

**ETHIOPIAN
STANDARD**

ES 6803:2021

First edition
xx-xx-2021

**Pesticide — Spinetoram Part 1:
Technical material (TC)-Specification**

ICS: 65.100.10

Published by Ethiopian Standards Agency

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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 developed of Ethiopian Standard ES 6806:2021 for "*Pesticides – Spinetoram Part 1: Technical Material (TC) - Specifications*" to be published.

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

AGP/CP/224:1988, Tentative FAO specification for plant protection products, "Spinetoram technical, FAO tentative specification 287/TC/TS (1988), published by the Food and Agriculture Organization of the United Nations (FAO), Rome.

Australian Pesticides and Veterinary Medicines Authority (APVMA) Active Constituent Standard for Spinetoram Active Constituent.

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

Pesticide Spinetoram Part 1: Technical material (TC) -Specification

1 Scope

This Ethiopian Standard specifies the requirement for technical material of Spinetoram (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 - Guidelines for retail distribution, storage and handling.*

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

ES 737, *Pesticides - Determination of material insoluble in acetone.*

ES 749, *Pesticides - Determination of water content.*

ES 750, *Pesticides - Determination of free acidity or alkalinity.*

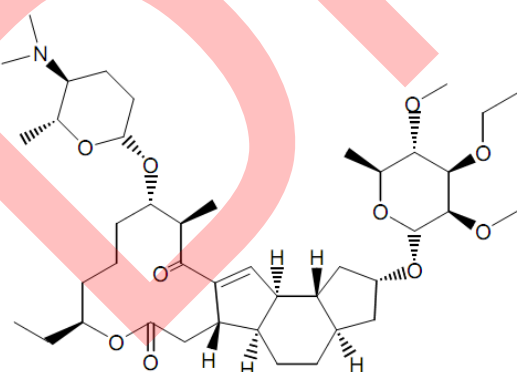
3 Definitions

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

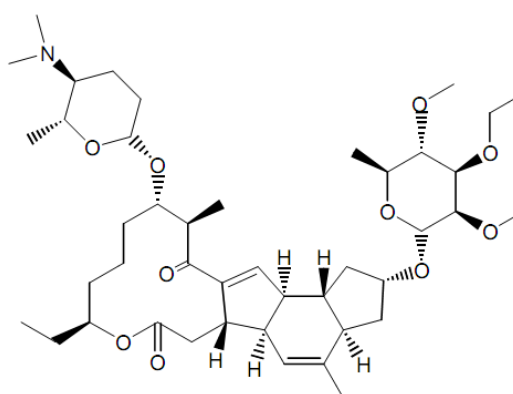
4 General information

COMMON NAME: Spinetoram (ISO)

STRUCTURAL FORMULA:



XDE-175-J



XDE-175-L

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Molecular formula:

XDE-175-L **C₄₂H₆₉NO₁₀**

XDE-175-J **C₄₃H₆₉NO₁₀**

Molecular weight:

XDE-175-J =748.02 g/mol

XDE-175-L =760.03 g/mol

CAS REGISTRY NUMBER: Spinetoram is a mixture of the following components: Spinetoram J (CAS# 187166-40-1) and Spinetoram L (CAS# 187166-15-0)

CAS RN: 935545-74-7

CIPAC CODE NUMBER: 802

US EPA Chemical Code: Spinetoram J/ Spinetoram L: 110008 / 110009

CHEMICAL NAME:

IUPAC Name:

XDE-175-J: Major Component (J form – spinosyn J (ethyl-spinosyn J)):

(2R,3aR,5aR,5bS,9S,13S,14R,16aS,16bR)-13-([(2R,5S,6R)-5-(dimethylamino)-6-methyltetrahydro-2H-pyran-2-yl]oxy)-9-ethyl-14-methyl-7,15-dioxo-2,3,3a,4,5,5a,5b,6,7,9,10,11,12,13,14,15,16a,16b-octadecahydro-1H-as-indaceno[3,2-d]oxacyclododecin-2-yl-6-deoxy-3-O-ethyl-2,4-di-O-methyl-α-L-mannopyranoside;

XDE-175-L: Minor Component (L form – spinosyn L (ethyl-spinosyn L)):

(2S,3aR,5aS,5bS,9S,13S,14R, 16aS,16bS)-13-([(2R,5S,6R)-5-(dimethylamino)-6-methyltetrahydro-2H-pyran-2-yl]oxy)-9-ethyl-4,14-dimethyl-7,15-dioxo-2,3,3a,5a,5b,6,7,9,10,11,12,13,14,15,16a,16b-hexadecahydro-1H-as-indaceno[3,2-d]oxacyclododecin-2-yl-6-deoxy-3-O-ethyl-2,4-di-O-methyl-α-L-mannopyranoside

CAS Name:

Major Component (J form):

(2R,3aR,5aR,5bS,9S,13S,14R,16aS,16bR)-2-(6-deoxy-3-O-ethyl-2,4-di-O-methyl-α-L-mannopyranosyloxy)-13-([(2R,5S,6R)-5-(dimethylamino)tetrahydro-6-methylpyran-2-yl]oxy)-9-ethyl-2,3,3a,4,5,5a,5b,6,9,10,11,12,13,14,16a,16b-hexadecahydro-14-methyl-1H-as-indaceno[3,2-d]oxacyclododecine-7,15-dione and

Minor Component (L form):

(2R,3aR,5aS,5bS,9S,13S,14R,16aS,16bS)-2-(6-deoxy-3-O-ethyl-2,4-di-O-methyl-α-L-mannopyranosyloxy)-13-([(2R,5S,6R)-5-(dimethylamino)tetrahydro-6-methylpyran-2-yl]oxy)-9-ethyl-2,3,3a,5a,5b,6,9,10,11,12,13,14,16a,16b-tetradecahydro-4,14-dimethyl-1H-as-indaceno[3,2-d]oxacyclododecine-7,15-dione

Manufacturer's Codes: Major Component: XDE-175-J; Minor Component: XDE-175-L

USE CATEGORY: Insecticide

Chemical Class: Fermentation product of *Saccharopolysporaspinoso*, and an analogue of spinosad, a spinosym.

CHEMICAL GROUP: Macrocyclolactone/Multicomponent tetracyclic macrolide

USE CATEGORY: Insecticide

WHO CLASS: U

5 Requirements

5.1 Description

The material (Spinetoram) shall consist of two closely related active ingredients (XDE-175-J, White powder and XDE-175-L, White-Yellow solid), free from visible extraneous matter and added modifying agents.

Note 1: Spinetoram consists of two related components that are not isomers.

5.2 Spinetoram

The content of Spinetoram (XDE-175-J and XDE-175-L) shall be declared (not less than 830 g/kg) and, when determined, the average measured content shall not be lower than the declared minimum content.

Hence, the individual content is 50-90 % XDE-175-J and 50-10 % XDE-175-L.

Tolerance limits (g/kg): XDE-175-J = 581-810 and XDE-175-L = 83-270

NOTE 2 - To minimize any degradation, Spinetoram technical should be stored out of direct sunlight and under cool and dry conditions.

Table 1. Spinetoram Active Constituent

Constituent	Specification	Level
Spinetoram	Spinetoram	Not less than 820 g/kg
Major Component (<i>J form</i>)	Major Component	Not less than 50 % Not more than 95 %
Minor Component (<i>L form</i>)	Minor Component	Not less than 5 % Not more than 50%

5.3 Active-ingredient

5.3.1 Identity-tests

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

Table 2. Physical and Chemical Properties of Pure Active Constituent of spinetoram Technical Material

S/N	Parameters	Typical Value	Test method
1	Appearance	White powder, White-Yellow solid	visual
2	Solubility - In water at 20 °C (mg l ⁻¹)	Unbuffered: 10 mg/L pH 5: 423 mg/L pH 7: 11.3 mg/L pH 9: 8 mg/L pH 10: 6.27 mg/L	EEC A6; OECD 105
3	Solubility - In organic solvents at 20 °C (mg l ⁻¹)	Soluble in most organic solvent	flask method
4	Melting point (°C)	143.4°C	OECD 105, OPPTS
5	Boiling point (°C)	Decomposes before boiling at 297.8 °C	796.1840, EEC A.6
6	Flashpoint (°C)	Not expected to self ignite; Not highly flammable	EEC A1; OECD 102;
7	Specific gravity (g ml ⁻¹)	1.1495 g/ml at 25 ± 0.5°C	differential scanning calorimetry (DSC)
	Stability		OECD 103, OPPTS

8		No data available	
9	Henry's law constant at 25 °C (Pa m ³ mol ⁻¹)	4.0 X 10-03 (Non volatile)	830.7220, EEC A.2

6 Handling, storage and Transport

Pesticide shall be handled in accordance with ES 697.

7 Sampling

Samples shall be taken in accordance with ES 694.

8 Packaging

Pesticide 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 pesticide 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 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.

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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?

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