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उत्पाद मैनुअल

सोडियम बाईकारबोनेट IS 2124: 2023 के अनुसार

PRODUCT MANUAL FOR SODIUM BICARBONATE ACCORDING TO IS 2124:2023

भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम 2018 की स्कीम-I के तहत यह उत्पाद मैनुअल प्रमाणीकरण की संचालन रीति में सुसंगतता और पारदर्शिता 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	:	2124:2023
	शीर्षक Title	:	SODIUM BICARBONATE
	संशोधन संख्या No. of Amendments	:	0
2.	नमूनाकरण दिशानिर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	No specific requirement
b)	समूहिकरण दिशानिर्देश Grouping guidelines	:	Sample of each grade shall be tested.
c)	नमूने का आकार Sample Size	:	500 grams
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer ANNEX - A
4.	निरीक्षण व परीक्षण स्कीम Scheme of Inspection and Testing		Please refer ANNEX - B

5.	एक दिन में संभावित परीक्षण Possible tests in a day:	:	i) Description ii) Total alkalinity (as NaHCO₃), percent by mass iii) pH iv) Chlorides (as Cl), percent by mass v) Insoluble matter, percent by mass vi) Sulphates (as SO₄), percent by mass vii) Iron(as Fe), percent by mass viii) Heavy metals (as Pb), parts per million ix) Arsenic (as As),parts per million x) Ammonium compounds (as NH₄), parts per million xi) Phosphates (as PO₄), percent by mass xii) Calcium and Magnesium (as Ca), percent by mass xiii) Nitrates (as NO₃), percent by mass xiv) Potassium (as K), percent by mass xv) Silicates (as SiO₂), percent by mass
6.	लाइसेन्स का कार्यक्षेत्र/ Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 2124:2023 with the following scope:		
	Name of the product	SODIUM BICARBONATE	
	Grade	Pure grade, Analytical reagent grade, Refined grade	

ANNEX-A
TO PRODUCT MANUAL FOR
Sodium Bicarbonate
According to IS 2124:2023

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
1.	Total Alkalinity (as NaHCO_3), Clause 4.2 and Table 1, Sl No. (i)	i) Analytical Balance ii) Burette iii) Conical flask iv) Standard Hydrochloric acid (1.0 N) v) Standard Hydrochloric acid (0.1N) vi) Methyl Orange or Bromothymol Blue Indicator vii) Distilled Water
2.	pH, Clause 4.2 & Table 1 Sl. No. (ii)	Electrometric Method : pH meter or Indicator Method : i) Bromothymol Blue Indicator ii) Rectified Spirit iii) Analytical Balance iv) Buffer Solutions (range 8-9)
3.	Chloride (as Cl), Clause 4.2 and Table 1, Sl No. (iii)	Volumetric method: i) Analytical Balance ii) Hot air oven iii) Dessicators iv) Nessler Cylinders v) Burette and Pipette vi) Conc. Nitric acid (Conforming to IS 264) vii) Standard AgNO_3 (0.1N) viii) Nitrobenzene ix) Standard ammonium thiocyanate solution (0.1N) x) Ferric ammonium sulphate indicator or Spectrophotometric Method: i) Spectrophotometer ii) Platinum evaporating Dish iii) Hot Water Bath iv) Volumetric Flask v) Beaker vi) Ferric Ammonium Sulphate Dodecahydrate vii) Nitric acid viii) Mercury Thiocyanate solution ix) Concentrated Sulphuric acid

		x) Analytical Balance xi) Hot Air Oven xii) A.R. sodium chloride xiii) Filter Paper Or Ion Chromatography Method i) Anion guard column ii) Anion Separator Column iii) Anion Suppressor device iv) Detector v) Software vi) Distilled water vii) Sodium bicarbonate viii) Sodium carbonate ix) Conc. Sulphuric acid x) Sodium chloride xi) Potassium sulphate xii) Sodium nitrate
4.	Insoluble matter, Clause 4.2 and Table 1, Sl No. (iv)	i) Analytical Balance ii) Gooch crucible and Sintered glass crucible iii) Hot air oven iv) Beaker v) Distilled Water
5.	Sulphates (as SO ₄), Clause. 4.2 and Table 1 Sl.No. (v)	Gravimetric method i) Analytical Balance ii) Hot air oven iii) Crucible iv) Beaker v) Filter paper vi) Concentrated HCl vii) Barium chloride solution viii) Distilled water ix) Nessler cylinders x) Water Bath xi) Potassium sulphate or Turbidimetric method i) Spectrophotometer ii) Evaporating dish iii) Water Bath iv) Hot air oven v) Filter paper vi) Sodium carbonate vii) Barium chloride Ion Chromatography Method i) Anion guard column ii) Anion Separator Column iii) Anion Suppressor device iv) Detector v) Software

		vi) Distilled water vii) Sodium bicarbonate viii) Sodium carbonate ix) Conc. Sulphuric acid x) Sodium chloride xi) Potassium sulphate xii) Sodium nitrate
6.	Iron (as Fe), No. Clause 4.2 and Table, Table 1 Sl. No. (vi)	i) Analytical Balance ii) Hot air oven iii) Dessicators iv) Nessler cylinders v) Concentrated Hcl vi) Ammonium persulphate vii) n-butanol viii) Potassium thiocyanate ix) Ferrous ammonium sulphate x) Sulphuric acid ICP-OES Method i) Inductively Coupled Plasma-Optical Emission Spectrophotometer ii) Nitric acid (65%) Suprapure iii) Certified Stock Solution of 10 µg/ml, 100 µg/ml or 1000 µg/ml of Iron iv) Distilled water
7.	Heavy metals (as pb), Clause. 4.2 and Table 1, Sl. No. (vii)	• Visual colour comparison: i) Analytical Balance ii) Water bath iii) Nessler cylinder iv) Volumetric flask v) Hydrogen sulphide solution vi) Acetic acid (1 N) vii) Lead nitrate - Concentrated Hclor - Spectrophotometric : i) Spectrophotometer ii) pH meter iii) Fume cupboard

		iv) Separating funnels v) Lead nitrate vi) Distilled water vii) Chloroform viii) Dithizone reagent ix) Potassium cyanide x) Concentrated ammonia xi) Sodium sulphite xii) HCl ICP-OES Method i) Inductively Coupled Plasma-Optical Emission Spectrophotometer ii) Nitric acid (65%) Suprapure iii) Certified Stock Solution of 10 µg/ml, 100 µg/ml or 1000 µg/ml of Lead iv) Distilled water
8.	Arsenic (as As), Clause 4.2 and Table 1, Sl No. (viii)	i) Gutzeit apparatus ii) Analytical Balance iii) Arsenic trioxide iv) Distilled Water ICP-OES Method i) Inductively Coupled Plasma-Optical Emission Spectrophotometer ii) Nitric acid (65%) Suprapure iii) Certified Stock Solution of 10 µg/ml, 100 µg/ml or 1000 µg/ml of Arsenic iv) Distilled water
9.	Ammonium compounds (as NH ₄), Clause 4.2 and Table 1 Sl No. (ix)	i) Analytical Balance ii) Nessler Cylinders iii) Devarda's alloy iv) Muffle furnace v) Hessian crucible vi) Iron rod vii) Potassium iodide viii) Mercuric chloride ix) Potassium hydroxide x) Sintered glass crucible xi) Litmus paper xii) Sodium hydroxide solution

10.	Phosphates (as PO ₄), Clause 4.2 and Table 1, Sl. No. (x)	• Visual colour comparison i) Nessler cylinders ii) Water bath iii) Distilled water iv) Analytical balance v) Dilute Suphuric acid vi) Ammonium molybdate vii) Sodium metabisulphite viii) Methyl-p-aminophenol ix) Potassium dihydrogen phosphate - or • Spectrophotometric: i) Spectrophotometer ii) Platinum evaporating dish iii) Volumetric flask iv) Filter paper v) Analytical balance vi) Perchloric acid vii) Ammonium molybdatetetrhydrate viii) Distilled water ix) Sulphuric acid
		x) 1-amino 2- naphthol 4- sulphonic acid xi) A.R. Potassium dihydrogen phosphate xii) Water bath xiii) Conductivity meter
11.	Calcium and Magnesium (as Ca), Clause 4.2 and Table 1, Sl No. (xi)	i) Analytical balance ii) Hot air oven iii) Conical flask iv) Burette v) Calcium carbonate vi) Distilled Water vii) Hcl viii) EDTA solution ix) Eriochrome Black T indicator solution x) Ammonium chloride xi) Ammonium hydroxide xii) Disodium ethylene diamine tetraacetate dehydrate xiv) Magnesium sulphate ICP-OES Method i) Inductively Coupled Plasma-Optical Emission Spectrophotometer ii) Nitric acid (65%) Suprapure iii) Certified Stock Solution of 10 µg/ml, 100 µg/ml or 1000 µg/ml of Calcium & Magnesium iv) Distilled water
12.	Copper (as Cu), Clause 4.2 and Table 1, Sl No. (xii)	i) pH meter ii) Analytical balance

		iii) Nessler cylinders iv) Concentrated HCl v) Concentrated HNO₃ vi) Citric acid vii) Ammonium hydroxide viii) Sodium diethyldithiocarbamate ix) Copper sulphate pentahydrate x) Chloroform or • Spectrophotometric : i) Spectrophotometer ii) Platinum dish iii) Analytical balance iv) Distilled water v) HCl vi) EDTA solution vii) Sodium diethyldithiocarbamate solution viii) Copper solution ix) Volumetric flask x) Ammonium hydroxide solution xi) Carbon tetra chloride xii) Phenolphthalein xiii) Separatory funnels xiv) Water bath xv) Filter paper
3.	Nitrates (as NO ₃) Clause 4.2 and Table 1 Sl No. (xiii)	i) Analytical balance ii) Indigo carmine solution iii) Concentrated sulphuric acid (iv) Potassium nitrate (v) Concentrated hydrochloric acid Ion Chromatography Method i) Anion guard column ii) Anion Separator Column iii) Anion Suppressor device iv) Detector v) Software vi) Distilled water vii) Sodium bicarbonate viii) Sodium carbonate ix) Conc. Sulphuric acid x) Sodium chloride xi) Potassium sulphate xii) Sodium nitrate

14.	Silicates (as SiO ₂), Clause 4.2 and Table 1, Sl. No. (xiv)	• Visual comparison method i) Analytical balance ii) Platinum crucible iii) Silica iv) Nessler cylinders v) Dilute sulphuric acid vi) Ammonium molybdate solution vii) Sodium citrate solution viii) Potassium metabisulphite solution ix) Anhydrous sodium carbonate • Spectrophotometric: i) Spectrophotometer ii) pH meter iii) Platinum crucible with lid iv) Dessicator v) Muffle furnace vi) Boric acid solution vii) Sodium fluoride solution viii) Sodium metabisulphite ix) 4-amino-3-hydroxyl naphthalene-1-sulphonic acid x) Sodium sulphite xi) Ascorbic acid xii) Oxalic acid xiii) Sodium molybdate xiv) Sulphuric acid xv) Distilled water
15.	Potassium (as K), Clause 4.2 and Table 1, Sl. No. (xv)	i) Flame photometer ii) Potassium chloride iii) Distilled water iv) Measuring flask v) Analytical balance vi) Conductivity meter (Galvanometer)
16.	Substances reducing iodine, Clause 4.2 and table 1, Sl. No. (xvi)	i) Analytical balance ii) Burette and pipette iii) Hot air oven iv) Water bath v) Starch vi) Mercuric chloride vii) Distilled water

ANNEX – B

**TO PRODUCT MANUAL FOR
Sodium Bicarbonate
According to IS 2124:2023
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 license shall be incorporated on each package of the material provided that Sodium Bicarbonate in the package thus marked conforms to the requirement of the specification.
 - 3.1 Packing and Marking shall be done as per the provisions of IS 2124:2000. In addition, details of BIS Certification i.e. BIS Licence Number CM/L – and BIS website shall be marked on the package as follows “For details of BIS certification please visit www.bis.gov.in”
4. **CONTROL UNIT** – For the purpose of this scheme, **Sodium Bicarbonate of same grade manufactured from the same raw material continuously in a day shall constitute a Control unit.**
5. **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.
 - 5.1 All the production which conforms to the Indian Standard 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 provisions of BIS Act, 2016.

Table 1
LEVELS OF CONTROL
(Scheme of Inspection and Testing)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: Required (or) S: Sub-contracting permitted	Levels of Control		
Clause	Requirements	Test Method			No. of Samples	Frequency	Remarks
		Clause	Reference				
4.1	Description	4.1	IS 2124:2023	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
4.2 & Table 1	Total Alkalinity (as NaHCO ₃)	Annex A	IS 2124:2023	R	One	Each Control Unit	
-do-	pH	Annex B	IS 2124:2023	R	One	Each Control Unit	
4.2 & Table 1	Chloride (as Cl)	Annex C or Annex T	IS 2124:2023	R	One	Each Control Unit	
4.2 & Table 1	Insoluble matter	Annex D	IS 2124:2023	R	One	Each Control Unit	
4.2 & Table 1	Sulphate (as SO ₄)	Annex E or Annex T	IS 2124:2023	R	One	Each Control Unit	
4.2 & Table 1	Iron (as Fe)	Annex F or Annex S	IS 2124:2023	R	One	Each Control Unit	
4.2 & Table 1	Heavy Metals (as pb)	Annex G or Annex S	IS 2124:2023	R	One	Each Control Unit	

4.2 & Table 1	Arsenic (as As)	Annex H or Annex S	IS 2124:2023	R	One	Each Control Unit	
4.2 & Table 1	Ammonium compounds (as NH ₄)	Annex J	IS 2124:2023	R	One	Each Control Unit	Not required for refined grade.
4.2 & Table 1	Phosphates (as PO ₄)	Annex K	IS 2124:2023	R	One	Each Control Unit	Not required for pure grade and refined grade.
4.2 & Table 1	Calcium (as Ca) and Magnesium (as Mg)	Annex L or Annex S	IS 2124:2023	R	One	Each Control Unit	-do-
4.2 & Table 1	Copper (as Cu)	Annex M	IS 2124:2023	R	One	Each Control Unit	Not required for analytical reagent grade.
4.2 & Table 1	Nitrates (as NO ₃)	Annex N or Annex T	IS 2124:2023	R	One	Each Control Unit	Not required for pure grade and refined grade.
4.2 & Table 1	Silicates (as SiO ₂)	Annex P	IS 2124:2023	R	One	Each Control Unit	-do-
4.2 & Table 1	Potassium (as K)	Annex Q	IS 2124:2023	R	One	Each Control Unit	-do-
4.2 & Table 1	Substances reducing iodine	Annex R	IS 2124:2023	R	One	Each Control Unit	-do-

Note-1: Whether test equipment is required or sub-contracting in column 2 shall be decided by the Bureau and shall be mandatory.

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.

