



**PRODUCT MANUAL
FOR PESTICIDE - CARBENDAZIM (MBC) WP
ACCORDING TO IS 8446 : 1991**

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	Product	:	IS 8446 : 1991
	Title	:	Pesticide - Carbendazim (MBC) WP
	No. of Amendments	:	02
2.	Sampling Guidelines:		
a)	Raw material	:	Carbendazim (MBC) Technical employed in the formulation of the water dispersible powder concentrate shall conform to IS 8445.
b)	Grouping guidelines	:	NA (No varieties for the product mentioned in IS)
c)	Sample Size	:	500 gm
3.	List of Test Equipment	:	Please refer ANNEX – A
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – B
5.	Possible tests in a day :		
	i. Description ii. Material passing through 75 micron IS sieve iii. Suspensibility iv. Acidity (as H ₂ SO ₄) or Alkalinity (as NaOH) v. Carbendazim (MBC) content		
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 8446 : 1991 the following scope:		
	Name of the product	:	Carbendazim (MBC) (50 %) WP

ANNEX – A

TO PRODUCT MANUAL
FOR PESTICIDE - CARBENDAZIM (MBC) WP
ACCORDING TO IS 8446 : 1991

LIST OF TEST EQUIPMENT

Major test equipment required to test as per the Indian Standard

S. No	Tests used in with Clause Reference	Test Equipments and Chemicals
1	<p>Carbendazim Content Cl 3.3, Table 1 (Annex- B of IS 8446)</p>	<p>HPLC Method: High Performance Liquid Chromatograph - Equipped with a printer-plotter-cum-integrator and ultra-violet (UV) detector, Microbe Syringe - 20 µl, Volumetric Flask - 100 ml, Pipette - 10 ml, Sulphuric Acid - 1 N, 1, 4 -dioxane -- HPLC Grade, Methanol - HPLC Grade, Whatman Filter Paper No. 42, Glass Distilled Water, Carbendazim Reference Standard - of known purity, Analytical balance (0-200 gm, LC-0.01 mg).</p> <p>Titration Method: Centrifuge (capable of rotating at 2500 RPM) with centrifuge tubes, Erlenmeyer Flask, Water bath (capable of operating at 50 to 70 °C), Cintered glass crucible, Thermometer, Stop watch, Titration Funnel withstand, Analytical balance (0-200 gm, LC-0.01 mg) Acetic Acid- glacial, anhydrous, Acetic Anhydride, Crystal Violet Indicator 5 % (m/v) in acetic acid, Perchloric acid -0.1 N, Potassium hydrogen Phthalate.</p>
2	<p>Material passing through 75 micron IS sieve Cl 3.3, Table 1 (Cl 11.1 of IS 6940)</p>	<p>Beaker of 6.0 to 6.5 cm and 250 ml capacity, Pressure assembly, Rubber hose-of about 10 mm internal diameter, Wide mouth bottle with cork or rubber stopper, 4 to 6 mm diameter glass rod, Gooch crucible, Beakers, Camel hair brush or a feather, Weighing Dish, Analytical Weighing Balance (LC- 0.001g), Hot Air Oven capable of maintaining 54+1 0C, LC 10C, tap water, 75 micron IS sieve.</p>

3	Suspensibility CI 3.3, Table 1 (Annex-C of IS 8446)	Analytical balance (Least count 0.01mg), Beaker – 100 ml, Standard Hard water, Glass rod – 4-6 mm in diameter, Graduated cylinder with stopper, Water bath capable of operating at 50 - 70 ⁰ C, Vacuum pump, Pressure Assembly. Centrifuge (2500 rpm), Graduated Cylinder, AC and Heater.
4	Acidity or alkanity CI 3.3, Table 1 (CI 11.3.2 & 11.3.3 of IS 6940)	Quantitative test: Analytical Balance (Least count 0.1g) Heating mental / hot plate Test tube, Conical flask, Litmus paper, Sodium hydroxide- 0.05 N, Hydrochloric Acid – 0.05 N Methyl red indicator solution, Bromocresol purple indicator. Electrometric procedure: Methyl alcohol-distilled, Sodium hydroxide- 0.05 N, Hydrochloric Acid – 0.05 N, Acetone, Buffer solution, pH meter, Analytical balance ((LC 0.1g), Stirring rod, Buchner funnel, filter flask/Conical flask.

The list above is indicative only and may not be treated as exhaustive.

ANNEX – B

**SCHEME OF INSPECTION AND TESTING
FOR PESTICIDE - CARBENDAZIM (MBC) WP
ACCORDING TO IS 8446 : 1991**

LABORATORY: A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipments.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. PACKING AND MARKING – The Standard Mark as given in Schedule of the licence shall be stenciled/printed on each container of Carbendazim (MBC) WP or printed on the labels applied to the container, as the case may be, provided always that the material in each container to which this mark is thus applied conforms to every requirement of the specification.

3.1 Packing and Marking shall be done as per the provision of the Indian Standard. In addition, the following details shall be mentioned on each container legibly and indelibly:

- a) BIS Licence No. CM/L_____.
- b) BIS website details i.e – “For details of BIS certification please visit www.bis.gov.in”.
- c) The minimum cautionary notice as worded in Insecticides Act, 1968 and Rules.

4. CONTROL UNIT - For the purpose of this Scheme, the entire quantity of the material finally blended in a blender at a time in one operation in case of a batch process (BP) and every 100 containers of 50 Kg each of the material or part thereof, manufactured continuously, not exceeding a day’s production in case of a continuous process (CP) shall constitute a control unit.

5. LEVELS OF CONTROL: The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

5.2 On the basis of tests and analysis results, the decision regarding conformity or otherwise of a control unit shall be taken as follows:

5.2.1 In case the sample fails in respect of Carbendazim (MBC) content and/or sieving requirements, the control unit shall be suitably reprocessed and the defects rectified. Such reprocessed material, when tested again, shall satisfy the requirement of carbendazim (MBC) content and/or sieving, as the case may be, before it is used for making.

5.2.2 In case the sample fails in any of the requirements except for Carbendazim (MBC) content and/or sieving requirement, the control unit shall be considered unfit for the purpose of marking.

6. RAW MATERIALS: Carbendazim (MBC) technical used in the formulation of Carbendazim (MBC) WP shall conform to IS 8445. A test certificate to that effect shall be obtained from the supplier for each consignment of Carbendazim (MBC) technical received. Alternatively, a sample from each consignment shall be tested for its conformity to the Indian Standard mentioned above and a record maintained. However, no testing or test certificate may be required if the material is ISI marked.

7. REJECTIONS – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

**TABLE 1
LEVELS OF CONTROL**

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method Cl. Ref.	Test Method IS		No. of Sample	Frequency	Remarks
3.1	Description	3.1	IS 8446	R	One	Each Control unit	See clause 5 of SIT
3.3, Table 1	Carbendazim (MBC) Content	Annex B	-do-	R	Five for CP One for BP	-do-	
-do-	Material passing through 75 micron IS sieve	11.1	IS 6940	R	-do-	-do-	
-do-	Suspensibility	Annex C	IS 8446	R	One	-do-	
-do-	Acidity/ Alkalinity	11.3.2/11.3.3	IS 6940	R	One composite sample for CP One for BP	-do-	A composite sample shall be prepared by mixing together the samples drawn at regular intervals for the control unit.

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.