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उत्पाद मैनुअल
नाइट्रोबेंजीन— विशिष्टि
IS 2630: 2021 के अनुसार

**PRODUCT MANUAL FOR
NITROBENZENE— SPECIFICATION
ACCORDING TO IS 2630: 2021**

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 2630: 2021
	शीर्षक Title	:	NITROBENZENE— SPECIFICATION
	संशोधनों की संख्या No. of amendments	:	2
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirement
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	NA
c)	नमूने का परिमाण Sample Quantity	:	Minimum of 1L
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	:	Name of the Product:
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer to Annex-A
4.	निरीक्षण और परीक्षण की स्कीम	:	Please refer to Annex-B

	Scheme of Inspection and Testing	
5.	एक दिन में संभावित परीक्षण Possible tests in a day	
	All the tests mentioned in the IS are possible to be carried out in a day.	
6.	लाइसेंस का दायरा /Scope of the Licence:	
	IS 2630: 2021 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस नम्रलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है “Licence is granted to use Standard Mark as per IS 2630: 2021 with the following scope:	
	उत्पाद का नाम	NITROBENZENE
	Name of the product	

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

ANNEX- A

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

S. No.	Clause No.	Test Chemicals/ Equipment List
1.	Relative density at 27/27°C Cl.3.2. (Table 1)	– Density bottle or pycnometer – Analytical Balance – Distilled water – Filter paper – Weight Box – Thermometer – Thermostatically controlled water bath
2.	Distillation range at 760 mm Hg, Cl.3.2. (Table 1)	– Distillation Apparatus Assembly – Electric heater / Gas Burner – Distillation Flask of 125ml capacity – Distillation Receiver – Thermometer (Total Immersion Type) – Barometer – Liebig Condenser/Metallic Condenser – Draught Screen – Asbestos Board
3.	Crystallization Point, °C, Cl.3.2. (Table 1)	– Apparatus for determination of Crystallizing point – Thermometer Graduated at intervals of 0.1°C with a known maximum scale error of 0.1 °C – Crystallizing Tube of OD 25mm, Length 150mm – Outer Protection Tube of ID 28mm, Length 120 mm – Stirrer (glass or stainless steel with 20mm Dia and 30mm Stroke/Second) – Heating Bath Dewar Vessel <u>Reagents:-</u> Acetone, Solid CO₂, Ice, Dried Calcium Sulphate
4.	Moisture, percent by mass, Cl.3.2. (Table 1)	– Pyridine free Karl Fischer Reagent – Karl Fischer Titrator apparatus with electrometric end point detection – Analytical balance – Hot air Oven – Desiccator – Distilled water – Ice Bath – Glass wares – Thermometer <u>Reagents:-</u> Methanol, 2-Methoxyethanol, Iodine, Pyridine, Sulphur Di Oxide, Sodium Tartarate (Crystalline), Silicone Base Grease

5.	pH, Cl.3.2. (Table 1)	– pH Meter with glass electrodes – pH standard solutions (pH-4, pH-7.0, pH – 9) – Analytical Balance – Conical flask with stopper – Other Glasswares – Distilled Water – Hot plate – Cold water to cool the supernatant liquid
6.	Dinitrobenzene, percent by mass, Cl.3.2. (Table 1)	– Spectrophotometer (Range 190 nm to 800 nm) – Glass cell 10 & 50 mm – Weighing bottle – Measuring Flask – Glass Rod – Beakers – Rubber Bubbler – Pipettes – Acetone free from alcohol and aldehydes – Potassium Hydroxide solution 10% (M/V) – Meta dinitrobenzene, crystalline – Analytical Balance
7.	Assay Percentage by mass, Low Boiler (Benzene), percent by mass, High Boilers (o-NT, p-NT, m-dinitrobenzene) percent by mass, cl.3.2. (Table 1)	<u>As per Annex C -</u> – A suitable gas chromatograph with flame ionization detector and temperature programmer – Carrier Gas (H₂, N₂, Air) – Syringe, Micropipette – Volumetric Flask – Flow meter – Benzene, A. R. Grade – Nitrobenzene, A. R. Grade – ortho-Nitro Toluene, A. R. Grade – para -Nitro Toluene, A. R. Grade – meta-Dinitrobenzene, A. R. Grade <u>As per Annex D –</u> A suitable gas chromatograph with flame ionization detector and temperature programmer Carrier Gas (H₂, N₂, Air) Syringe, Micropipette Volumetric Flask Flow meter Benzene, A. R. Grade Nitrobenzene, A. R. Grade o-Nitrotoluene, A. R. Grade p-Nitrotoluene, A. R. Grade m-Nitrotoluene, A. R. Grade m-Dinitrobenzene, A. R. Grade

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:

For the guidance of manufacturers, the recommended definition of control unit is: the total quantity of the material manufactured under similar conditions in a day.

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

1.3.2 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".

2.2 Manufacturers shall also implement a calibration plan for the in-house test equipment.

2.2.1 In lieu of an in-house laboratory, 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).

2.3 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.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on the container 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:** container of the product shall also be marked with the following.

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	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
3.1.	Description	3.1	IS 2630	R	Firm to have adequate in-process controls to check compliance of this parameter as given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
3.2. (Table 1	Requirements for Nitrobenzene						
-do-	Relative density at 27/27°C	3.2	IS 5299	R	One	Each Control Unit	----
-do-	Distillation range at 760 mm pressure	-do-	IS 5299	R	One	Each Control Unit	-----
-do-	Crystallization Point	-do-	IS 5299	R	One	Each Control Unit	-----
-do-	Moisture, percent by mass	-do-	IS 2362	R	One	Each Control Unit	-----
-do-	pH	-do-	Annex A	R	One	Each Control Unit	-----
-do-	Dinitrobenzene, percent by mass	-do-	Annex B	R	One	Each Control Unit	-----
-do-	Assay, percent by mass	-do-	Annex C or D	R	One	Each Control Unit	-----
-do-	Low Boilers(Benzene), percent by mass	-do-	Annex C or D	R	One	Each Control Unit	-----
-do-	High Boilers (o-NT, p-NT, m-DNB), % by mass	-do-	Annex C or D	R	One	Each Control Unit	-----