RWANDA STANDARD

DRS 580-1

First edition

2024-mm-dd

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

ICS 65.100.10

Reference number

DRS 580-1: 2024

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

Rwanda Standards Board

P.O Box 7099 Kigali-Rwanda

KK 15 Rd, 49

Tel. +250 788303492

Toll Free: 3250

E-mail: info@rsb.gov.rw

Website: www.rsb.gov.rw

ePortal: www.portal.rsb.gov.rw

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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 580-1 was prepared by Technical Committee RSB/TC 64, *Pesticides.*

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

ES 705-1: Pesticides — Cypermethrin — Part 1: Technical material (TC) — Specification

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

DRS 580 consists of the following parts, under the general title *Cypermethrin pesticides — Specification*:

— *Part 1: Technical material (TC)*

— *Part 2: Emulsifiable concentrates (EC)*

— *Part 3: Wettable powders (WP)*

— *Part 4: Ultra low volume liquids (ULV)*

— *Part 5: Technical concentrates (TK)*

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

P-TECHNIKS Ltd

Rwanda Inspectorate, Competition and Consumer Protection Authority

Rwanda Investigation Bureau

RAIDO

Rwanda Standards Board (RSB) – Secretariat

Introduction

A paragraph.

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

1 Scope

This Draft Rwanda Standard specifies the requirements for the technical material of cypermethrin based pesticides for plant protection purpose.

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 405, *Pesticides — Sampling*

RS 406, *Pesticides — Terminology*

DRS 590, *Pesticides — Determination of total cypermethrin content*

DRS 591, *Pesticides — Determination of total cypermethrin content and diastero isomer ratio*

ISO 2719, *Determination of flash point — Pensky-Martens closed cup method*

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

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

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

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

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

RS ASTM D 6450-12, *Standard Test Method for Flash Point by Continuously Closed Cup (CCCFP) Tester*

3 Terms and definitions

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

4 Requirement

4.1 General requirements

4.1.1 Description

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

4.1.2 Active ingredient

4.1.2.1 Identity tests

An identity test is required if the identity of the active ingredient is in doubt and it shall determine in accordance with DRS 590.

4.1.2.2 Cypermethrin

The total cypermethrin content shall be declared in g/kg (not less than 900 g/kg) and, when determined in accordance with DRS 591, the content obtained shall not differ from that declared by more than ± 25 g/kg.

4.1.3 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 DRS 591, the permitted tolerance shall be ± 10% of the declared *cis*-isomer content.

4.2 Specific requirements

Cypermethrin pesticides shall comply with the specific requirements given in Table 1 when tested in accordance with test methods specified therein

Table 1 — Specific requirements for the cypermethrin pesticides

S/N	Parameter	Requirement	Test methods
i.	Water content, g/kg	1	ASTM E1064-12
ii.	Acidity, g/kg	1.5	Annex A
iii.	Flash point	Not less than the minimum declared flash point	ISO 2719

5 Packaging

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

6 Labelling and marking

The labelling and marking of cypermethrin pesticides shall be done in accordance with DRS 578.

7 Retail, distribution, storage and handling

The cypermethrin pesticides shall be handled in accordance with DRS 579.

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

8 Sampling

Samples shall be taken in accordance with RS 405.

9 Disposal

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

Annex A
(normative)

Determination of acidity or 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

$$\text{Acidity (as } H_2SO_4\text{), \% m/m} = \frac{4.9\ x\ 2(V-v)N}{M}$$

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:

$$\text{Acidity (as } H_2SO_4\text{), \% m/m} = \frac{4.9\ x\ 2(VN1 - vN2)}{M}$$

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 folterate. 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.2.3 Calculation

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

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:

$$\text{Alkalinity (as NaOH), \% m/m} = \frac{4.0\ x\ 2(VN1 - vN2)}{M}$$

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.

Bibliography

[1] ES 722,

[2] ES 723, *Information technology — Framework and taxonomy of International Standardized Profiles — Part 1: General principles and documentation framework*

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