

PM/2568/1
October 2021



उत्पाद मैनुअल
MALATHION DUSTING POWDERS

IS 2568:1978 के अनुसार

PRODUCT MANUAL
FOR MALATHION DUSTING POWDERS
ACCORDING TO IS 2568:1978

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में अभ्यास और पारदर्शिता के संचालन में पारदर्शिता सुनिश्चित करने के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन लाइसेंस/प्रमाणपत्र प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

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.	उत्पाद Product	:	IS 2568:1978
	शीर्षक Title	:	Malathion Dusting Powders
	संशोधनों की संख्या No. of amendments	:	02
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Malathion Technical employed in the formulation of dusting powder formulation shall conform to IS 1832:1978
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	NA
c)	नमूने का आकार Sample Size	:	5 kg
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer Annex-A

4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer Annex-B
5.	एक दिन में संभावित परीक्षण Possible tests in aday		
	(i) Malathion Content % by mass (ii) Material passing through sieve 75 microns (iii) Bulk density after compacting (iv) Acidity(as H ₂ SO ₄)		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 2568:1978 with the following scope:		
	Name of the product	Malathion Dusting Powders	

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN,9, BAHADUR SHAH ZAFAR MARG,
NEW DELHI-110002

ANNEX – A**LIST OF TEST EQUIPMENTS****Major test equipment required to test as per the Indian Standard**

Sl. No.	Tests used in with Clause Reference	Test Equipment
01.	Malathion content [Cl 2.2, Table 1(i)]	Photometric Colorimeter and Spectrometer along with Carbon Tetrachloride, Ethyl Alcohol, Acetonitrile, Sodium Hydroxide, Ferric Chloride, Hydrochloric Acid, Copper Sulphate, Distilled water and glassware.
02.	Material passing through 75 micron IS Sieve [Cl 2.2, Table 1(iii)]	75 micron IS Test sieve, Weighing Balance, Ro- Tap machine or any other similar sieve shaker.
03.	Bulk Density after compacting[Cl 2.2, Table 1(iv)]	Compactor, 100 mL Capacity Cylinder
04.	Alkanity as NaOH, percent by mass [Cl 2.2, Table 1 (v)]	Sodium Hydroxide, Hydrochloric acid along with Methyl Red or Bromocresol Purple indicator and other glassware.

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

ANNEX B

SCHEME OF INSPECTION AND TESTING

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

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

2. **TEST RECORD-** 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 incorporated legibly and indelibly on each container or the label applied to each container of Malathion DP provided always that the material so marked conforms to each requirement of the specification.

3.2 The following shall also be marked on each container or the label applied to each container of Malathion DP:

- a) Name of the material
- b) Manufacturer's Name or Trade Mark
- c) The batch or control unit number and date of manufacture, and
- d) Net Mass of contents
- e) Nominal Malathion content, percent (m/m)
- f) Cautionary notice as per Insecticides Act and Rules
- g) BIS licence number and "For BIS certification details please visit www.bis.gov.in"

3.2.1 When bags are used for packing this material, the pictorial marking for 'USE NO HOOKS, DO NOT PUNCTURE' as contained in IS 1260 (Part 1):1973 shall be printed on the bags.

4. **CONTROL UNIT-** For the purpose of this scheme, every 100 bags of the material (where one bag contains 50 kg) or part thereof manufactured continuously at a time, not exceeding a day's production, shall be taken as one control unit.

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

5.1 All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark.

6. **REJECTION** - 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.

TABLE1
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			No. of Sample	Frequency	Remarks
		Clause	Reference				
2.1	Description	2.1(Visual)	IS 2568:1978	R	One	Each Control Unit	NA
2.1.1	Raw material (Malathion, technical)		IS 1832:1978	S	One	Each consignment	No testing required if material is ISI marked
2.2 & Table-1(i)	Malathion Content	App A	IS 1832:1978	R	Two	Each Control Unit	NA
(iii)	Sieving requirement	12.1	IS 6940-1982	R	One	Each Control Unit	NA
(iv)	Bulk Density after Compacting	12.2	-do-	R	One	Each Control Unit	NA
(v)	Alkalinity	11.3.3	-do-	R	One	Each Control Unit	NA

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.



PRODUCT MANUAL FOR MALATHION DUSTING POWDERS ACCORDING TO IS 2568-1978

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 2568-1978
	Title	:	Malathion Dusting Powders
	No. of Amendments	:	02
2.	Sampling Guidelines:		
a)	Raw material	:	Malathion Technical which is main raw material shall confirm to IS 1832:1978.
b)	Grouping guidelines	:	Not applicable
c)	Sample Size	:	05 kgs
3.	List of Test Equipment	:	Please refer ANNEX – <u>A</u>
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – <u>B</u>
5.	Possible tests in a day :		
	(i) Malathion Content % by mass (ii) Material passing through sieve 75 microns (iii) Bulk density after compacting (iv) Acidity(as H₂SO₄)		
6.	Scope of the Licence : (Use separate annexure if required)		
	“Licence is granted to use Standard Mark as per IS 2568 with the following scope:		
	Name of the product	Malathion 5% D.P	
	Type/class/grades/sizes	-	

ANNEX A**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
01.	Malathion content [Cl 2.2, Table 1(i)]	Photometric Colorimeter and Spectrometer along with Carbon Tetrachloride, Ethyl Alcohol, Acetonitrile, Sodium Hydroxide, Ferric Chloride, Hydrochloric Acid, Copper Sulphate, Distilled water and glassware.
02.	Material passing through 75 micron IS Sieve [Cl 2.2, Table 1(iii)]	75 micron IS Test sieve, Weighing Balance, Ro-Tap machine or any other similar sieve shaker.
03.	Bulk Density after compacting[Cl 2.2, Table 1(iv)]	Compactor, 100 mL Capacity Cylinder
04.	Alkanity as NaOH, percent by mass [Cl 2.2, Table 1 (v)]	Sodium Hydroxide, Hydrochloric acid along with Methyl Red or Bromocresol Purple indicator and other glassware.

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

ANNEX B**Scheme of Inspection And Testing**

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. LABELLING AND MARKING – As per the requirement of IS 2568:1978.

4. CONTROL UNIT – For purpose of this scheme, a day's production 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.

6. HYGIENIC CONDITIONS –Wherever applicable, hygienic conditions shall be complied in day to day production and quality control activities. Schedule for each activity for this purpose shall be displayed prominently in the factory premises and records of compliance shall be maintained.

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

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
2.1	Description	2.1(Visual)	IS 2568:1978	R	One	Each Control Unit	NA
2.2 & Table- 1(i)	Malathion Content	App A	IS 1832:1978	R	Two	Each Control Unit	NA
(iii)	Sieving requirement	12.1	IS 6940- 1982	R	One	Each Control Unit	NA
(iv)	Bulk Density after Compacting	12.2	-do-	R	One	Each Control Unit	NA
(v)	Alkalinity	11.3.3	-do-	R	One	Each Control Unit	NA

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.

Doc:STI-2568/CP/3,
October 1978

SCHEME OF TESTING AND INSPECTION
FOR CERTIFICATION OF
MALATHION DUSTING POWDERS
ACCORDING TO IS: 2568-1978
(Second Revision)

1. Laboratory - A laboratory shall be maintained which shall be suitably equipped and staffed, where tests shall be carried out in accordance with the methods given in the specification.

2. Test Records - All records of tests shall be kept in suitable forms approved by the Institution (see Form 1 annexed).

2.1 Copies of any records or charts that may be required by the Institution shall be made available at any time on request.

2.2 It is recommended that, as far as possible, statistical quality control (SQC) methods may be used for controlling the quality during production as envisaged in this scheme (see IS: 387 (Part I)-1972 and IS: 387 (Part II)-1975).

3. Mark - The standard mark(s) as given in column (1) of the First Schedule of the licence shall be stencilled/printed on each container of Malathion DP or printed on the label 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.

4. Marking - The following information shall be given legibly and indelibly on each container or on the label applied to it in addition to those required under the provisions of the Insecticides Act and Rules framed there-under:

- a) Name of the material;
- b) Name of the manufacturer;
- c) Date of manufacture;
- d) Batch number;
- e) Net mass of contents;
- f) Nominal malathion content, percent (g/m); and
- g) The cautionary notice worded as in the Insecticides Act and Rules.

5. Packing - The material shall be packed according to IS: 8190 (Part I)-1976 Requirements for packing of pesticides: Part I solid pesticides.

5.1 When bags are used for packing this material the pictorial marking for "USE NO FIRE, DO NOT PUNCTURE" as contained in IS: 1260 (Part II)-1973 shall be stencilled on the bags.

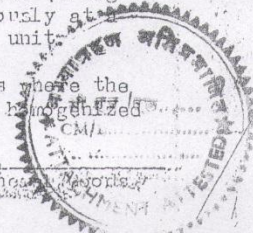
6. Levels of Control - The tests, as indicated in Table 1 and at the levels of control specified therein, shall be carried out on the whole production of the factory covered by this scheme and appropriate records and charts maintained in accordance with paragraph 2 above.

6.1 On the basis of the test results, decision regarding conformity or otherwise of the control unit to the given requirement shall be made as follows:

6.1.1 For the purpose of this scheme every 100 bags of the material (a bag is equivalent to a mass of 50 kg) or part thereof manufactured continuously at a time, not exceeding a day's production shall constitute one control unit.

NOTE:- This scheme is applicable only in respect of the process where the material after pulverising in a pulverizer is thoroughly homogenized by passing it through a continuous mixer.

Pictorial Markings for handling and labelling of goods: Part III General Provisions (Third Revision)



-: 2 :-

d) 6.1.2 Each sample taken for test from the control unit and tested: for/description) high temperature stability (a), bulk density after compacting, and acidity/alkalinity shall satisfy all these requirements as laid down in the specification. If the sample fails in any of these requirements the entire quantity of the material in the control unit shall be considered as unfit for the purpose of marking.

6.1.3 When tests have been performed on each of the test samples, drawn from the control unit, for sieving requirement and malathion content the test results on the individual samples shall be recorded as given in Table 2. The average ($\bar{X}$) and the range (R) i.e. the difference between the maximum and minimum values of the test results shall be calculated. The appropriate expression as given under column (6) of Table 2 shall be calculated for each of the characteristics indicated therein. The values of all the corresponding expressions for different characteristics should satisfy the respective inequalities as given under columns (6) of Table 2.

6.1.3.1 In case the criterion fails in respect of malathion content and/or sieving requirement, the control unit may be suitably reprocessed and the defect rectified. Such reprocessed material when tested again, shall satisfy all the requirements of the specification before it is marked.

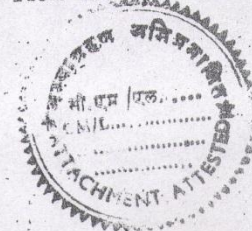
7. Raw Materials - Malathion technical used in the manufacture of the material shall conform to IS:1832-1978. Each consignment of malathion technical received shall be covered by a test certificate from the supplier or manufacturer guaranteeing its conformity to IS:1832-1978 or alternatively a sample from each batch of malathion technical shall be tested for its conformity to IS:1832-1978 and records maintained. However, no testing or test certificate may be necessary if the malathion technical carries the ISI mark under IS:1832.

7.1 Routine analysis (specially acidity/alkalinity) of each consignment of other raw materials received in the factory shall be carried out and appropriate record maintained.

8. In respect of all other clauses of the specification and at all stages of manufacture the factory shall maintain appropriate controls and checks to ensure that their production conforms to the various requirements of the specification. In addition, only statutory approved formulations shall be manufactured and marked.

9. A separate record shall be maintained giving information relating to the rejection of control units of malathion dusting powder which do not conform to the specification and the method of their disposal. Such material, if picked in containers, shall in no case be stored together with that conforming to the specification.

10. Sampling - The licensee shall supply, free of charge, the samples required in accordance with Regulation 10 of the Indian Standards Institution (Certification Marks) Regulations, 1955, as subsequently amended, from his factory or godowns. The Institution shall pay for the samples taken by it from the open market.



-: 3 :-

11. Replacement - Whenever a complaint is received soon after the goods with ISI mark have been purchased and used, and if there is adequate evidence that the goods have not been misused, defective goods or their components shall be replaced or repaired free of cost by the licensee in case the complaint is proved to be genuine and the warranty period (where applicable) has not expired. The final authority to judge conformity of the product to the Indian Standard shall be with the Institution.

12. Suspension of Marking - The marking of the product shall be suspended under intimation to the Institution if, at any time there is some difficulty in maintaining the conformity of the product to the specification, or the testing equipment goes out of order, or if directed to do so by the Institution for any reason. The marking may be resumed as soon as the defects are removed or when the Institution gives the permission to do so. The information regarding resumption of marking shall also be sent to the Institution.

13. Production Data - The licensee shall send to the Institution, as per the enclosed proforma, a statement of the quantity produced, marked and exported by him and the trade value thereof during the half-year ending 30 June and 31 December. This statement is required to be forwarded to the Institution on or before the 31st day of July and January for the preceding half-year in writing.

TABLE 1.....



IS: 2568-1978
MALATHION DUSTING POWDERS (SECOND REVISION)
TABLE 1 LEVELS OF CONTROL
(Para 6 of the Scheme of Testing and Inspection)

Test Details		Levels of Control			Remarks
		Test Method	No. of Samples	Lot Size	
Clause	Requirement	Clause (Reference)			
2.1	Description	2.1 (Visual)	IS: 2568-1978	One	One control unit*
2.2	Malathion content	5.1.1 App A	IS: 2568-1978 IS: 1832-1978**	Five ³	-do-
2.2	High temperature stability	5.1.2 & 5.1.1 13.4 App A	IS: 2568-1978 IS: 6940-1975† IS: 1832-1976**	One ⁴	-do-
2.2	Stowing requirement	12.1	IS: 6940-1975†	Five ³	-do- Freedom from grittiness if meant for external human use.
2.2	Bulk density after compacting	12.2	-do-	One composite sample ††	-do-
2.2	Acidity/alkalinity	11.3.	-do-	-do-	-do-

*See 6.1.1

*Specification for malathion, technical (first revision)

High temperature stability test shall be conducted on one of the five samples taken for test for malathion content. Methods of tests for pesticides and their formulations. A composite sample shall be prepared by mixing together the samples drawn at regular intervals from a control unit. Samples to be taken at regular intervals from the control unit.

TABLE 2.....

- 5 -

IS: 8568-1978

MALATHION DUSTING POWDERS

TABLE 2 TEST RESULTS AND CRITERION OF ACCEPTANCE OF A CONTROL UNIT
(Para 6.1.3 of the Scheme of Testing and Inspection)

Sl. No.	Characteristics	Test Results					Average (X)	Range (R)	Criterion for conformity
		1	2	3	4	5			
(1)	(2)	(3)					(4)	(5)	(6)
1.	Sieving requirement, percent by mass						$\bar{X}_1$	R_1	$\bar{X}_1 - 0.6 R_1$
2.	Malathion content						$\bar{X}_2$	R_2	$\bar{X}_2 \pm 0.6 R_2$

shall lie within nominal value with prescribed tolerances.

FORM I.....

FORM I

TEST RECORDS FOR MALATHION DUSTING POWDERS

to be recorded for samples drawn from a control unit.

to be recorded for composite sample drawn from a control unit.

AMENDMENT NO. 1 MARCH 1989
TO
IS : 2568 - 1978 SPECIFICATION FOR
MALATHION DUSTING POWDERS

(Second Revision)

(Page 4, Table 1, col 5) — Substitute 'IS : 6940 - 1982†' for 'IS : 6940 - 1973†'.

(Page 4, Table 1) — Insert the following Note after Table 1 :

'NOTE — The material need not be put to high temperature stability test, if it has crossed half of its shelf-life as declared on the container.'

(Page 4, Table 1, foot-note marked with '‡' mark) — Substitute '†IS : 460 (Part 1) - 1985 Specification for test sieves : Part 1 Wire cloth test sieves (*third revision*)' for the existing matter.

(Page 5, clause 3.1, lines 1 and 2) — Substitute 'IS : 8190 (Part 1) - 1980†' for 'IS : 8190 (Part 1) - 1976†'.

(Page 5, foot-note marked with '†' mark) — Substitute the following for the existing matter.

'† Requirements for packing of pesticides : Part 1 Solid pesticides (*first revision*).'

(Page 6, clause 4.1) — Substitute the following for the existing clause and Note:

'Representative samples of the material shall be drawn as prescribed in IS : 10627 - 1983‡.'

(Page 6, foot-notes) — Insert the following foot-note at the end:

'‡Methods for sampling of pesticidal formulations.'

(AFCD 6)

**AMENDMENT NO. 2 MAY 1994
TO
IS 2568 : 1978 SPECIFICATION FOR MALATHION
DUSTING POWDERS**

(Second Revision)

[*Page 4, Table 1, Sl No. (ii), col 2*] — Delete.

(*Page 6, clause 4.1*) — Substitute the following for the existing:

‘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 : 1983 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 : 1983. 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 2.3 of the standard.’

(FAD 1)

*Indian Standard***SPECIFICATION FOR
MALATHION DUSTING POWDERS***(Second Revision)*

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002****Gr 2***May 1978*

Indian Standard

SPECIFICATION FOR MALATHION DUSTING POWDERS

(*Second Revision*)

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(*Continued on page 2*)

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IS : 2568 - 1978

(Continued from page 1)

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(Continued on page 7)

(Continued from page 2)

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(Continued on page 8)

47916/2021/CMD-II

18 : 2568 - 1978

(Continued from page 7)

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AMENDMENT NO. 1 MARCH 1989
TO
IS : 2568 - 1978 SPECIFICATION FOR
MALATHION DUSTING POWDERS

(Second Revision)

(Page 4, Table 1, col 5) — Substitute 'IS : 6940 - 1982†' for 'IS : 6940 - 1973†'.

(Page 4, Table 1) — Insert the following Note after Table 1 :

'NOTE — The material need not be put to high temperature stability test, if it has crossed half of its shelf-life as declared on the container.'

(Page 4, Table 1, foot-note marked with '‡' mark) — Substitute 'IS : 460 (Part 1) - 1985 Specification for test sieves : Part 1 Wire cloth test sieves (*third revision*)' for the existing matter.

(Page 5, clause 3.1, lines 1 and 2) — Substitute 'IS : 8190 (Part 1) - 1980†' for 'IS : 8190 (Part 1) - 1976†'.

(Page 5, foot-note marked with '†' mark) — Substitute the following for the existing matter.

'† Requirements for packing of pesticides : Part 1 Solid pesticides (*first revision*).'

(Page 6, clause 4.1) — Substitute the following for the existing clause and Note:

'Representative samples of the material shall be drawn as prescribed in IS : 10627 - 1983‡.'

(Page 6, foot-notes) — Insert the following foot-note at the end:

'‡ Methods for sampling of pesticidal formulations.'

(AFCD 6)

**AMENDMENT NO. 2 MAY 1994
TO
IS 2568 : 1978 SPECIFICATION FOR MALATHION
DUSTING POWDERS**

(Second Revision)

[Page 4, Table 1, Sl No. (ii), col 2] — Delete.

(Page 6, clause 4.1) — Substitute the following for the existing:

‘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 : 1983 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 : 1983. 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 2.3 of the standard.’

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Indian Standard
SPECIFICATION FOR
MALATHION DUSTING POWDERS
(*Second Revision*)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 15 February 1978, after the draft finalized by the Pest Control Sectional Committee had been approved by the Agricultural and Food Products Division Council and the Chemical Division Council.

0.2 This standard was first published in 1963 and was revised in 1973. The second revision is being issued to bring its requirements at par with the developments in the industry and also to take care of the stipulations as laid by Central Insecticides Board (CIB). An additional test method for malathion content has been recommended as prescribed in IS : 1832-1978*.

0.3 Malathion dusting powder formulations are used in the control of pests of agricultural, public health and veterinary importance.

0.4 Malathion dusting powder formulation is generally manufactured to contain 5 percent (*m/m*) of malathion.

0.5 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.

0.6 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†. 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 malathion dusting powders.

*Specification for malathion, technical (*first revision*).

†Rules for rounding off numerical values (*revised*).

2. REQUIREMENTS

2.1 Description — The material shall be in the form of a powder. It shall be free flowing and devoid of lumps. Malathion, technical used in its manufacture shall have been uniformly mixed in suitable fillers, such as talc or pyrophyllite. It shall be free from extraneous impurities or added modifying agents. The material, when dusted from a hand rotary duster, shall issue freely without clogging or bridging.

2.1.1 Malathion, technical employed in the manufacture of dusting powder formulations shall conform to IS : 1832-1978*.

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

TABLE 1 REQUIREMENTS FOR MALATHION DUSTING POWDERS

Sl. No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO	
			Appendix of IS : 1832-1978*	Cl No. of IS : 6940-1973†
(1)	(2)	(3)	(4)	(5)
i)	Malathion content, percent by mass	Nominal value as declared on the container (see 2.3.1)	A	—
ii)	High temperature stability after storage for 20 hours at 90°C	Malathion content shall be not less than 60 percent of the initial value	—	13.4
iii)	Material passing through 75-micron IS Sieve‡, percent by mass, Min	90§	—	12.1
iv)	Bulk density after compacting	Not to exceed the value obtained before compacting by more than 60 percent	—	12.2
v)	Acidity (as H ₂ SO ₄), percent by mass, Max	0.1	—	11.3.2
	OR			
	Alkalinity (as NaOH), percent by mass, Max	0.1	—	11.3.3

*Specification for malathion, technical (first revision).

†Methods of tests for pesticides and their formulations.

‡See IS : 460-1962 ' Specification for test sieves (revised)'.

§BS test Sieve 200, ASTM test Sieve 200, Tyler test Sieve 200 have apertures within the limits specified for the above IS Sieve and may, therefore, be used as 75-micron IS Sieve.

§For powders intended for external human use, the 10 percent recovery on the sieve shall be free from grittiness.

*Specification for malathion, technical (first revision).

2.3 Malathion Content — When determined by the methods prescribed in Appendix A of IS : 1832-1978*, the observed malathion content, percent by mass, of any of the samples shall not differ from the declared nominal value by more than the percent tolerance as indicated below:

<i>Nominal Value</i>	<i>Tolerance on the Nominal Value, Percentage</i>
Up to 9	$\begin{cases} + 10 \\ - 5 \end{cases}$
10 and below 50	± 5
50 and above	$\begin{cases} + 5 \\ - 3 \end{cases}$

2.3.1 The actual value of the malathion content in the formulations shall be calculated to the second decimal place and then rounded off to first decimal place before applying the tolerances as stipulated in 2.3.

3. PACKING AND MARKING

3.1 Packing — The material shall be packed according to IS : 8190 (Part I)-1976†.

3.2 Marking — The containers shall bear legibly and indelibly the following information and any other additional information as is necessary under the Insecticides Act and Rules:

- Name of the material;
- Name of the manufacturer;
- Batch number;
- Date of manufacture;
- Net mass of contents;
- Nominal malathion content, percent (m/m); and
- The cautionary notice as worded in the Insecticides Act and Rules.

3.2.1 When bags are used for packing this material, the pictorial marking for 'USE NO HOOKS, DO NOT PUNCTURE', as contained in IS : 1260 (Part II)-1973‡, shall be stencilled on the bags.

3.2.2 The product may also be marked with Standard Mark.

*Specification for malathion, technical (*first revision*).

†Requirements for packing of pesticides: Part I Solid pesticides.

‡Pictorial markings for handling and labelling of goods: Part II General goods (*first revision*).

IS : 2568 - 1978

3.2.3 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufactures or producers may be obtained from the Bureau of Indian Standards.

4. SAMPLING

4.1 Representative samples of the material shall be drawn as prescribed in the 'Indian Standard methods for sampling of pesticides and their formulations' (*under preparation*).

NOTE — Till such time the standard under preparation is published, the matter shall be as agreed to between the concerned parties.

5. TESTS

5.1 Tests shall be carried out by the methods as specified in col 4 and 5 of Table 1.

5.1.1 For malathion content test, start with a sample containing 0.15 ± 0.05 g of malathion taken in a beaker. Add 50 ml of cyclohexane and mix for 20 minutes using a magnetic stirrer. Filtr under reduced pressure and wash the insoluble residue on the filter paper with three 10-ml portions of cyclohexane retaining the filtrate and washings. Transfer quantitatively to a 100-ml volumetric flask. Make up to the mark with cyclohexane, and mix and then proceed with a 10 ml aliquot of this for the determination of malathion content by the method given in Appendix A of IS:1832-1978*.

5.1.2 For high temperature stability test, start with 25 g of the material and place the bottle in the thermostat maintained at $90 \pm 2^\circ\text{C}$ for 20 hours. At the end of the heating period, remove and allow the material to come to room temperature. A suitable portion of this, after treatment as given in 5.1.1, shall be taken for the determination of malathion content by the method given in Appendix A of IS : 1832-1978*.

5.2 **Quality of Reagents** — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1977†) shall be employed in tests.

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

*Specification for malathion, technical (*first revision*).

†Specification for water for general laboratory use (*second revision*).

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