PRODUCT MANUAL
FOR MALATHION EMULSIFIABLE CONCENTRATES
ACCORDING TO IS 2567 : 1978

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 2567 : 1978
	Title	:	Specification for Malathion Emulsifiable Concentrates
	No. of Amendments	:	02
2.	**Sampling Guidelines:**		
a)	**Raw material**	:	Malathion, technical, employed in the manufacture of Malathion EC shall conform to IS 1832.
b)	**Grouping guidelines**	:	NA (No varieties for the product mentioned in IS)
c)	**Sample Size**	:	500 ml (In original packaging)
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. Cold test iii. Flash point iv. Emulsion stability v. Malathion content vi. Acidity		
6.	**Scope of the Licence :**		
	"Licence is granted to use Standard Mark as per IS 2567 : 1978 with the following scope:		
	Name of the product	**Malathion (50 %) EC**	

ANNEX - A
TO PRODUCT MANUAL
FOR MALATHION EC
ACCORDING TO IS 2567 : 1978

LIST OF TEST EQUIPMENT

Major test equipment required to test as per the Indian Standard

Sl. No.	Test Equipment, Glassware and Chemicals	Tests used in with Clause Reference
1.	Test Tube or Glass beaker, Stirring rod, Distilled Water	Description Cl 2.2.1
2.	Glass Container (100 ml)/Beaker with Cork/stopper fitted thermometer (range 0 to 25 ^{0}C and LC 1 ^{0}C), stirring rod, water bath, Ice-cold water.	Cold Test Cl 2.2.2 (Clause 13.1 of IS 6940)
3.	Cleaning solvent, Coolant, Lubricant, Verification Liquids, Ignitor and pilot light gas, Flash point apparatus/Abel flash point apparatus consisting of test cup, cover assembly, heating vessel, heating device, flash detector, Stirrer, Thermometers 2 (one for the oil cup of range; -35°C to +70°C, and another for the water bath of the range; -30°C to +80°C), Timing device, Barometer, External cooling bath, Test cup thermal insulating cap, Abel flash point apparatus provided with a stirrer & thermometer, Heating Vessel or bath, Ethylene Glycol.	Flash Point(Abel) Cl 2.2.3 {IS 1448(Part 20)}
4.	Method I Beaker of capacity 250 ml, with an internal diameter of 6.0 to 6.5 cm and marked at 100ml, Mohr type pipette, Glass rods- 4 to 6 mm in diameter, Graduated cylinder of capacity 100 ml, Standard Hard water, Air conditioner. Method II Dropping funnel, remaining equipments same as method I without Mohr type pipette.	Emulsion Stability Cl 2.2.4 (Clause 13.3 of IS 6940)
5.	Spectrophotometer or Photoelectric Colorimeter with a blue filter (420 nm) and having 1-cm absorption cell. Analytical Balance (0-200gm, LC 0.1mg) Thermometer, 5 ml/10 ml Beaker, 100 ml Volumetric Flask, 100 ml Graduated Flask, Separating Funnel, Malathion , Acetonitrile, - boiling range 80 to 82°C, Ethyl Alcohol, anhydrous - alternatively methyl alcohol anhydrous may be	Malathion Content Cl 2.3.1 (Annex A of IS 1832)

	used, Carbon Tetrachloride, Sodium Hydroxide Solution - 0·5 N. Ferric Reagent - i) Stock Solution, ii) Dilute solution Copper Sulphate Solution - 1·5 percent (m/v).	
6.	Analytical Balance (0-200gm, LC 0.1mg) Hot plate/ Heating mantle/ Water bath Whattman Filter Glassware: Conical Flask, Graduated Cylinder, Burette and Pipette Reagents: Methyl red indicator solution-aqueous – 1percemt (m/v) Bromocresol purple indicator solution Standard Sodium Hydroxide Solution – 0.5 N Standard Hydrochloric acid, Acetone, Distilled water	Acidity (as H_2So4) Cl 2.3.2 (Clause 11.3.2 of IS 6940)

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

ANNEX B

SCHEME OF INSPECTION AND TESTING FOR MALATHION EC ACCORDING TO IS 2567 : 1978

1. 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 equipment.

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 the Schedule of the licence, shall be stenciled/printed on each container of Malathion EC or printed on the label applied to it, as the case may be, provided always that the material in each container to which this mark is thus applied, conform 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".

4. CONTROL UNIT - For the purpose of this scheme, the entire quantity of the material processed in a mixer in one operation shall constitute a control unit (Batch).

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 reports, the decision regarding conformity or otherwise of a control unit to a given requirement shall be made as follows:

5.2.1 The sample taken for test from the control unit shall satisfy all the requirements of the specification. If the sample fails in any of the requirements tested other than Malathion content and emulsion stability, the entire control unit represented by the sample shall be considered as unfit for the purpose of marking.

5.2.2 In case the sample taken from the control unit fails in either Malathion content or emulsion stability, or both, the entire material may be suitably reprocessed and the defeat rectified. Such reprocessed material, when tested again shall satisfy all the requirements of specification.

6 RAW MATERIALS - Malathion, technical employed in the formulation of the material shall conform to IS 1832. It is recommended that routine analysis of each consignment of other raw materials received in the factory may be carried out and appropriate records maintained. Alternatively, certificate of conformity to relevant Indian Standards shall be obtained for each consignment.

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**
2.2.1	Description	2.2.1	IS 2567	R	One	Every Control Unit	Please see Clause 5.2.1 of SIT
2.2.2	Cold Test	13.1	IS 6940	R	-do-	-do-	-do-
2.2.3	Flash Point (Abel)	-	IS 1448 (Part 20)	R	-do-	-do-	-do-
2.2.4	Emulsion Stability	13.3	IS 6940	R	-do-	-do-	Please see Clause 5.2.2 of SIT
2.3.1	Malathion Content	Annex A	IS 1832	R	-do-	-do-	-do-
2.3.2	Acidity (as H_2So_4)	11.3	IS 6940	R	-do-	-do-	Please see Clause 5.2.1 of SIT

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.