
Pesticides — Famoxadone
Part1:
Famoxadone Technical Material (TC)-
Specifications

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 6809:2021 for "*Pesticides - Famoxadone Part 1: Technical Material (TC) - Specifications*" to be published.

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

Bates, M.1994.Determinationofthe Physico-Chemical Properties of DPX

JE874AccordingtoEPAREquirements.HazletonUK(Covance),550/9-E1-1014(DuPontReportNo.AMR2538-92).Unpublished.

Eloisa D.Caldas; Famoxadone, http://www.fao.org/fileadmin/templates/agphome/documents/Pests_2003.pdf
Pesticides/JMPR/Evaluation03/famoxadone.

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

Pesticides - Part 1:Famoxadone Technical Material (TC) - Specification

1 Scope

This Ethiopian Standard specifies requirements, method of sampling and test for the Technical Material of Famoxadone (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 labeling 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.*

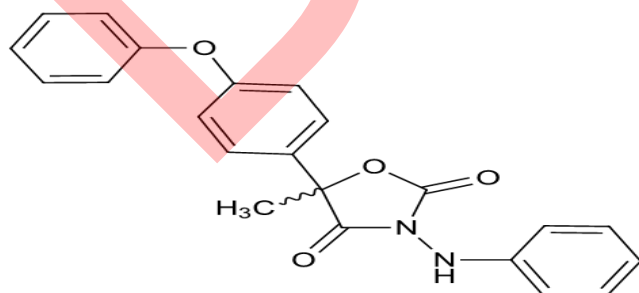
3 Definitions

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

4 General Information

COMMON NAME: Famoxadone (ISO)

STRUCTURAL FORMULA:



Molecular formula: $C_{22}H_{18}N_2O_4$

Molecular weight: 374.4g/mol

ES 6809:2021

Chemical Abstracts Service (CAS) Number: 131807-57-3

CIPAC CODE NUMBER: 594

EPA Chemical Code: 113202

CHEMICAL NAME:

IUPAC Name: (RS)-3-anilino-5-methyl-5-(4-phenoxyphenyl)oxazolidine-2,4-dione

Chemical Abstracts Name: 5-methyl-5-(4-phenoxyphenyl)-3-(phenylamino)-2,4-oxazolidinedione

USE CATEGORY: fungicide.

CHEMICAL GROUP: Oxazole

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POSSIBLE FORMULATION TYPES: Water Dispensable Granules (WG), Emulsion Concentrate (EC),**5 Requirements****Description**

The material shall be in the form of pale cream powder, free from extraneous impurities and hard lumps.

Identity-tests**Table 1. Physical and chemical properties of the pure active ingredient**

Characteristic properties	Famoxadone	Test Method
Apperance	Pale cream	visual
Melting points:	141.3-142.3 °C	OECD 105, OPPTS
Boiling point	Decomposes before boiling	796.1840, EEC A.6
Solubility in water (pH 7.8-8.9), at 20 °C	0.059 mg/L, or 59 µg/1000 g	EEC A6; OECD 105
Solubility in organic solvents at 20 °C:	Acetone: 274 g/l Acetonitrile: 125 g/l Dichloromethane: 239 g/l Ethyl acetate: 125 g/l Hexane: 0.0476 g/l Methanol: 10.0 g/l Octan-1-ol: 1.78 g/l Toluene: 13.3 g/l	flask method
Henry's Law constant	4.60 x10 ⁻³ Pa m ³ mol ⁻¹ at 20 °C 4.06 x10 ⁻³ Pa m ³ mol ⁻¹ at 25 °C	830.7220, EEC A.2
Octanol-water partition coefficient:	Log P _{OW} 4.65 (pH 7, 20 °C) Log P _{OW} 4.65 (pH 7, 25 °C)	
Maximum UV-vis absorption L mol ⁻¹ cm ⁻¹	231nm = 553, shoulder at 275-280nm, no absorption after 290nm	
pH (1% aqueous suspension):	6.56	
Relative Density: at (20 °C)	1.310 g/cm ³	
Hydrolysis:	DT50 at 25 °C (Jernberg, 1996a)	
pH 5	41 d	
pH 7	2 d	

pH 9	0.0646 d (1.55 hr)	
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Famoxadone

The content of Famoxadone shall be declared (not less than 960 g/kg) and, when determined, the average measured content shall not be lower than the declared minimum content.

Known relevant impurity:

- 1,5-Diphenylcarbonohydrazide at 0.0555 g kg⁻¹;
- 2-Phenylacetohydrazide at 0.3 g kg⁻¹;
- Phenylhydrazine at 0.01 g kg⁻¹;
- Benzene at 0.05 g kg⁻¹

Table 2. Famoxadone Technical Material Properties

Characteristics	Requirements
Famoxadone content, % by mass. (Min)	96.0
Material insoluble in acetone, % by mass (Max)	0.1
Moisture content, % by mass (Max)	0.2
Acidity (as H ₂ SO ₄), % by mass (Max)	0.2
Stability of solid technical material: (Moore, 1998)	Stable for at least 14 d in the dark, at 25 °C and 54 °C Stable for at least 14 d in the dark, at 25 °C and 54 °C, when exposed to aluminium or iron metal foil
Stability of technical material in aqueous solution: (Moore, 1998)	Stable for at least 14 d in the dark, at 25 °C, in solutions containing 0.0005 M aluminum chloride or 0.0005 M ferric chloride

6 Handling

Pesticides shall be handled in accordance with ES 697.

7 Sampling

Samples shall be taken in accordance with ES 694.

8 Packaging

Products shall be packed in accordance with ES 695.

NOTE 1- Packing materials shall comply with pertinent national and international transport and safety regulations.

9 Labeling

Pesticides shall be labeled in accordance with ES 696.

10 Disposal

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

Bibliography

WD¹⁾, Pesticides – Determination of R-isomer in famoxadone.

WD²⁾, Pesticides – Determination of acid chloride in famoxadone.

WD³⁾, Pesticides – Determination of acid + anhydride in famoxadone.

WD⁴⁾, Pesticides – Determination of optical rotation of famoxadone.

WD⁵⁾, Pesticides – Determination of famoxadone melting point.

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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.

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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



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