



**PRODUCT MANUAL FOR
SPECIFICATION FOR SODIUM CHLORATE
ACCORDING TO IS 5301:1987**

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.	Product	:	IS 5301: 1987
	Title	:	Specification for Sodium Chlorate
	No. of Amendments	:	2
2.	Sampling Guidelines:		
a)	Raw material	:	-
b)	Grouping guidelines	:	Not applicable - Each grade of sodium chlorate i.e. pure and technical shall need to be tested to cover that particular variety (Grade) in the scope of the Licence.
c)	Sample Size	:	Minimum of 500 g
3.	List of Test Equipment	:	Please refer ANNEX – <u>A</u>
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – <u>B</u>
5.	Possible tests in a day :		
	All the tests mentioned in the IS are possible to be carried out in a day except for Nitrogen Compounds, Alkaline earth.		
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 5301:1987with the following scope:		
	Name of the product	Sodium Chlorate	
	Grade/Variety	As Applicable (Pure/Technical)	

ANNEX A

List of Test Equipment

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference		Test Equipment
	Test	Clause	
1.	Description	3.1	Visual
2.	Sodium Chlorate (as NaClO ₃)	Appendix A-2	<p>Weighing balance (0-200 grams/0.1 mg), Distilled water, 250-ml conical flask, volumetric flask, Closed vessel, dessicator, hot plate/burner, thermometer, Titration apparatus</p> <p>Potassium Dichromate (AR Grade), ferrous ammonium sulphate (AR grade), 4N sulphuric acid, ortho phosphoric acid, sodium diphenyl amine sulphonate</p>
3.	Insoluble matter	Appendix A-3	<p>Weighing balance (0-200 grams/0.1 mg)</p> <p>Distilled water</p> <p>Drying oven (0-200 degree Celsius/ 1 degree Celsius)</p> <p>Beaker with cover</p> <p>Water bath</p> <p>Gooch or sintered glass crucible G. No. 4</p>
4.	Chlorides (as Cl)	Appendix A-4	<p>Weighing balance (0-200 grams/0.1 mg)</p> <p>Distilled water</p> <p>Nessler Cylinders — 50 ml capacity</p> <p>Concentrated Nitric Acid</p> <p>Silver Nitrate Solution — 4 percent (m/v)</p> <p>sodium chloride</p> <p>Drying oven (0-200 degree Celsius/ 1 degree Celsius)</p>
5.	Sulphates (as SO ₄)	Appendix A-5	<p>Weighing balance (0-200 grams/0.1 mg)</p> <p>Distilled water</p> <p>Nessler Cylinders — 50 ml capacity</p> <p>Dilute Hydrochloric Acid — 1 N</p> <p>Barium Chloride Solution — 10 percent (m/v)</p> <p>ignited sodium sulphate (Na₂SO₄)</p>
6.	Bromates (as BrO ₃)	Appendix A-6	<p>Weighing balance (0-200 grams/0.1 mg), volumetric flask, titration apparatus</p> <p>Distilled water</p> <p>Dilute Hydrochloric Acid — 1 N</p> <p>Potassium Iodide Solution — 10 percent (m/v)</p> <p>Standard Sodium Thiosulphate Solution — 0.1 N freshly prepared</p> <p>Pure Starch</p> <p>Mercuric iodide</p> <p>Water bath/Hot plate</p> <p>Sodium Chlorate — bromate free</p>
7.	Heavy metals (asPb)	Appendix A-7	<p>Weighing balance (0-200 grams/0.1 mg)</p> <p>Distilled water</p> <p>Nessler Cylinders — 50 ml capacity</p> <p>p-Nitrophenol Indicator Solution</p> <p>Dilute Ammonium Hydroxide — 1: 9 (v/v)</p> <p>Dilute Hydrochloric Acid — 0.1 N</p>

			Hydrogen Sulphide Solution — saturated and freshly prepared lead nitrate
8,	Iron (as Fe)	Appendix A-8	Weighing balance (0-200 grams/0.1 mg) Distilled water Nessler Cylinders — 50 ml capacity Concentrated Hydrochloric Acid Ammonium Persulphate Potassium Thiocyanate n-butanol Ammonium ferrous sulphate Dilute sulphuric acid Steam bath
9.	Nitrogen compounds (as N)	Appendix A-9	Weighing balance (0-200 grams/0.1 mg) Distilled water , bottle with rubber stopper Nessler Cylinders — 50 ml capacity Sodium Hydroxide Solution — 10 percent Devarda's Alloy Potassium iodide Mercuric chloride solution Potassium hydroxide Ammonia-free water Ammonium chloride Distillation setup
10.	Alkaline Earths	Appendix A-10	Weighing balance (0-200 grams/0.1 mg) Distilled water Hydrochloric Acid Ammonium Oxalate Ammonium Phosphate Ammonium Hydroxide — 2 N Water bath/Hot plate Muffle furnace
11.	Arsenic (as As ₂ O ₃)	Appendix A-11 and IS 2088:1983	Weighing balance (0-200 grams/0.1 mg) Distilled water Evolution and Absorption Apparatus Spectrophotometer (having Visible range) with 10 mm cells Arsenic trioxide, Hydrochloric acid, Potassium iodide, Stannous chloride, Silver diethyldithiocarbamate, Pyridine, Zinc granules

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

ANNEX B

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 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 marked on the container of sodium chlorate provided always that material so marked conform to requirements of the specification.

3.1 Packing and Marking shall be done as per the provisions of the Indian Standard. In addition, the following shall be incorporated on each container:

i) BIS Licence Number CM/Land

ii) BIS website details i.e. “For details of BIS certification please visit www.bis.gov.in”.

5. CONTROL UNIT – For the purpose of this scheme, the entire quantity of the material produced in one day shall constitute a control unit.

6. 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.

6.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

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

(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	Description	3.1	IS 5301:1987	R	One	Every Control Unit	Visual
3.2, Table 1, Sl. No. (i)	Sodium Chlorate (as NaClO ₃)	Appendix A-2	IS 5301:1987	R	-do-	-do-	-
3.2, Table 1, Sl. No. (ii)	Insoluble matter	Appendix A-3	IS 5301:1987	R	-do-	-do-	
3.2, Table 1, Sl. No. (iii)	Chlorides (as Cl)	Appendix A-4	IS 5301:1987	R	-do-	-do-	
3.2, Table 1, Sl. No. (iv)	Sulphates (as SO ₄)	Appendix A-5	IS 5301:1987	R	-do-	-do-	
3.2, Table 1, Sl. No. (v)	Bromates (as BrO ₃)	Appendix A-6	IS 5301:1987	R	-do-	-do-	
3.2, Table 1, Sl. No. (vi)	Heavy metals (as Pb)	Appendix A-7	IS 5301:1987	S	-do-	Once in a month	
3.2, Table 1, Sl. No. (vii)	Iron (as Fe)	Appendix A-8	IS 5301:1987	R	-do-	Every Control Unit	
3.2, Table 1, Sl. No. (viii)	Nitrogen compounds (as N)	Appendix A-9	IS 5301:1987	S	-do-	Once in a month	Applicable for Pure grade only
3.2, Table 1, Sl. No. (ix)	Alkaline Earths	Appendix A-10	IS 5301:1987	S	-do-	Once in a month	
3.2, Table 1, Sl. No. (x)	Arsenic (as As ₂ O ₃)	Appendix A-11	IS 5301:1987	S	-do-	Once in a month	Applicable for Pure grade only

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.