
**Pesticides — Profenofos —
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 Cancels and replaces of the Ethiopian Standard ES 711-1:2002 - *Pesticides — Profenofos — part 1: Technical material (TC) — 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:

- AGP/CP/359:1998, FAO Specification for plant protection products, profenofos technical specification 461/TC/S/F(1997), published by the Food and Agriculture Organization of the United Nations (FAO), Rome.
- PROFENOFOS (171) First draft prepared by Mr Makoto Irie, Ministry of Agriculture, Forestry and Fisheries, Tokyo, Japan.

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

Pesticides — Profenofos

Part 1: Technical material (TC) — Specification

1 Scope

This Ethiopian Standard specifies requirements for technical material of profenofos (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 – Guideline on good labelling practice*.

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

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

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

ES 765, *Pesticides – Determination of profenofos content*.

ES 766, *Pesticides – Determination of 4-Bromo-2-chlorophenol in profenofos technical*.

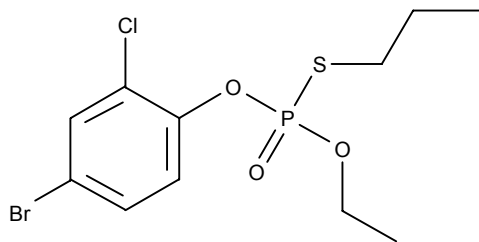
3 Definition

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

4 General information

COMMON NAME: profenofos (ISO)

STRUCTURAL FORMULA:



EMPIRICAL FORMULA: $C_{11}H_{15}BrClO_3PS$

RMM: 373.6

CAS REGISTRY NUMBER: 41198-08-7

CIPAC CODE NUMBER: 461

CHEMICAL NAMES:

O-4-bromo-2-chlorophenyl O-ethyl S-propyl phosphorothioate (IUPAC).

O-(4-bromo-2-chlorophenyl) O-ethyl S-n-propyl phosphorothioate (CA).

CHEMICAL GROUP: Organophosphate

USE CATEGORY: Insecticide

WHO CLASS: II

5 Requirements

5.1 Description

The material shall consist of profenofos, together with related manufacturing impurities and shall be in the form of a clear to slightly turbid, yellowish liquid, free from visible extraneous matter and added modifying agents.

5.2 Active ingredient

5.2.1 Identity tests

It shall be determined in accordance with ES 765, when the active ingredient is in doubt (example IR-spectrum).

5.2.2 Profenofos

The profenofos content shall be declared in not less than 890 g/kg and when determined in accordance with ES 765, the content obtained shall not differ from that declared by more than ± 25 g/kg.

5.3 Impurities

5.3.1 4- Bromo-2-chlorophenol

When determined in accordance with ES 766, the 4- Bromo- 2-chloro-phenol content shall not be more than 1%.

5.3.2 Water

When determined in accordance with clause 4.1 of ES 749, the maximum content of water shall be 0.2%.

6 Physical and Chemical Properties

A detailed chemical and physical characterization of the active ingredient is given in Table 1.

No	Parameters	Typical Value	Test method
1	Appearance	Clear liquid	visual
2	Solubility - In water at 22 °C (mg l ⁻¹)	28mg/L at pH 6.9	EEC A6; OECD 105
3	Solubility - In organic solvents at 25 °C (mg l ⁻¹)	Soluble in most organic solvent	flask method
4	Melting point (°C)	-76°C (freezing)	OECD 105, OPPTS
5	Boiling point (°C)	Decompose before boiling	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)	1.31 g/ml at 25 ± 0.5°C	differential scanning calorimetry (DSC)
8	Stability	No thermal effect found B/n room	OECD 103, OPPTS
9	Henry's law constant at 25 °C (Pa m ³ mol ⁻¹)	3.30 X 10 ⁻⁰⁵ (Non volatile)	830.7220, EEC A.2

7 Handling

Pesticides shall be handled in accordance with ES 697.

8 Sampling

Samples shall be taken in accordance with ES 694.

9 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.

10 Labeling

Pesticides shall be labeled in accordance with ES 696.

11 Disposal

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

Organization and Objectives

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- ❖ 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.

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