



उत्पाद मैनुअल
रंग रोगन के लिए बेरियम सल्फेट पिगमेंट — विशिष्टि
आई एस 64 : 2023 के अनुसार
PRODUCT MANUAL
BARIUM SULPHATE PIGMENTS FOR PAINTS — SPECIFICATION
ACCORDING TO IS 64: 2023

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता 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 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 uniformity 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.

1.	मानक संख्या IS No.	:	IS 64 : 2023
	शीर्षक Title	:	Barium Sulphate Pigments for Paints — Specification
	संशोधनों की संख्या No. of amendments	:	Nil
2.	नमूना दिशानिर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	Nil Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of Licence/Factory Surveillance.
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer ANNEX – A
c)	नमूने का परिमाण Sample Quantity	:	1 Kg. (For GoL/ CSoL/ Surveillance) + approved sample for oil absorption and colour Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the

			laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market)
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request		Type and Grade (For type 1) Note: This section indicates declared values to be specified against a parameter (in Test Requests) to enable testing of sample against the requirement and determine its conformity. Any other requirements/parameters may also be declared as per the standard, as applicable.
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer ANNEX – B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	एक दिन में संभावित परीक्षण Possible tests in a day:	:	All Tests (except toxic heavy metal restriction the method for which is under development)
6.	लाइसेंस का दायरा Scope of the Licence	:	As per below table
a	IS 64 :2023 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है" License is granted to use Standard Mark as per IS 64 :2023 with the following scope:		
b	उत्पाद का नाम Name of the Product		Barium Sulphate Pigments for Paints — Specification
c	Type (as applicable)		Type 1 (Grade 1/ Grade 2) / Type 2

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ANNEX – A
समूहीकरण दिशानिर्देश
Grouping Guidelines

- 1) Barium Sulphate Pigments are classified as below based on the composition and other physical parameters:
 - a. Type 1 - consisting of naturally occurring barium sulphate. It is further classified into following grades
 - i. Grade 1, having Barium as BaSO₄ content 95 % by mass, min
 - ii. Grade 2, having Barium as BaSO₄ content 90 % by mass, min.
 - b. Type 2 - precipitated barium sulphate
- 2) Considering the above, Barium Sulphate pigment of each Type shall be tested to cover that particular Type in the scope of licence.
- 3) If Grade 1 of Type 1 is tested, Grade 2 of Type 1 may also be covered in the scope of the licence.
- 4) The Firm shall declare the Types and grade (as applicable) of Barium Sulphate Pigments they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
- 5) During the operation of the Licence, BO shall ensure that all the types and grade (as applicable) covered in the Licence are tested in rotation, to the extent possible.

ANNEX – B
परीक्षण उपकरण की सूची
List of Test Equipment

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Test equipment required to cover the entire tests defined in the IS 64: 2023

S. NO	Tests used in with clause reference	Test Equipment
1.	Cl 5.1 Form and Condition	Palette Knife
2.	Cl 5.2 Lead Restriction	2(a) Electrolysis Method Evaporating Dish Hot Air Oven Muffle Furnace Dessicator fine texture paper Beaker of 250 ml, 400 ml Weighing Balance Hot plate 400 ml Beaker ammonium nitrate platinum gauze anode alcohol hydrogen peroxide <u>Sulphide Method</u> hydrochloric acid Weighing Balance Hot plate <u>Atomic Absorption Spectroscopy method (AAS)</u> Atomic absorption spectrophotometer Muffle furnace Hot plate Porcelain crucible Nitric acid Ammonium acetate Lead standard stock solution <u>Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES)</u> Inductively Coupled Plasma-Optical Emission Spectrometer Nitric acid hydrogen peroxide Electric hot plate Microwave extraction apparatus Sample vessels (closed) Analytical balance, hydrochloric acid, Calibration stock solution,

		2(b) Molybdate method Sulphuric Acid Nitric Acid Ammonium Acetate Weighing Balance Hot Air Oven Beaker Hot plate ethyl alcohol paper pulp pad Glacial Acetic Acid ammonium nitrate Muffle Furnace Ammonium paramolybdate porcelain filtering crucible
3.	CI 5.4, Table 1, S.No. (i) Compositions 3(a) Barium as BaSO₄, percent by mass, min	HCL Sulphuric Acid Anhydrous Sodium and Potassium Carbonates Ammonium Hydroxide solution of relative density 0.88 Ammonium Sulphate Methyl Red Indicator Muffle Furnace Hot Air Oven Glass Ware Conical Flask Asbestos Pad Gooch Crucible Dessicator Platinum Crucible Distilled water, weighing Balance, Hot plate agate mortar Whatman No. 2 or equivalent filter paper
	3(b) Barium as BaCO₃, percent by mass, min	conical Flask of 250 ml HCL Whatman filter paper No 2 Beaker of 250 ml Distilled Water Sulphuric Acid Asbestos Pad Gooch Crucible Muffle Furnace Hot plate Hot Air Oven Magnetic Stirrer Weighing Balance Stop watch Dessicator
4.	CI 5.4 Table 1,(ii) Volatile matter, percent by mass, max	Weighing Bottle (Squat form, wide-mouthed, with ground glass stopper, about 30 mm in height and 70 mm in diameter) Hot Air Oven Weighing Balance of 1mg or better Dessicator Stop watch

5	CI 5.4 Table 1,(iii) Residue on Sieve, percent by mass, Max	40 microns IS Sieve (400 mesh) or 60 microns IS Sieve (240 mesh) Brush (hog bristles, approximate dimensions 5 mm thick, 20 mm wide, 35 mm long) Sintered Glass Crucible - of porosity Grade P 40 (see IS 12305: 1988). Hot Air Oven, Weighing Balance of 1mg or better Desiccator, Wash Bottle, Magnetic Stirrer
6.	CI 5.4 Table 1,(iv) Oil Absorption	Plate Ground glass or marble, at least 300 mm x 400 mm. Palette Knife Burette of 10 ml Weighing Balance Refined linseed oil, having an acidic value of 7.5 to 8.5 (see IS 75: 1973). Stop watch
7.	CI 5.4 Table 1, (v) Colour	Palette Knife Substrate - of minimum area 150 mm x 50 mm. Burette (With a delivery such that 1 ml of the binder contains about 35 drops.) Automatic Muller/ Hand Muller as per CI 11.1.4.1/11.1.4.2 of IS 33 respectively Plate (Ground Glass or Marble) Binder as agreed to the purchaser and the supplier else linseed oil (complying with the requirements of the refined grade specified in IS 75 : 1973 shall be used.) Approved Sample for comparison, if any
8.	CI 5.4 Table 1,(vi) Matter soluble in water, percent by mass, Max	One Mark Volumetric Flask of 250 ml Colloid Filter Evaporating Dish - Flat bottomed, glass, platinum, glazed porcelain or silica. Hot Air Oven Weighing Balance of 1 mg or better Dessicator Distilled Water of Ph 6 to 7 Hot Plate/water bath
9.	CI 5.4 Table 1,(vii) pH of the aqueous extract	Glass Container of Capacity 50 mi (made of chemically resistant glass, fitted with a ground glass or rubber stopper.) Ph meter Capable of measurement to 0.1 unit, calibrated against buffer solutions of known pH value at the temperature of the test.) Weighing Balance

10.	Cl 5.4 Table 1,(viii) and Annex B of IS 64 Relative density at 25/25 °C, Min	Pyknometer — of 50 ml capacity Water-Bath — to maintain 25.0 °C ± 0.5 °C Manometer — a suitable one Desiccator — a suitable one to withstand a vacuum of one atmosphere Vacuum Pump Thermometer — A suitable thermometer having a range of 0 °C to 60 °C and an accuracy of 0.1 °C (see IS 4825). Weighing Bottle Wetting Liquid Bottle A storage bottle (h, Fig. 1) for kerosine or other wetting liquid. Bell Jar as in B.1.10 of IS 64
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ANNEX – C

निरीक्षण और परीक्षण की स्कीम

Scheme of Inspection and Testing

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: Barium Sulphate Pigment of each Type/Grade (as applicable), manufactured in a day.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.3.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as “R” or other tests which can be subcontracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as “R” in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each **container of Barium Sulphate Pigment** provided always that the material so marked conforms to each requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

3.2 **Additional Marking requirements:** The material shall also be marked with the following additional requirement on each **container of Barium Sulphate Pigment**

a) “For BIS certification details please visit www.bis.gov.in”

4. REJECTION - All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. 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
(ONLY FOR GUIDANCE PURPOSE)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement / Characteristic	Clause	Test Method Reference		No. of Samples	Frequency	Remarks
5.1	Form and condition	5.1	Visual inspection	R	One	Each Control Unit	-
5.2	Lead restriction	5.2	IS 101 (Part 8/Sec 5)	R	One	Each Control Unit	
5.3	Toxic heavy-metal restriction	-	Test method standard under development please see remarks	S	One	Once in a month from each Type/Grade as applicable	Test under abeyance till test method standard for toxic heavy metal restriction is published.
Table 1(ia)	Barium as BaSO ₄ ,	Annex A-1	IS 64	R	One	Each control unit	-
Table 1(ib)	Carbonates as BaCO ₃ , %	Annex A-2	IS 64	R	One	Each control unit	-
Table 1(ii)	Volatile matter, %	cl. 6	IS 33	R	One	Each control unit	-
Table 1(iii)	Residue on sieve, %	cl. 7	IS 33	R	One	Each control unit	-
Table 1(iv)	Oil absorption	cl. 8	IS 33	R	One	Each control unit	Should also be with in ±10 % of approved sample
Table 1(v)	Colour	cl. 9	IS 33	R	One	Each control unit	Visual comparison with approved master sample
Table 1(vi)	Matter soluble in water,	cl. 12	IS 33	R	One	Each control unit	-
Table 1(vii)	pH of aqueous extract	cl. 14	IS 33	R	One	Each control unit	-
Table 1(viii)	Relative density at 25/25 °C, min.	Annex B	IS 64	R	One	Each control unit	-