



**PRODUCT MANUAL FOR
INSECTICIDAL SPACE SPRAY
ACCORDING TO IS 1824:1978**

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 1824 : 1978
	Title	:	Insecticidal Space Spray
	No. of Amendments	:	05
2.	Sampling Guidelines:		
a)	Raw material	:	Pyrethrins, Malathion and Lindane employed in insecticidal space spray shall conform to IS 1051, IS 1832 and IS 882 respectively.
b)	Grouping guidelines	:	NA (No varieties of the product mentioned in IS)
c)	Sample Size	:	2 x 1 Litre
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. Identity iii. Active Ingredient Content -Pyrethrins -Malathion -Piperonyl Butoxide -Allethrins -Lindane iv. Flash Point		
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 1824:1978 with the following scope:		
	Name of the product	:	Insecticidal Space Spray

ANNEX A
TO PRODUCT MANUAL
INSECTICIDAL SPACE SPRAY
ACCORDING TO IS 1824:1978

LIST OF TEST EQUIPMENT

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Identity (Cl. 2.1.2)	TLC Plates, Standard Applicator, Pipettes(5 µL), Hair Dryer, Developing Tank, Iodine Staining Glass Jar, TLC spotting Guide, Developing Solvent(Benzene : Ethyl acetate (95 : 5 V/V), Iodine Crystals, Methyl Alcohol, Standard Pyrethrum Oleoresin, Petroleum Ether (40 - 60°C boiling point), Synthetic Pyrethroid, Mineral turpentine Oil, Separating Funnel, Dry Stopped Cylinder, Oven, Laboratory Vessels.
2.	Active ingredient Content (Cl. 2.2)	
	i) Determination of Pyrethrins Cl 2.2, 3.2 & 5.1, Table 1 Appendix A of IS 1824	Steam generator, safety tubes, delivery tubes, Asbestos pad, Erlenmeyer flask, Distilling head, condenser, separating funnel. Ethanollic Sodium Hydroxide(0.5 N in Ethyl Alcohol), Barium Chloride Solution(10 percent m/v), Phenolphthalein Indicator Solution, Rectified spirit, Dilute sulphuric Acid(1 N), Petroleum Ether(Boiling point 40° C to 60° C), Litmus Paper, Crystalline Sodium Chloride, Standard Sodium Hydroxide Solution(0.02 N), Concentrated Hydrochloric Acid(Sp. Grade 1.16), Ether, Weighing Balance , Tared 500 ml Erlenmeyer Flask, Reflux condenser, Hot water bath, Separating funnel, 1 Litre Beaker, Fluted Filter Paper, Bunsen Burner, Gooch Crucible, Laboratory Vessels.
	ii) Determination of Malathion Cl 2.2, 3.2 & 5.1, Table 1 Appendix B of IS 1824	Spectrophotometer or Photoelectric Colorimeter - with a blue filter(420 nm & 575 nm) having 1 cm absorption cell, Malathion Reference Standard, Kerosene(Distilled), Acetonitrile (Boiling Range 80 to 82° C), Anhydrous Ethyl Alcohol, Sodium Hydroxide Solution (0.5 N), Ferric Chloride, Concentrated Hydrochloric Acid, Methanol, Carbon Tetrachloride, Copper sulphate solution(1.5 % m/v), Weighing balance, Graduated Flask, Laboratory Vessels.

		Petroleum Ether, Potassium permanganate Reagent, Sodium Bisulphite, Chromotopic Acid Reagent, Standard Methanol Solution, Steam Distillation Flask, Kerosene, Volumetric Flask, Distilled Water, Ice Bath, Boiling Water Bath,
	iii) Determination of Piperonyl Butoxide Cl 2.2, 3.2 & 5.1, Table 1 Appendix C of IS 1824	Photoelectric Colorimeter or Spectrophotometer - capable of measuring absorbance at 625-635 nm, Purified Tannic Acid, Purified Piperonyl Butoxide, Acetic Acid, Phosphoric Acid, Volumetric Flask, Deodorized Kerosene, Test tube, Test tube Basket, Boiling Water Bath, Laboratory Vessels.
	iv) Determination of Allethrins Cl 2.2, 3.2 & 5.1, Table 1 Appendix D of IS 1824	Anhydrous Ethyl Alcohol, Phenolphthalein Indicator Solution, Standard Sodium Hydroxide, Anhydrous Methanol, Methanolic Hydrochloric Acid, Morphine Solution, Bottle with two holed rubber stopper, Glass tube, Aspirator Bulb, Redistilled Ethylenediamine, Dimethyl Yellow-Methylene Blue Mixed Indicator, Alpha-naphtholbenzein Indicator, Thymolphthalein Indicator, Sodium Methylate Standard Solution, Suitable Container, Methanolic potassium hydroxide, Multiple Glass stoppered Erlenmeyer flasks, Pipette, Weighing Balance, Ice Bath, 1 Litre reagent bottle
	v) Determination of Lindane Cl 2.2, 3.2 & 5.1, Table 1 Appendix E of IS 1824	Isopropyl Alcohol, Metallic Sodium, Phenolphthalein Indicator Solution, Dilute Nitric Acid, Standard Silver Nitrate Solution, Ferric Ammonium Sulphate Solution, Standard Potassium Thiocyanate Solution, Concentrated Nitric Acid, Erlenmeyer Flask, Reflux Condenser, Water-Bath, Boiling arrangement, Separating Funnel, Volumetric Flask, Conical Flask, Pipette, Fast Qualitative Filter Paper, Weighing Balance
3.	Flash Point (Cl. 2.3)	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 (test cup thermometer and Heating vessel thermometer), Timing device, Barometer, External cooling bath, Test cup thermal insulating cap

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

ANNEX B
SCHEME OF INSPECTION AND TESTING
FOR INSECTICIDAL SPACE SPRAY
ACCORDING TO IS 1824:1978

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 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 the Schedule of the licence shall be printed on each container of Insecticidal Space Spray or on the labels 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 Insecticidal Space Spray formulated in one mixing 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 the test results, decision regarding conformity or otherwise of the material to the requirements of the specification shall be made as follows:

5.2.1 Each of the sample drawn from the control unit shall satisfy the given requirements of the specification. If the sample fails in any of the requirements tested except for the active ingredient content, the entire control unit represented by the sample shall be considered unfit for the purpose of marking.

5.2.2 If the sample fails either in Pyrethrins, Malathion, Allethrins, Lindane, Piperonyl butoxide or mixture thereof, as per 2.2 of IS 1824, the entire quantity of the material in the control unit may be suitably reprocessed and the defects rectified. Such reprocessed material when tested again shall conform to all the requirement of the specification before it is marked.

6. RAW MATERIAL - Pyrethrins, Malathion and Lindane employed in insecticidal space spray shall conform to IS 1051, IS 1832 and IS 882 respectively. Each consignment of the technical materials shall be either covered by a test certificate from the supplier/manufacturer guaranteeing its conformity to the relevant Indian Standard or tested for its conformity to the relevant Indian Standard or they are BIS certified.

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
2.1.1	Description	2.1.1	IS 1824	R	One	Each Control Unit	
2.1.2	Identity	Appendix-A	IS 1051	R	One	-do-	
2.2	Active Ingredient Content						
	Pyrethrins	Appendix-A	IS 1824	R	One	-do-	
	Malathion	Appendix-B	-do-	R	One	-do-	
	Piperonyl Butoxide	Appendix-C	-do-	R	One	-do-	
	Allethrins	Appendix-D	-do-	R	One	-do-	
	Lindane	Appendix-E	-do-	R	One	-do-	
2.3	Flash Point	-	IS 1448 (Pt 20)	R	One	-do-	

Note-1: 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.

Note-2: 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 empaneled by the Bureau.