}$$

Where;

$V$  = volume in ml of the standard sodium hydroxide solution required for the test with the material,

$v$  = volume in ml of the standard sodium hydroxide solution required for the blank determination,

$N$  = normality of the standard sodium hydroxide solution, and

$M$  = mass in g of the material taken for the test.

In case the blank shows alkaline reaction, neutralize with the standard hydrochloric acid and calculate the acidity as follows:

$$\text{Acidity (as H}_2\text{SO}_4\text{), \% m/m} = \frac{4.9 \times 2(VN_1 - vN_2)}{M}$$

Where;

$V$  = volume in ml of the standard sodium hydroxide solution required for the test with the material,

$N_1$  = normality of the standard sodium hydroxide solution,

$v$  = volume in ml of the standard sodium hydroxide solution required for the blank determination,

$N_2$  = normality of the standard hydrochloric acid, and

$M$  = mass in g of the material taken for the test.

### A.3 Determination of alkalinity

#### A.3.1 Reagents

A.3.1.1 Methyl red indicator solution-aqueous – one percent (m/v)

A.3.1.2 Bromocresol purple indicator solution – one percent (m/v) in ethyl alcohol

A.3.1.3 Standard hydrochloric acid – 0.05N

A.3.1.4 Standard sodium hydroxide solution – 0.05N

#### A.3.2 Procedure

Weigh accurately 10.0 g of the material into a dry conical flask, add 25 ml of acetone and mix. Warm the flask gently to effect the solution of the active ingredient present. Add 75 ml of water and let it stand for an hour. Filter the supernatant aqueous extract and take 50 ml of filtrate. Titrate immediately with the standard hydrochloric acid using methyl red or bromocresol indicator as the indicator. Alternatively, the end point may be determined electrometrically.

Carry out a blank determination on 50 ml aliquot made from 25 ml acetone and 75 ml water.

#### A.3.3 Calculation

$$\text{Alkalinity (as NaOH), \% m/m} = \frac{4.0 \times 2(V-v)N}{M}$$

Where;

$V$  = volume in ml of the standard hydrochloric acid required for the test with the material,

$v$  = volume in ml of the standard hydrochloric acid required for the blank determination,

$N$  = normality of the standard hydrochloric acid, and

$M$  = mass in g of the material taken for the test.

In case the blank shows acid reaction, neutralize with the standard sodium hydroxide solution and calculate the alkalinity as follows:

$$\text{Alkalinity (as NaOH), \% m/m} = \frac{4.0 \times 2(VN_1 - vN_2)}{M}$$

Where;

$V$  = volume in ml of the standard hydrochloric acid required for the test with the material,

$N_1$  = normality of the standard hydrochloric acid,

$v$  = volume in ml of the standard sodium hydroxide solution required for the blank determination,

$N_2$  = normality of the standard sodium hydroxide solution, and

$M$  = mass in g of the material taken for the test.

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