
Pesticides — Diazinon
Part 2:
Dustable powders (DP) —
Specification

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 708-2:2002 - *Pesticides - Dazinon Part 2: Dustable powders(PD) - 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:

- W. Dorbat and A Martijn, 1195, CIPAC Handbook, Volume F, Physicochemical methods for Technical and Formulated Pesticides, Collaborative International Pesticides Analytical Council Limited (CIPAC), Great Britain.
- AGP: CP 223:1988, FAO specification for plant protection products- Diazinon technical (with stablizer) FAO specification 15/TC/S (1988), published by the Food and Agriculture Organization of the United Nations (FAO), Rome.

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

Pesticides — Diazinon

Part 2: Dustable powders (DP) — Specification

1 Scope

This Ethiopian Standard specifies requirements for diazinon dustable powders (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 retail distribution, storage and handling*.

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

ES 708-1, *Pesticides – Diazinon - Part 1: Technical material (TC)– Specification*.

ES 718, *Pesticides – Reagents, indicators and solvents*.

ES 720, *Pesticides – Determination of diazinon content (Reference method)*.

ES 728, *Pesticides – Determination of diazinon content in diazinon dusts*.

ES 753, *Pesticides – Determination of accelerated storage stability*.

ES 756, *Pesticides - Sieve analysis*

ES 757, *Pesticides – Determination of P^H value*.

ES 762, *Pesticides – Determination of flowability*.

WD¹⁾ *Pesticides – Determination of identity of diazinon in diazinon dustable powders*.

¹⁾ under preparation

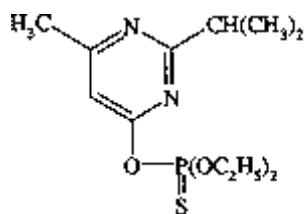
3 Definitions

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

4 General information

COMMON NAME: Diazinon (ISO)

STRUCTURAL FORMULA:



EMPIRICAL FORMULA: C₁₂H₂₁N₂O₃PS

RMM: 304.3

CAS REGISTRY NUMBER: [333-41-5]

CIPAC CODE NUMBER: 15

CHEMICAL NAMES:

0,0-diethyl-0-(2-isopropyl-6-methylpyrimidin-4-yl) phosphorothioate (IUPAC)

0,0-diethyl-0-[6-methyl-2-(1-methylethyl)-4-pyrimidinyl]phosphorothioate (CA)

CHEMICAL CATEGORY: Organophosphate

USE CATEGORY: Insecticide

WHO CLASS²⁾

²⁾ Based on the technical material

5 Requirements

5.1 Description

The material shall consist of a homogenous mixture of technical diazinon complying with the requirements of ES 708-1, together with carriers and any necessary formulants. It shall be in the form of a fine, free-flowing powder, free from visible extraneous matter and hard lumps.

5.2 Active ingredients

5.2.1 Identity tests

Where the identity of the active ingredient is in doubt, it shall be determined in accordance with WD¹⁾ and then the isolated active ingredient shall comply with at least one additional test.

5.2.2 Diazinon

The diazinon content shall be declared in g/kg and when determined in accordance with ES 720 or 728 the content obtained shall not differ from that declared by more than $\pm 10\%$.

5.3 Physical properties

5.3.1 pH of aqueous dispersion

When determined in accordance with clause 6.2 of ES 757 the pH of aqueous dispersion shall be minimum 7.0 and maximum 10.5.

5.3.2 Dry sieve test

When determined in accordance with annex - A, the maximum amount of materials retained on a 75 μm test sieve shall be 5%.

Not more than $(0.015 \times x)\%$ of the mass of the sample used for the determination shall be present on diazinon in the residue on the sieve, where x is the diazinon content (g/kg) found under clause 5.2.2 (Note 1).

NOTE 1 - If the product has a found content of 50 g/kg diazinon and 20 g of sample is used in the test, then the amount of diazinon in the residue on the sieve, should not exceed 0.15 g, i.e.

$$\frac{(0.015 \times 50) \times 20}{100} \text{ g}$$

5.3.3 Flowability

If required, flowability shall be determined in accordance with ES 762 and the maximum flow number shall be 12.

5.4 Storage stability

5.4.1 Stability at 54°C

After storage at $(54 \pm 2)^{\circ}\text{C}$ for 14 days, when determined in accordance with clause 6.1.4 of ES 753, the product shall comply with clause 5.2.2 (except that the minimum permitted diazinon content shall be 90% of that found under clause 5.2.2 for dustable powders containing over 3%, and 80% for dustable powders containing less than 3% diazinon) and with clauses 5.3.1 and 5.3.2.

6 Handling

Pesticides shall be handled in accordance with ES 697.

7 Sampling

Samples shall be taken in accordance with ES 694.

8 Packaging

Pesticides 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 pesticides shall be in accordance with ES 700.

Annex A (normative)

Determination of particle size (dry method) for diazinon dusts)

A.1 Reagents

A.1.1 Diethyl ether -dry over sodium

A.1.2 Acetic acid - glacial

A.1.3 Perchloric acid - 0.05N standardized solution in glacial acetic acid; RE.43.2 (see ES 718)

A.2 Apparatus

A.2.1 Extraction apparatus - e.g., Soxhlet apparatus

A.2.2 200 ml beaker

A.2.3 Potentiometric titration apparatus - fitted with glass/silver electrodes

A.3 Sampling

At least 500g sample shall be taken in accordance with ES 694.

A.4 Methods of determination

A.4.1 Crop protection (use on plant)

A.4.1.1 Sieve test

Carry out a sieve test on 20 g of material in accordance with clause 5.1 of ES 756. Use a nest of sieves comprising (i) a 150 μ and (ii) a 75 μ test sieve. Do not dry the material before sieving it.

A.4.1.2 Diazinon in the residue on the test sieve

Carefully invert the test sieve over a piece of tared glazed black paper, brush the residue on to the paper, and determine the weight of the residue.

If the weight is equal to, or less than, the specification limit for the diazinon in the residue it is unnecessary to determine the diazinon. If the amount is over that prescribed, then determine the diazinon in the residue by the method below, using all the material left on the sieve.

A.4.1.2.1 Determination of "diazinon" in sieve residues

A.4.1.2.1.1 Principles

The diazinon is extracted from the residue with diethyl ether, the solvent distilled off, the residue dissolved in acetic acid and titrated with perchloric acid, potentiometrically.

NOTE - This method is suitable for determining between 0,02 and 0.5 g of "diazinon".

A.4.1.2.1.2 Procedure

Extract the residue from the sieve, quantitatively, in the extraction apparatus, for 6 h, using diethyl ether. Distil off the solvent and evaporate the last traces by a gentle stream of dry air. Transfer the residue to the beaker using glacial acetic acid (50 ml), and titrate, potentiometrically, with the perchloric acid (t ml). Weight of diazinon in the residue on the sieve = 0.01522t g.

A.4.2 Crop protection (Ground application) stored product, and similar uses

A.4.2.1 Sieve test

Carry out a sieve test on 20 g of the material in accordance with clause 5.1 of ES 756 using a 150 μ test sieve. Do not dry the material before sieving it.

A.4.2.2 Diazinon content in the residue on the sieve

Carefully invert the test sieve over a piece of tarred glazed black paper, brush the residue on to the paper, and determine the weight of the residue.

If the weight is equal to, or less than, the specification limit for the diazinon in the residue, it is unnecessary to determine the diazinon. If the amount is over that prescribed, then determine the diazinon in the residue by A.4.1.2.

A.5 Test report

The test report shall include the following information:

- a) the result and method of expression used;
- b) all information necessary for complete identification of sample;
- c) a reference to this Draft Ethiopian Standard;
- d) any unusual feature noted during the determination;
- e) any operation included in this Draft Ethiopian Standard or in the Draft Ethiopian Standard to which reference is made or regard as optional; and
- f) the date of test.

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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.

Ethiopian Standards

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