

---

**Pesticides — Diazinon  
Part 3:  
Wettable powders (WP) —  
Specification**

**ICS: 65.100.10**

**Published by Ethiopian Standards Agency**

© ESA



## 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 708-3:2002 - *Pesticides - Daiazinon Part 3: Wettable powders(WP) - 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, CIPAC handbook, Volume A, Analysis of 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 United Nations (FAO), Rome.

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

# Pesticides — Diazinon

## Part 3: Wettable powders (WP) — Specification

### 1 Scope

This Ethiopian Standard specifies requirements for diazinon wettable 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 for retail distribution, storage and handling.*

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

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

ES 720, *Pesticides – Determination of diazinon content.*

ES 727, *Pesticides – Determination of diazinon content in diazinon technical.*

ES 747, *Pesticides – Determination of suspensibility of dustable powders in water.*

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

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

ES 754, *Pesticides – Determination of persistent foaming.*

ES 755, *Pesticides – Determination of wetting of wettable crops.*

ES 756, *Pesticides – Sieve analysis.*

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

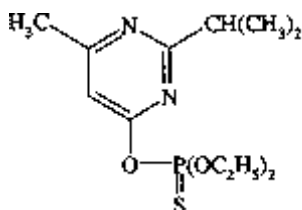
### 3 Definitions

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:  $C_{12}H_{21}N_2O_3PS$

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 CLASS <sup>1)</sup>

### 5 Requirements

#### 5.1 Description

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

<sup>1)</sup> Based on the technical material

## 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 clause 8.2 of ES 720, and 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 clause 8.2 of ES 720, the content obtained shall not differ from that declared by more than the following:

| Declared content | Permitted tolerance               |
|------------------|-----------------------------------|
| Up to 500 g/kg   | $\pm 5\%$ of the declared content |
| above 500 g/kg   | $\pm 25$ g                        |

## 5.3 Physical properties

### 5.3.1 pH of aqueous dispersion

When tested 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 Wet sieve test

When determined in accordance with clause 5.2 of ES 756, the maximum amount of materials retained on a 75 $\mu$ m test sieve shall be 2.0%.

### 5.3.3 Suspensibility

When determined in accordance with annex – A the minimum of 50% of the diazinon content found under clause 5.2.2, shall be in suspension after 30 min in standard water C.

NOTE 1 - The product should be tested at the highest and lowest rates of use recommended by the supplier, provided this does not exceed the conditions given in the method.

NOTE 2 - This test will normally only be carried out after the heat stability test clause 5.4.1.

Alternatively, if the buyer requires other standard waters to be used, then this shall be specified when ordering.

### 5.3.4 Persistent foam

When determined in accordance with ES 754, the maximum volume of persistent foam shall be 25 ml after 1 min.

### 5.3.5 Wetting of the product

When determined in accordance with clause 8.1 of ES 755, the product shall be completely wetted in 1 min with out swirling.

## 5.4 Storage stability

### 5.4.1 Stability at 54°C

After storage at  $(54 \pm 2)^{\circ}\text{C}$  for 14 days when determine in accordance with clause 6.1.1 of ES 753, the product shall continue to comply with clause 5.2.2(except that the minimum permitted diazinon content shall be 90% of that found under clauses 5.2.2, 5.3.1 and 5.3.2.

## 6 Handling

Pesticides shall be handled, stored and distributed 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 suspensibility for diazinon wettable powders

#### A.1 Reagents

As for ES 720 and ES 747 together with the following:

##### A.1.1 Aluminium Sulphate

Standard aqueous solution of  $\text{Al}_2(\text{SO}_4)_3 \cdot 18\text{H}_2\text{O}$

##### A.1.2 Light petroleum

Boiling range 40 to 60°C

##### A.1.3 Ethanol or Industrial methylated spirit, 96 to 100%

##### A.1.4 Sodiumchloride

Standard aqueous solution

#### A.2 Apparatus

As for ES 720 and ES 747 together with the following:

##### A.2.1 Separating funnels 500 ml capacity

Three, 500 ml capacity

#### A.3 Sampling

Take at least 500g sample in accordance with ES 694.

#### A.4 Determination

##### A.4.1 Preparation of suspension as for ES 747 (clause 8.1).

##### A.4.2 Determination of sedimentation as for ES 747 (clause 8.2).

##### A.4.3 Determination of “diazinon”

###### A.4.3.1 Procedure

After removal of the top 225 ml, shake the bottom 25ml of suspension for a short time and transfer to the separating funnel using light petroleum (100 to 150 ml) and ethanol (20 ml), add the aluminum Sulphate (10 ml) and shake the mixture. Let the layers separate with occasional slight horizontal swirling of the funnel. Drain the aqueous layer in to a second separating funnel containing light petroleum (100 ml). If a stable emulsion is formed between the two phases, separate off the aqueous layer as far as the emulsion, then add Sodiumchloride (10ml), shake, and run off the aqueous layer completely. Shake the second separating funnel and then allow the layers to settle. Run off the aqueous layer in to a third separating funnel and repeat the extraction with the light petroleum

(100ml) as above. All the material soluble in light petroleum should have been extracted and the aqueous layer can be discarded.

The three light petroleum extracts are then individually washed with a mixture of distilled water (50 ml) and Sodiumchloride (10ml) using it successively for all three extracts. Separate each extract, carefully, from the last water droplets and then filter, successively, the first, second, and third extract, through a plug of cotton wool into an Erlenmeyer flask. Rinse the plug of cotton wool with light petroleum. Distil off the solvent and determine the mass (Q) of diazinon in the residue in accordance with ES 720.

## A.5 Calculation

$$\text{Suspensibility} = \frac{111 (C - Q)}{C} \%$$

Where:

c is mass of active ingredient in sample taken for the preparation of the suspension (g).

Q is quantity of diazinon in the 25 ml remaining in the cylinder (g).

## A.6 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 Ethiopian Standard;
- d) any unusual feature noted during the determination;
- e) any operation included in this Ethiopian Standard or in the Ethiopian Standard to which reference is made or regard as optional; and
- f) the date of test.



## 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 1998.

### 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 Standard 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.

ESA has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of ESA.

### 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?

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](mailto:info@ethiostandards.org),

Website: [www.ethiostandards.org](http://www.ethiostandards.org)



Standard Mark