

FOREWORD

(Formal clause would be added later)

Fluxapyroxad 62.5 g/l + Epoxiconazole 62.5 g/l Emulsifiable Concentrate is used as a Fungicide in Agriculture.

Fluxapyroxad 62.5 g/l + Epoxiconazole 62.5 g/l Emulsifiable Concentrate is generally manufactured to contain Fluxapyroxad 62.5 g/l + Epoxiconazole 62.5 g/l.

In the preparation of this standard due consideration has been given to the provisions of the *Insecticides Act, 1968* and the Rules framed thereunder. However, this standard is subject to the restrictions imposed under these, 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 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for Fluxapyroxad 62.5 g/l + Epoxiconazole 62.5 g/l Emulsifiable Concentrate.

2 REFERENCES

The standards, given below 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.

<i>IS No.</i>	<i>Title</i>
8190 (Part 2) : 1988	Requirements for packing of pesticides Part 2 liquid pesticides (<i>second revision</i>)
1070 : 1992	Reagent grade water - Specification (<i>third Revision</i>)
6940 : 1982	Methods of test for pesticide and their formulations (<i>first Revision</i>)
10627 : 1983	Method of sampling of pesticidal formulation

3 REQUIREMENTS

3.1 Constituents

The material shall consist of Fluxapyroxad technical and Epoxiconazole technical, together with suitable ingredients.

3.2 Physical

3.2.1 *Description* — The material shall be in the form of light brown colour liquid

The material shall also comply with the physical requirements given in Table 1

**TABLE 1 REQUIREMENTS FOR FLUXAPYROXAD 62.5G/L +
EPOXICONAZOLE 62.5 G/L EC**

Sl. No	Characteristics	Requirement	Method of Test, Refer to
(1)	(2)	(3)	(4)
2	Fluxapyroxad content % (w/v)	5.93-6.87	Annex A
3	Epoxiconazole content % (w/v)	5.93-6.87	Annex A
4	pH of 1% aq. Solution (25±0.5°C)	4-6	IS 6940
5	Persistent foam after 1 minute (ml) at 10 ± 1 seconds	15-16 ml	IS 6940
	1 min. ± 10 seconds	12 ml	
	3 min.	8 ml	
	12 min.	6 ml	
6	Emulsion stability	nil	IS 6940
7	Flash point (°C)	92-93	IS 6940
8	Cold Test (at 10°C)	No turbidity, Separation of solid or oily matter was observed	IS 6940
9	Moisture content (% w/w)	0.18 – 0.20	IS 6940

3.3 Chemical

The material shall comply with the chemical requirements specified in **3.3.1**.

3.3.1 Fluxapyroxad and Epoxiconazole content

When determined by the method prescribed (enclosed), the observed Fluxapyroxad and Epoxiconazole content (w/v), of any of the sample shall not differ from the declared nominal value by more than the percent tolerance limits indicated below:

Nominal Value, Percent

Tolerance, Percent

Up to 9	+10	} of the nominal value
	-5	
10 and below 50	±5	
	+5	
50 and above	-3	

3.3.1.1 The actual value of Fluxapyroxad and Epoxiconazole content in the formulations shall be calculated to the second decimal place and then rounded off to the first decimal place before applying the tolerance given in **3.3.1**.

3.3.1.2 The average Fluxapyroxad and Epoxiconazole content of all samples taken shall not be less than the declared nominal content.

4 PACKING

4.1 The product shall be packed in 50 ml, 100 ml, 150 ml, 300 ml, 750 ml, 1.5 l & 3.0 l HDPE containers. Which shall be further packed in 5 ply corrugated fiber board boxes as transport packing. The specifications for the containers shall be as agreed between the supplier and the manufacturer.

5 MARKING

5.1 The containers shall be securely closed and shall bear legibly and indelibly the following information in addition to any other information as required under the *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 mass of content, percent (*m/m*);
- g) Nominal Fluxapyroxad and Epoxiconazole 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(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

6 SAMPLING

6.1 When freshly manufactured material in bulk quantity is offered for inspection, representative samples of the material shall be drawn and tested as prescribed in IS 10627 within 90 days of its manufacture. When the material is offered for inspection after 90 days of its manufacture, sampling shall be done as prescribed in IS 10627. However, the criteria for conformity of the material when tested, shall be the limits of tolerances, as applicable over the declared nominal value and given under clause **3.3.1** of the standard.

7 TESTS

7.1 Tests shall be carried out by the appropriate methods referred to Table 1

7.2 Quality of Reagent

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

NOTE – ‘Pure chemicals’ shall mean chemicals that do not contain impurities which affect the results of analysis.

ANNEX A

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

DETERMINATION OF FLUXAPYROXAD AND EPOXICONAZOLE CONTENT

A-1 Principle

Fluxapyroxad and Epoxiconazole content in Fluxapyroxad 62.5 g/l + Epoxiconazole 62.5 g/l EC samples was determined by a HPLC-DAD method. The identity of the active ingredient was established by comparison with the equivalent authentic standards and quantified the active contents by external standardization method.

A-2 Reagents

Acetonitrile - HPLC grade

Milli-Q-Water

Fluxapyroxad Analytical Standard

Epoxiconazole Analytical Standard

Trifluoroacetic acid – HPLC grade

A-3 PROCEDURE

A-3.1 Preparation of Standard Solution (C2)

Weighed approximately 20.0 mg of Fluxapyroxad (purity 99.7%) and Epoxiconazole (purity 99.8%) reference standards into two different (C1 & C2) a 100 mL volumetric flask. The content of the flask was dissolved and the volume was brought up to the mark with acetonitrile.

A-3.2 Preparation of sample solution

Weighed approximately 300 mg (± 20 mg) of formulation sample into two different (S1 and S2) 100 mL volumetric flasks. The content of the flask was dissolved the volume was brought up to the mark with acetonitrile. The sample solution was passed through 0.45 μm syringe filters prior to HPLC analysis.

A-3.3 Sample analysis:

Injected in the sequence C1, S1R1, S1R2, C2, S2R1, S2R2 and analysed for Fluxapyroxad and Epoxiconazole content.

A-3.4 Chromatographic Separation Parameter

Instrument	1290 infinity series High Performance Liquid Chromatography system interfaced with open Lab Chem station Edition software	
Column used	C18 -100 -5 (150 x 4.60 mm x 5 μm)	
Mobile Phase	A: 0.05% Trifluoroacetic acid in Milli-Q-water (50 %) B: 0.05% Trifluoroacetic acid in acetonitrile (50%)	
Detector	DAD	
Wave Length	215 nm	
Column oven temperature	40 $^{\circ}\text{C}$	
Injection Volume	5 μL	
Flow rate	1.5 ml/min	
Retention time (approximately)	Fluxapyroxad	5.9 min
	Epoxiconazole	6.5 min

A-4 CALCULATION

$$\text{Fluxapyroxad/ Epoxiconazole content, percent by mass} = \frac{H_w \times M \times P}{H_s \times w}$$

Where,

H_s = Peak area of Fluxapyroxad/ Epoxiconazole in the Standard solution (mAU*sec)

H_w = Peak area of Fluxapyroxad/ Epoxiconazole in the sample solution (mAU* sec)

M = Mass of Fluxapyroxad/ Epoxiconazole in the Standard solution (mg)

w = Mass of sample taken (mg)

P = Purity of Fluxapyroxad/ Epoxiconazole reference standard (%)