भारतीय मानक
*Indian Standard*

**IS 16708 : 2018**

# ऑक्साडायर्जिल, तकनीकी — विशिष्टि

# Oxadiargyl, Technical — Specification

ICS 65.100.30



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Pesticides Sectional Committee, FAD 1

FOREWORD

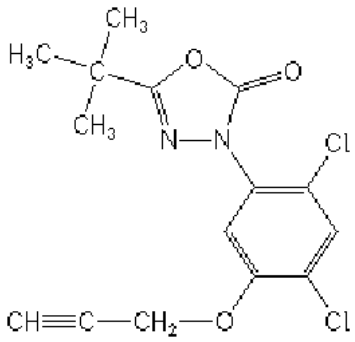
This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Pesticides Sectional Committee had been approved by the Food and Agriculture Division Council.

Oxadiargyl is a herbicide, used in the formulations meant for agriculture and environment health purposes.

Oxadiargyl is the accepted common name by the International Organization for Standardization (ISO) for 5-tert-butyl-3-(2,4-dichloro-5-propargyloxyphenyl)-1,3,4 oxadiazol-2-(3H)-one.

The empirical and structural formula and molecular mass of Oxadiargyl are given below:

| *Empirical Formula* | *Structural Formula* | *Molecular Mass* |
|---|---|---|
| $C_{15}H_{14}CI_2N_2O_3$ | | 341.2 |




In the preparation of this standard, due consideration has been given to the provisions of *Insecticides Act*, 1968 and the Rules framed thereunder. However, this standard is subject to the restrictions imposed under the *Insecticides Act* and Rules, wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

# *Indian Standard*

# OXADIARGYL, TECHNICAL — SPECIFICATION

## 1 SCOPE

This standard prescribes the requirements and methods of sampling and test for Oxadiargyl, technical.

## 2 REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

| *IS No.* | *Title* |
|---|---|
| 1070 : 1992 | Reagent grade water (*third revision*) |
| 6940 : 1982 | Method of tests for pesticides and their formulations (*first revision*) |
| 8190 (Part 1) : 1988 | Requirements for packaging of pesticides : Part 1 Solid pesticides (*second revision*) |
| 10946 : 1996 | Methods of sampling for technical grade pesticides (*first revision*) |

## 3 REQUIREMENTS

### 3.1 Description

The material shall be in the form of white to beige coloured powder, with little agglomerates and no odour.

**3.2** The material shall also comply with the requirements given in Table 1.

## 4 PACKING

The material shall be packed in a fibre board drum with a HMHDPE liner inside closed using standard closure having locking ring confirming to IS 7601. The general requirements given in IS 8190 (Part 1) shall be followed.

## 5 MARKING

**5.1** The pack shall bear legibly and indelibly the following information in addition to any other information as is necessary under *Insecticides Act*, 1968 and Rules framed thereunder:

a) Name of the material;
b) Name and address of the manufacturer;
c) Batch number;
d) Date of manufacture;
e) Date of expiry;
f) Net quantity;
g) Nominal Oxadiargyl content, percent (*m/m*);
h) Cautionary notice as worded in the *Insecticides Act*, 1968 and Rules framed thereunder; and
j) Any other information required under the *Legal Metrology (Packaged Commodities) Rules,* 2011.

### 5.2 BIS Certification Marking

The product may also be marked with the Standard Mark.

**5.2.1** The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations made thereunder. The details of conditions under which the license for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

## 6 SAMPLING

Representative samples shall be drawn as prescribed in IS 10946.

## 7 TESTS

**7.1** Tests shall be carried out by the methods referred in col 4 and 5 of Table 1.

### 7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and reagent grade water (*see* IS 1070) shall be employed in the tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

**Table 1 Requirements for Oxadiargyl, Technical**
(*Clause* 3.2)

| Sl No. | Characteristics | Requirement | Method of Test, Ref to | |
|---|---|---|---|---|
| | | | Annex of this Standard | Cl of IS 6940 |
| (1) | (2) | (3) | (4) | (5) |
| i) | Oxadiargyl content, percent by mass, *Min* | 96.0 | A | — |
| ii) | Melting point (°C) | 131 ± 1 | — | **6** |
| iii) | Moisture content, percent by mass, *Max* | 0.50 | — | **4.1** |
| iv) | Material insoluble in acetone, percent by mass, *Max* | 0.50 | — | **9** |
| v) | Acidity as $H_2SO_4$ or Alkalinity as NaOH, percent by mass *Max* | 0.10 | — | **11.3** |

# ANNEX A

[*Table* 1, *Sl No.* (i)]

## DETERMINATION OF OXADIARGYL CONTENT

### A-1 PRINCIPLE

Oxadiargyl content is determined by reverse phase High Performance Liquid Chromatography (HPLC) with UV-VIS detector.

### A-2 APPARATUS

**A-2.1** High Performance Liquid chromatograph (HPLC) equipped with UV-VIS detector and coupled to a printer-plotter-cum-integrator. The operative conditions suggested below are typical, which can be changed provided the standardization is done.

| | |
|---|---|
| Column | Silica bonded with C-18, 5 µm (Reverse phase) (250 mm × 4.6 mm), Stainless Steel |
| Column temperature | 40°C |
| Mobile phase | Acetonitrile : Water (65 : 35 *v/v*) |
| Makeup phase | Acetonitrile : Water (65 : 35 *v/v*) |
| Flow rate | 1.0 ml/min |
| Detector | UV detector (220 nm) |
| Injection volume | 20 µl |

**A-2.2 Microlitre Syringe —** 5/20 µl

**A-2.3 Glasswares**

### A-3 REAGENTS

**A-3.1 Acetonitrile —** HPLC grade or equivalent.

**A-3.2 Oxydiargyl Reference Standard —** of known purity.

**A-3.3 HPLC Grade Water or Double Distilled Water**

### A-4 PROCEDURE

**A-4.1 Preparation of Standard Solution**

Weigh 20 mg of Oxadiargyl Standard, into 100 ml vol flask. Add 25.0 ml of mobile phase and sonicate for few minutes. After cooling dilute it to make with mobile phase. Take 5 ml of the solution into 100 ml vol flask and make up to the mark with mobile phase. Inject 20 µl with a fixed loop injector.

**A-4.2 Preparation of Sample Solution**

Weigh 20 mg of Oxadiargyl sample, into 100 ml vol. flask. Add 25.0 ml of mobile phase and sonicate for few minutes. After cooling dilute it to mark with mobile phase. Take 5 ml of the solution into 100 ml vol flask and make up to the mark with mobile phase. Inject 20 µl with a fixed loop injector.

**A-4.3 Estimation**

**A-4.3.1** With a 20 µl loop type injector, inject one of the standard solutions until peak height or area of two successive injections agree to within 2 (two) percent. Inject the standard and sample solutions in succession according to the following sequences:

Standard 1, Sample 1; Standard 2, Sample 1; Standard 1, Sample 2 and Standard 2, Sample 2

**A-4.3.2** *Retention Time* (*Guide Value*)

Oxydiargyl – 9.0 min

### A-5 CALCULATION

$$\text{Oxadiargyl content, percent by mass} = \frac{A_1 \times M_2 \times P}{A_2 \times M_1}$$

where

$A_1$ = peak area of Oxadiargyl in sample solution;

$A_2$ = peak area of Oxadiargyl in standard solution;

$M_1$ = mass of the sample taken for test, in mg;

$M_2$ = mass of Oxadiargyl in the standard solution, in mg; and

$P$ = purity of Oxadiargyl reference standard.

NOTE — Alternatively, the calculation can be based on the peak height. The four results should agree to within ± 2 percent of their mean value. If not, repeat the analysis.

**Bureau of Indian Standards**

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**Review of Indian Standards**

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc No.: FAD 01 (11008).

**Amendments Issued Since Publication**

| Amend No. | Date of Issue | Text Affected |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

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