



**उत्पाद मैनुअल
कास्टिक सोडा
IS 252: 2013 के अनुसार**

**PRODUCT MANUAL
FOR CAUSTIC SODA
ACCORDING TO IS 252:2013**

भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन (विनियम की स्कीम-I के तहत यह उत्पाद मानुअल प्रमाणीकरणके प्रचलन में रीति और पारदर्शिता के सुसंगत सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों एवं लाइसेन्स धारियों द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस लाइसेन्स/प्रमाण पत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग 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 252:2013
	शीर्षक Title	:	CAUSTIC SODA
	संशोधन संख्या No. of Amendments	:	2
2.	नमूनाकरण दिशा निर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	No specific requirement
b)	समूहिकरण दिशा निर्देश Grouping guidelines	:	Not Applicable
c)	नमूने का आकार Sample Size	:	500 gms each for Lye and/or solid.
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	कृपया Annex-ए देखें Please refer ANNEX –A
4.	निरीक्षण व परीक्षण स्कीम Scheme of Inspection and Testing	:	कृपया Annex-B देखें Please refer ANNEX –B
5.	एक दिन में संभावित परीक्षण Possible tests in a day :		

	a) Form and Description b) Relative density c) Sodium Carbonate, d) Sodium Hydroxide, e) Chlorides, f) Silicates. g) Iron, h) Copper, i) Manganese, j) Matter insoluble in water	
6.	Scope of the Licence :	
	IS 252:2013 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेन्स निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है। “Licence is granted to use Standard Mark as per IS 252:2013 with the following scope:	
	Name of the product	CAUSTIC SODA
	Form and Grade	Solid, Lye (Grade 1 and/or Grade 2)

BUREAU OF INDIAN STANDARDS
ManakBhawan, 9, Bahadur Shah Zafar Marg,
New Delhi – 110002

ANNEX-A
TO PRODUCT MANUAL FOR CAUSTIC SODA ACCORDING TO IS 252:2013

List of Test Equipments

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

Sl No	Test Equipment	Test Used and Clause of Standard
1	Density hydrometer	Relative Density or Concentration of Caustic Soda Lye
2	For Routine Tests Reagents: Hydrochloric Acid,1N Hydrochloric Acid,0.1N Methyl orange indicator solution Phenolphthalein indicator solution Distilled water	A-3.1 Double indicator method, Determination of carbonates
	Glassware: Burette Pipette Conical flask Indicator Dropping bottle	
3	Reagents: Hydrochloric Acid,1N Methyl orange indicator solution Distilled water	A-4, Determination of sodium Hydroxide
	Glassware: Burette Conical flask Measuring cylinder Indicator Dropping bottle	
4	Reagents: Weighing Balance Con.Nitric Acid Standard Silver nitrate solution, 0.1N Nitrobenzene Std Ammonium Thiocyanate Solution, 0.1N Ferric Ammonium sulphate indicator saturated solution Distilled water	A-5, Determination of Chlorides
	Glassware: Conical flask Measuring cylinder Pipette	

5	Reagents: Weighing Balance Hot Plate Hot Air Oven Conc.Hydrochloric Acid Barium Chloride solution, 10 Percent Distilled water	A-6, Determination of Sulphates
	Glassware: G No.4 Glass crucible Measuring cylinder Filtration assembly with vacuum pump	
6	Reagents: Dilute sulphuric Acid, 5N Ammonium molybdate solution, 1N Sodium citrate solution Anhydrous sodium sulphite 1-amino-2-naphthol-4-sulphonic acid Sodium bisulphite Sodium Carbonate, anhydrous Standard Silicate solution Distilled water	A-7, Determination of Silicates
	Glassware/Equipment Polyethylene bottle Volumetric plastic bottle Single marked pipette Nessler Cylinders or Spectrophotometer Weighing Balance	
7	Reagents: Conc.Hydrochloric Acid Ammonium persulphate Potassium Thiocyanate Solution or Ammonium Thiocyanate solution Ferrous Ammonium Sulphate Con.Sulphuric Acid Potassium Permanganate Distilled Water	A-8, Determination of Iron Iron may alternatively be estimated by the Instrumental method as prescribed at A-15
	Glassware/Equipment Nessler cylinder Pipette Water bath	
8	Reagents: Conc. Sulphuric Acid Litmus paper Ammonium Chloride Conc. Ammonium Hydroxide Citric Acid Solution Gum Acacia Suspension Tetrasodium Pyrophosphate solution Sodium Diethyl Dithiocarbamate solution Copper sulphate pentahydrate Distilled water	A-9, Determination of Copper Copper may alternatively be estimated by the Instrumental method as prescribed at A-15

	Glassware/Equipment Nessler Cylinders Weighing Balance Beaker Measuring cylinder Hot Plate Gooch Crucible with asbestos mat Filtration assembly with vacuum pump pH Meter	
9	Reagents: Distilled water Phosphoric Acid,85 percent Potassium periodate Manganese sulphate monohydrate Conc.Sulphuric Acid	A-10, Determination of Manganese Manganese may alternatively be estimated by the Instrumental method as prescribed at A-15
	Glassware/Equipment Weighing Balance Nessler Cylinders Beaker Measuring cylinder Hot Plate	
10	Reagents: Method A Ferrous ammonium sulphate solution Sulphuric Acid,1:1 (v/v) Potassium permanganate solution 0.1N Potassium Permanganate solution,0.02N	A-11, Determination of chlorates and perchlorates (as Sodium Chlorate) There are two methods namely method A and method B have been prescribed.
	Method B Ferrous ammonium sulphate solution Sulphuric Acid,1:1 (v/v) Phosphoric acid, 1 : 1 (v/v). Sodium diphenyl amine sulphonate solution Potassium dichromate solution	
	Glassware/Equipment Weighing Balance Beaker Conical flask Hot Plate Bunsen valve Oven Desiccator.	
11	Reagents: Conc.Hydrochloric Acid Distilled water	A-12, Determination of matter insoluble in water
	Glassware/Equipment Weighing Balance Beaker Measuring cylinder Glass rod Hot Plate Sintered glass crucible	

	Hot Air Oven	
12	Reagents: Nitric Acid, 10 percent Stannous chloride Conc. Hydrochloric acid Distilled water Tin metal Potassium Permanganate Mercuric Chloride, AR grade Hydroxylamine hydrochloride Conc. Nitric Acid, AR Grade Potassium dichromate	A-13, Determination of Total Mercury (as Hg) Mercury analyzer method is a reference method or by ICP method.
	Glassware/Equipment Mercury analyzer/AAS with Hydride generator attachment Weighing Balance Hot Plate Beakers Volumetric flask Pipette	
13	Inductively coupled Plasma Spectrometer – OES Reagents and Glasswares a) Ultra pure water : Resistivity 18.2 meg.ohm. b) Supra-pure Nitric acid. c) 50 ml Volumetric flask – Class A. d) Micropipette – 100 – 1 000 µl. e) Micropipette — 10 – 50 µl. f) Micro tips. Certified Reference Material a) ICP multi-element standard consisting of Iron, Copper, Manganese and Nickel (100 mg/l). b) ICP internal standard – Yttrium (1 000 mg/l). c) Argon – Hi-pure : Purity : 99.999 percent. d) Nitrogen – Hi-pure : Purity : 99.999 percent	A-15 Determination of iron, copper and manganese in sodium hydroxide solution by Inductively Coupled Plasma Optical Emission spectrometer (ICP-OES) method (Alternate Method)

The above list is indicative and may not be taken as exhaustive

ANNEX-B
TO PRODUCT MANUAL
FOR CAUSTIC SODA
ACCORDING TO IS 252:2013

(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 and implement 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. **PACKING AND MARKING** - The Standard Mark, as given in the Schedule of the licence, shall be marked on the packages/containers of Caustic Soda or printed on the label applied to it, provided always that the product so marked conform to requirements of the specification.
 - 3.1 Packing and marking shall be done as per the provision of IS 252:2013. In addition, the following details shall be mentioned on each container/package:
 - a) BIS Licence No. CM/L_____.
 - b) BIS website details i.e –“For details of BIS certification please visit www.bis.gov.in”.
 - 3.2 The precaution in handling and storing shall be observed as per cl. 4.0 of IS 252:2013.
 - 3.3 For repackaging units the following shall be marked in place of the 5.2 (b) of IS 252:2013
 - a) Name of original manufacturer of Caustic soda with BIS licence number
 - b) The Name of the Repackaging unit and his recognized trade mark, if any.
 - 3.4 The repackaging unit shall maintain details of the repackaged material, in format given in table 2
 - 3.5 For transportation and supplies of caustic soda lye in tankers/ tank cars and tank trucks, the Standard Mark as given in Schedule of the licence and Licence Number (i.e. CM/L.....) shall be incorporated on a test certificate to be provided along with each tank car/tank truck as per the format at **Appendix-1** enclosed, provided always that the product thus marked conforms to all the requirement of the specification. Packing shall be done as per provisions of Indian Standard and the details as per Cl 5.2 of IS 252:2013 shall also be indicated on the test certificate.
4. **CONTROL UNIT** - For the purpose of this scheme, two types of units producing caustic soda are envisaged. Manufacturing units are those units which manufacture and dispatch caustic soda and repacking units are those which procure ISI marked caustic soda from a caustic soda manufacturing unit holding valid BIS licence, repack it and dispatch it under their own mark. The following definitions of control unit shall apply:-
 - 4.1 Manufacturing Unit - For the purpose of this scheme, each form of caustic soda and each grade (as applicable) produced in a continuous run in a day shall constitute a control unit.

- 4.2 For Repackaging unit: The entire quantity of material repackaged in one day from a single batch of ISI marked caustic soda received shall constitute one control unit.
- 5. **LEVELS OF CONTROL** -The tests as indicated in column 1 of Table 1 and the levels of the 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 **REJECTIONS** - Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of the provisions of BIS Act, 2016.

TABLE 1**Para 5.0 of the Scheme of Inspection and Testing**

(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				
3.1 &3.1.1	Form and Description	3.1 & 3.1.1	IS 252:2013	R	Firm to have adequate in-process controls to ensure compliance to this parameter of the Indian Standard and appropriate records shall be maintained for evidence of conformity		
3.2	Relative Density or concentration	-	IS 4016	R	one	Each control unit	
3.3, 3.4 &Table 1	Sodium Carbonate	A-3	IS 252:2013	R	-do-	-do-	
3.3, 3.4 & Table 1	Sodium hydroxide Grade 1, Grade 2, Solid	A-4	-do-	R	-do-	-do-	Test for Grade 1 and Grade 2 are applicable for lye only
-do-	Sodium hydroxide (as NaoH) on dry basis	A-14	-do-	R	-do-	-do-	
3.3, 3.4 & Table 1	Chlorides (as Cl)	A-5	-do-	R	-do-	-do-	
-do-	Sulphate, (as So4)	A-6	-do-	R	-do-	-do-	
-do-	Silicate (as SiO2)	A-7	-do-	R	-do-	-do-	
-do-	Iron, (as Fe)	A-8& 15	-do-	R	-do-	-do-	
-do-	Copper (as Cu)	A-9& A 15	-do-	R	-do-	-do-	
-do-	Manganese (as Mn)	A- 10 & A 15	-do-	R	-do-	-do-	
-do-	Chlorates and perchlorate	A-11	-do-	R	-do-	-do-	
-do-	Matter insoluble in water	A-12	-do-	R	-do-	-do-	

-do-	Total mercury	A-13	-do-	S	-do-	Once in three Months	
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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.

TABLE 2
RECORD OF CAUSTIC SODA (REPACKAGED)
AS PER IS 252:2013

Sl. No.	Name of the manufacturer	Particulars of test reports received with C.U/Batch no.	Date of manufacture	Quantity received	Date of receipt	Date of repacking	Batch no.	Details of repacking		Total quantity repacked	Details of dispatch
								Size of Packing	No.		
1	2	3	4	5	6	7	8	9	10	11	12

Appendix-1**TEST CERTIFICATE**

XYZ COMPANY (REGISTERED OFFICE ADDRESS AND WORKS ADDRESS)

TEST CERTIFICATE FOR CAUSTIC SODA (in Lye form)

TEST CERTIFICATE NO. _____ DATED _____

SUPPLIED TO M/s _____ (Name and Address of Consignee)

It is certified that the material described below fully conforms to IS **252:2013**.

The properties of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks Licence No. CM/L _____ are as indicated below against each order no. etc.

(PLEASE REFER TO IS 252:2013 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order no and date	Name of the material	Requirement	Observed Value	Control Unit/Batch Number	Month and Year of Packaging	Quantity	Remarks
		Form and Description					
		Relative Density or concentration					
		Sodium Carbonate					
		Sodium hydroxide Grade 1/Grade 2,					
		Sodium hydroxide (as NaOH) on dry basis					
		Chlorides (as Cl)					
		Sulphate, (as SO ₄)					
		Silicate (as SiO ₂)					
		Iron, (as Fe)					
		Copper (as Cu)					
		Manganese (as Mn)					
		Chlorates and perchlorate					
		Matter insoluble in water					
		Total mercury					

The material supplied conforms to specified requirements of IS **252:2013**.**REMARKS:**

Tank Car / Tank Truck / Container ship no.

(Signature)
For XYZ Company

MATERIAL SUPPLIED BY

Name and Address of manufacturer:

Recognized Trade Mark if any:

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