



**PRODUCT MANUAL  
FOR ZINC PHOSPHIDE, TECHNICAL  
ACCORDING TO IS 1251 : 1988**

*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.	<b>Product</b>	:	IS 1251 : 1988
	<b>Title</b>	:	Zinc Phosphide, Technical - Specification.
	<b>No. of Amendments</b>	:	01
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	No specific requirement.
b)	<b>Grouping Guidelines</b>	:	NA (No variety for the product mentioned in IS)
c)	<b>Sample Size</b>	:	500gm
3.	<b>List of Test Equipment</b>	:	Please refer ANNEX A
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer ANNEX B
5.	<b>Possible tests in a day :</b>		
	i. Description ii. Zinc phosphide content iii. Zinc content iv. Sieving requirement v. Freedom from sulphides		
6.	<b>Scope of the Licence :</b>		
	Licence is granted to use the Standard Mark as per IS 1251 : 1988 with the following scope:		
	Name of the product	Zinc Phosphide, Technical.	

**ANNEX - A**  
**TO PRODUCT MANUAL**  
**FOR ZINC PHOSPHIDE, TECHNICAL**  
**ACCORDING TO IS 1251 : 1988**

**LIST OF TEST EQUIPMENT**

*Major test equipment required to test as per the Indian Standard*

Sl. No.	Test Equipments	Test used in with Clause Reference
1.	<p>Reaction flask -250 ml with a standard interchangeable socket, Separating funnel-250 ml, Delivery tube ( PVC tube, surgical soft type), Absorption bottles-200/250ml (04 nos), Nitrogen or Carbon Dioxide gas arrangement/inlet tube, thermostatically controlled water bath (0-100<sup>0</sup>C / LC 1<sup>0</sup>C), Heating plate (0-100<sup>0</sup>C / LC 1<sup>0</sup>C) and a suitable mounting stand.</p> <p>Standard Potassium Permanganate Solution – 0.5N, Sulphuric Acid 10% (m/v), Sulphuric Acid 1:1 (v/v), Standard Sodium Hydroxide Solution – 1N, Standard Oxalic Acid Solution – 0.5N Distilled Water, Nitrogen gas or Carbon dioxide gas</p> <p>General Glassware.</p>	Zinc Phosphide (Zn <sub>3</sub> P <sub>2</sub> ) Cl. 2.2, Table 1 and Appendix A of IS 1251
2.	<p>Erlenmeyer flask-500 ml, Filter paper, Litmus paper, Pipette and Volumetric flasks.</p> <p>Sodium Hydroxide – 1N, EDTA Solution – 0.1N, Standard Zinc Solution, Hydrochloric Acid (1:1 v/v), Erichrome Black T Indicator, Sodium Chloride, Buffer Solution (made with Ammonium Chloride, Strong Ammonia Solution, Distilled Water), Sodium Hydroxide – 0.5N, Sulphuric Acid 10% (v/v) and Ammonia Solution 10% (v/v).</p> <p>General Glassware.</p>	Zinc Content, Percentage by Mass Cl. 2.2 Table 1 and Appendix B of IS 1251
3.	<p>106 micron and 150 micron IS Sieves and Weighing balance (R 0-200gm / LC 0.5gm Min.). Ro-tap or a similar machine, small square rubber cubes, brush, weighing dish.</p> <p>Alternatively, BS Sieves 100 and 150 or ASTM Sieves 100 and 140 or Tyler Sieves 100 and 150 respectively, may also be used.</p>	Sieving Requirements: Cl. 2.2 Table 1 of IS 1251 and Cl. 12.1 of IS 6940 a) Material passing through 150 micron IS Sieve b) Material passing through 106 micron IS Sieve
4.	<p>Gas wash bottle/Absorption bottle.</p> <p>Standard Neutral Cadmium Sulphate Solution – 2M.</p> <p>General Glassware.</p>	Freedom from Sulphides Cl. 2.3 of IS 1251 and Appendix C of IS 1251

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

**ANNEX - B**

**SCHEME OF INSPECTION AND TESTING  
FOR ZINC PHOSPHIDE, TECHNICAL  
ACCORDING TO IS 1251 : 1988**

**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 stenciled/printed on each container of Zinc phosphide, technical 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](http://www.bis.gov.in)”.

**4. CONTROL UNIT** – For the purpose of this scheme, the entire quantity of the material formulated in a mixer at a time in one operation shall constitute 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 One representative sample shall be drawn from a control unit not exceeding 1000 kg. two representative samples shall be drawn if the control unit happens to be more than 1000 kg, otherwise one representative sample shall be drawn from every 20 drums of the material (a drum being equivalent to 50 kg or part thereof) and tested for description, zinc phosphide content and sieving requirement. Each sample drawn and tested shall pass in all the characteristics before it is considered for marking.

5.2.1 In case any sample fails in respect of zinc phosphide content and or sieving requirement, the control unit may be suitably reprocessed and the defects rectified. Such reprocessed material when tested again shall satisfy all the requirements before it is used for marking.

**6. RAW MATERIAL** – Routine analysis of each consignment of various raw materials going into the production of the material shall be carried out and appropriate records 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  
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 Clause	Reference		No. of Sample	Frequency	Remarks
2.1	Description	2.1	IS 1251	R	One *	Every 20 drums (each of 50 kg) or part thereof of control unit	--
2.2	Zinc Phosphide (Zn <sub>3</sub> P <sub>2</sub> ), Percentage by Mass	Appendix A	IS 1251	R	-do-	-do-	--
2.2	Zinc Content, Percentage by Mass	Appendix B	IS 1251	R	-do-	-do-	--
2.2	Sieving Requirements:  Material passing through 150 micron IS Sieve.  Material passing through 106 micron IS Sieve.	Cl. 12.1	IS 6940	R	-do-  -do-	-do-  -do-	--
2.3	Freedom from Sulphides	Appendix C	IS 1251	R	-do-	-do-	--

\* The sample drawn shall be a representative of the 20 drums (each of 50 kg) or part thereof sampled. Small quantities of shall be drawn from each of the 20 drums or part thereof and mixed together to constitute a representative sample.

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 empaneled 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.