



उत्पाद मैनुअल

विस्फोटक और आतिशबाज़ी उद्योग के लिए सोडियम नाइट्रेट — विशिष्टि

IS 12681 : 2025 के अनुसार

PRODUCT MANUAL

Sodium Nitrate for Explosives and Pyrotechnic Industry —SPECIFICATION

ACCORDING TO IS 12681 : 2025

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 12681 : 2025
	शीर्षक Title	:	Sodium Nitrate for Explosives and Pyrotechnic Industry —SPECIFICATION
	संशोधनों की संख्या No. of amendments	:	NIL
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirement. 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	:	Not applicable.
c)	नमूने का परिमाण Sample Quantity	:	500 g 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	:	Product name 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 –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 a day		
	All tests are possible in a day Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies (OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	IS 12681 : 2025 के अनुसार मानक मुहर का उपयोग करनेके लिए लाइसेंस ननम्नलिखित कार्य क्षेत्र के लिए प्रदान ककया जाता है“ Licence is granted to use Standard Mark as per IS 12681 : 2025 with the following scope:		
	Name of the product	:	Sodium Nitrate for Explosives and Pyrotechnic Industry

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

ANNEX A

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Assay, Cl. 3.2, & Table 1	<u>Ferrous ammonium sulphate method</u> – Ferrous ammonium sulphate – Potassium permanganate – Ammonium molybdate – Sulphuric acid – weighing balance – Demineralized <u>UV Spectrophotometric Method</u> – Sodium nitrate GR – UV Spectrophotometer with 1 cm cell – Sodium hydroxide solution – Hot Plate/ Water Bath <u>Ion Exchange Method</u> – Cation Exchange Column with resin – Bromothymol blue indicator – Beaker
2.	Moisture and volatile matter, Cl. 3.2, & Table 1	– Petri-dish – Air-oven – Desiccator
3.	Matter insoluble in water, Cl. 3.2, & Table 1	– Above facilities and, – Tared sintered glass – Crucible no 4 – Oven – desiccator
4.	Nitrites, Cl. 3.2, & Table 1	– Potassium Permanganate, – Sulphuric Acid – Hot plate/waterbath
5.	Chlorides, Cl. 3.2, & Table 1	– Standard Silver Nitrate Solution, – Concentrated Nitric Acid – Ferric Ammonium Sulphate Indicator – Standard Ammonium Thiocyanate Solution, – Nitrobenzene
6.	Sulphates, Cl. 3.2, & Table 1	– Concentrated Hydrochloric Acid – Barium Chloride Solution – Sintered Glass Crucible no 4 – Separating Funnel – oven
7.	Chlorates, Cl. 3.2, & Table 1	– Aniline Hydrochloride – Saturated potassium chlorate – Glass Stopper Bottle

8.	Perchlorates, Cl. 3.2, & Table 1	– Above Facilities and, – Wide-necked flask -300ml with cork – Reflux condenser, – An inlet tube (6 mm bore) – Short tube(12 mm bore) fitted with a cork. – Concentrated Hydrochloric Acid – Sulphur Dioxide, gas. – Dilute Sulphuric Acid, approximately 12 N., – Titanous Chloride Solution, 3 percent – Ammonium Thiocyanate Solution – Standard Ferric Ammonium Sulphate Solution, approximately 0.1 N – Potassium bichromate – Carbon Dioxide – Apparatus Assembly as per fig 1 & fig 2. – Rubber bunk board with 2 holes – Leading tube – Cork with glass lined hole – Potassium chlorate (Perchlorate free)
9.	Iodates, Cl. 3.2, & Table 1	– Standard Potassium Iodide Solution, – Sodium Hydroxide, one percent solution. – Hydrogen Peroxide, 3 percent solution. – Hydrogen Sulphide Gas – Ortho-Toluidine Solution – Nessler's cylinders – Litmus Paper
10.	Total calcium and magnesium or compounds of these metals calculated as oxides, Cl. 3.2, & Table 1	– Ammonium Ferrocyanide, one percent solution. – Ethyl Alcohol – Standard Calcium Carbonate Solution, – Hydrochloric acid
11.	Ammonium compounds, Cl. 3.2, & Table 1	– Mercuric iodide – Potassium iodide – Sodium hydroxide – 500 ml of water – Rubber stoppered borosilicate glass ware – Ammonium Chloride Solution
12.	pH, Cl. 3.2, & Table 1	– pH meter with glass electrodes – Sampling Scoop – Buffer solution – Arrangement for measurement of temperature
13	Sampling conditions, Cl B-1.2	– Sampling condition arrangement of (27±2) C room temperature and relative humidity of not more than 50 percent.

ANNEX B

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: Sodium nitrate for explosives and pyrotechnic industry manufactured at a time in a reaction vessel.

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.

1.4 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/empanelled 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 package of the product 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 package shall also be marked with the following additional requirement.

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		
Clause	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
3.1	Description	3.1	IS 12681	R	Manufacturer shall maintain adequate inspection and in process control, to ensure product meets specified requirements and maintain test records for tests involving Visual examination		
3.2	Assay	A-2	IS 12681	R	One Sample	Each Control Unit	-
	Moisture and volatile matter	A-3	IS 12681	R	One Sample	Each Control Unit	-
	Matter insoluble in water	A-4	IS 12681	R	One Sample	Each Control Unit	-
	Nitrites	A-5	IS 12681	R	One Sample	Each Control Unit	-
	Chlorides	A-6	IS 12681	R	One Sample	Each Control Unit	-
	Sulphates	A-7	IS 12681	R	One Sample	Each Control Unit	-
	Chlorates	A-8	IS 12681	R	One Sample	Each Control Unit	-
	Perchlorate	A-9	IS 12681	R	One Sample	Each Control Unit	-
	Iodates	A-10	IS 12681	R	One Sample	Each Control Unit	-
	Total calcium and magnesium or compounds of these metals calculated as oxides	A-11	IS 12681	R	One Sample	Each Control Unit	-
	Ammonium compounds	A-12	IS 12681	R	One Sample	Each Control Unit	-
	pH	A-13	IS 12681	R	One Sample	Each Control Unit	-