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उत्पाद मानुयल
अमोनिया लिकर विशिष्टि
IS 799:2023 के अनुसार

PRODUCT MANUAL FOR
AMMONIA, LIQUOR - SPECIFICATION
ACCORDING TO IS 799:2023

विनियम 2018 की स्कीम-I के तहत यह उत्पाद मानुयल प्रमाणीकरणके प्रचलन मे रीति और पारदर्शिता के सुसंगता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों एवं लाइसेन्स धारियों द्वारा संदर्भ सामग्री के रूप मे 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 799:2023
	शीर्षक **Title**	:	AMMONIA, LIQUOR
	संशोधन संख्या **No. of Amendments**	:	nil
2.	**नमुनाकरण दिशा निर्देश** **Sampling Guidelines:**		
	कच्चा माल **Raw material**	:	No specific raw material requirement
b)	**समूहिकरण दिशा निर्देश** **Grouping guidelines**	:	Separate samples for each grade to tested to be covered in the scope of the licence.
c)	**नमूनेका परिमाण** **Sample Size**	:	2 x 500 ml.
3.	**परीक्षण उपकरणो की सूची** **List of Test Equipment**	:	कृपया ANNEX – A देखे Please refer ANNEX – A
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4.	**निरीक्षण व परीक्षण स्कीम** **Scheme of Inspection and Testing**	:	कृपया ANNEX – B देखे Please refer ANNEX – B
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.	**लाइसेन्स का कार्यक्षेत्र /Scope of the Licence :**		
	IS 799 :2023): के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेन्स निम्नलिखित कार्यक्षेत्रके लिए प्रदान किया जाता **Licence is granted to use Standard Mark as per IS 799:2023 with the following scope:**		
	उत्पाद का नाम **Name of the product**	Ammonia, Liquor	
	Grades	a) Technical grade b) Analytical reagent grade	

ANNEX A
TO THE PRODUCT MANUALFOR
AMMONIA, LIQUOR- SPECIFICATION
AS PER IS 799:2023

List of Test Equipment

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Ammonia, percent by mass (clause 4.2, Table 1)	**A. Method A** i) Standard sulphuric acid – 0.5 N ii) Methyl red indicator iii) Caustic soda solution- 0.5 N freshly iv) Ground glass stoppered weighing bottle v) Pipettes vi) Glass tube vii) Weighing balance viii) Beakers ix) Glass rod x) Titration Assembly xi) Measuring cylinders **B. Method B** i) Boric acid - 2 Percent ii) Standard sulphuric acid solution-0.5 N iii) Methyl red 0.1 Percent iv) Ground glass stoper v) Ethanol vi) Spherical glass ampoule vii) Weighing balance viii) Beakers ix) Measuring Cylinders x) Filter paper xi) Bunsen burner xii) Conical flask with a ground glass stopper xiii) Glass rod xiv) Titration Assembly
2.	Residue on evaporation (clause 4.2, Table 1)	i) Volumetric Flask ii) Platinum crucible/other suitable dish iii) Steam Bath iv) Fume cupboard v) Weighing balance
3.	Carbonate (As CO2) (clause 4.2, Table 1)	i) Nessler Cylinders ii) Barium Hydroxide Solution iii) Standard Sodium Carbonate (Anhydrous) Solution iv) Weighing Balance v) Pipette vi) Distilled water
4.	Chlorides (as Cl) (clause 4.2, Table 1)	i) Steam Bath ii) Silver Nitrate Solution iii) Dilute Nitric Acid iv) Sodium chloride v) Nessler cylinders

		vi) Weighing balance vii) Measuring Cylinders viii) Pipettes ix) Volumetric flasks(1000 ml) x) Heater/Hot air oven <u>Alternate method (Ion Chromatography)</u> xi) Anion Guard Column xii) Anion Separator Column xiii) Anion Suppressor Device xiv) Conductivity detector xv) Distilled Water xvi) Software Devices xvii) Glass/Polyethylene Sample Bottles xviii) sodium bicarbonate xix) Micromembrane Suppressor Solution xx) Sodium Chloride xxi) Potassium Sulphate xxii) PTTE/HDPE beaker
5.	Phosphate (as PO4), Silicate (as Si02) (clause 4.2, Table 1)	**A. <u>Colorimetric Method</u>** i) Separating funnels ii) pH meter with glass electrode / Universal standard indicator paper iii) Nessler cylinders iv) Dilute Sulphuric Acid v) Solid Ammonium Molybdate vi) Concentrated Hydrochloric Acid vii) Dilute Hydrochloric Acid viii) Ethyl Ether ix) Stannous Chloride Solution x) n-Butanol xi) Potassium dihydrogen orthophosphate xii) Standard Silicate Solution xiii) Standard Phosphate Solution xiv) Sodium carbonate xv) Polyehthylene Bottle xvi) Volumetric Flasks xvii) Measuring Cylinders xviii) Pipette xix) Beakers xx) Weighing Balance. xxi) Steam Bath xxii) Hot plate <u>Spectrophotometric method</u> i) Ammonium molybdate ii) Standard phosphate solution iii) Strong acid solution iv) Phenolphthalein indicator v) Ammonium molybdate solution vi) Amino-naphthol sulphonic acid vii) Spectrophotometer viii) Sodium bicarbonate ix) Oxalic acid solution x) *Dilute sulphuric acid* xi) *Dilute hydrochloric acid*

		xii) *Steam bath* xiii) *Oxalic acid solution* xiv) *Standard silica solution* xv) *Reducing agent*
6.	Sulphate (as SO4) (clause 4.2, Table 1)	i) Pipettes ii) Measuring Cylinders iii) Weighing balance iv) Beakers v) Volumetric Flasks vi) Nessler Cylinders vii) Ordinary Denatured Spirit viii) Dilute Hydrochloric Acid ix) Barium Chloride Solution x) Sodium sulphate xi) Steam bath <u>Alternate method (Ion Chromatography)</u> i) Anion Guard Column ii) Anion Separator Column iii) Anion Suppressor Device iv) Conductivity detector v) Distilled Water vi) Software Devices vii) Glass/Polyethylene Sample Bottles viii) sodium bicarbonate ix) Micromembrane Suppressor Solution x) Sodium Chloride xi) Potassium Sulphate xii) PTTE/HDPE beaker
7.	Sulphide (as S) (clause 4.2, Table 1)	i) Pipettes ii) Measuring Cylinders iii) Weighing balance iv) Beakers v) Potassium Plumbite ~~vi)~~ Nessler cylinder
8.	Arsenic (as As) (clause 4.2, Table 1)	i) Standard Arsenic Stock Solution Conc.Hydrochloric Acid ii) Potassium Iodide Solution (15% m/v)Stannous Chloride Solution iii) Absorbent Cotton wool Impregnated with Lead AcetateZinc Granules iv) Silver Diethyldithiocarbamate solution v) Spectrophotometer or Photoelectric Absorptiometer Evolution and Absorption Apparatus <u>INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETER (ICP-OES) METHOD</u> i) Nitric acid ii) Certified stock solution iii) Standard solution iv) HDPE/PP/PTFE container
9	Calcium and Magnesium (as Ca)	i) Weighing Balance ii) Pipettes

	(clause 4.2, Table 1)	iii) Measuring flasks iv) Volumetric flasks v) Beakers vi) Ammonium chloride vii) Ammonia solution viii) Sodium Sulphide Solution ix) EDTA Solution x) Methylthymol Blue Indicator xi) Steam bath xii) Titration Assembly <u>INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETER (ICP-OES) METHOD</u> i) Nitric acid ii) Certified stock solution iii) Standard solution iv) HDPE/PP/PTFE container
10	Copper (as Cu) (clause 4.2, Table 1)	i) Weighing Balance ii) Pipettes iii) Measuring flasks iv) Volumetric flasks v) Beakers vi) Nessler Cylinders vii) Dilute Sulphuric Acid viii) Diethylammonium diethyldithiocarbamate Solution ix) Cupric sulphate x) Carbon Tetrachloride xi) Steam bath xii) dilute sulphuric acid. xiii) Spectrometry method
11	Iron (as Fe) (clause 4.2, Table 1)	**Method A. Colorimetric Method** i) Weighing Balance ii) Pipettes iii) Measuring flasks iv) Volumetric flasks v) Beakers vi) Nessler cylinders vii) Dilute Hydrochloric Acid viii) Potassium Permanganate Solution ix) Amyl Alcohol x) Amyl Acetate xi) Ammonium ferrous sulphate xii) Sulphuric acid xiii) Ammonium Thiocyanate Solution xiv) Steam bath xv) Evaporating Vessel **A. Spectrophotometric Method** i) Weighing Balance ii) Pipettes iii) Measuring Cylinders iv) Volumetric flasks v) Beakers vi) Spectrophotometer

		vii) Conc. Sulphuric Acid viii) Hydroxylamine Hydrochloride Solution ix) Ammonium Acetate Solution x) α-α-Dipyridyl Solution xi) Ammonia Solution xii) Ferrous ammonium sulphate xiii) Steam Bath INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETER (ICP-OES) METHOD i) Nitric acid ii) Certified stock solution iii) Standard solution iv) HDPE/PP/PTFE container
12	Heavy Metals (as Pb) (clause 4.2, Table 1)	i) Nessler Cylinders ii) Hydrochloric Acid iii) Dilute Ammonia Solution iv) Dilute Acetic Acid Solution v) Lead nitrate vi) Nitric acid vii) Hot Plate viii) Weighing Balance ix) Pipettes x) Measuring Cylinders xi) Volumetric Flasks xii) Beakers xiii) Kip's Apparatus for generating Hydrogen Sulphide xiv) Ferrous ammonium sulphate INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETER (ICP-OES) METHOD i) Nitric acid ii) Certified stock solution iii) Standard solution iv) HDPE/PP/PTFE container
13	Reducing Substances (as O) (clause 4.2, Table 1)	i) Weighing Balance ii) Pipettes iii) Measuring Cylinders iv) Beakers v) Dilute Sulphuric Acid vi) Potassium Permanganate Solution vii) Hot plate
14	Pyridine and Homologues (clause 4.2, Table 1)	Spectrophotometer Silica Cell

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

ANNEX B

TO THE PRODUCT MANUAL FOR

AMMONIA, LIQUOR AS PER IS 799:2023

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 Licence shall be incorporated legibly and indelibly on each container of ammonia liquor or printed on the labels applied to the container, provided always that the material in each container to which this mark is thus applied conforms to every requirement of the specification.

3.1 Packing and Marking shall be done as per the provisions of the Indian Standard.

3.2 If material is supplied in bulk packaging like in tank cars, tank trucks, container ships etc. 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/container ship 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 marking details as per Cl 5.2 of IS 799:2023 shall also be indicated on the test certificate.

3.3 In addition, the following shall be incorporated on each container and/or on the Test Certificate :

a) BIS Licence Number CM/L— ; and

b) BIS website details i.e. **—** "For details of BIS certification please visit www.bis.gov.in"

3.4 Each container shall also be provided with a label containing the following warning:

LIQUID CAUSES BURNS – VAPOUR EXTREMELY IRRITATING : HANDLE WITH CARE

4. CONTROL UNIT – For the purpose of this scheme , the entire quantity of Ammonia, Liquor, of the same grade ,produced at one time from a particular charge of raw material inone operation 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 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 provisions of BIS Act, 2016.

TABLE 1

LEVELS OF CONTROL

(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				
4.2	Description	B-6.2.3.2	IS 799	R	One	Firm to have adequate in-process controls to check compliance of this parameter. However, appropriate records shall be maintained by the manufacturer for evidence of conformity	
4.2 & Table 1	**Requirements for AmmoniaLiquor,**						
i)	Ammonia, percent by mass	AppendixB-2	IS 799	R	One	Each Control Unit	---
ii)	Residue on evaporation, percent by mass,	AppendixB-3	IS 799	R	One	Each Control Unit	-----
iii)	Carbonate (as CO2), percent by mass	AppendixB-4	IS 799	R	One	Each Control Unit	-----
iv)	Chloride (as Cl), percent by mass,	Appendix B-5/B -16	IS 799	R	One	Each Control Unit	-----
v)	Phosphate (as PO4), percent by mass,	AppendixB-6	IS 799	R	One	Each Control Unit	-----
vi)	Silicate (as SiO2), percent by mass,	AppendixB-6	IS 799	R	One	Each Control Unit	-----
vii)	Sulphate (as SO4), percent by mass,	AppendixB-7/B-16	IS 799	R	One	Each Control Unit	-----

viii)	Sulphide (as S), percent by mass,,	AppendixB-8	IS 799	R	One	Each Control Unit	-----
ix)	Arsenic (as As), percent by mass,	AppendixB-9/ B-17	IS 799 IS 2088	R	One	Each Control Unit	-----
x)	Calcium and magnesium (as Ca), percent by mass	AppendixB-10/B-17	IS 799	R	One	Each Control Unit	-----
xi)	Copper (as Cu), percent by mass	AppendixB-11	IS 799	R	One	Each Control Unit	-----
xii)	Iron (as Fe), percent by mass,	AppendixB-12/B-17	IS 799	R	One	Each Control Unit	-----
xiii)	Heavy metals (as Pb), percent by mass,	AppendixB-13/B-17	IS 799	R	One	Each Control Unit	-----
xiv)	Reducing substances (as O), percent by mass	AppendixB-14	IS 799	R	One	Each Control Unit	-----
xv)	Pyridine and homologues, percent by mass,	AppendixB-15	IS 799	R	One	Each Control Unit	-----

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.

Appendix-1

TEST CERTIFICATE

XYZ COMPANY (REGISTERED OFFICE ADDRESS AND WORKS ADDRESS)

TEST CERTIFICATE FOR AMMONIA, LIQUOR

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 799:2023 .
The properties of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks License No. CM/L _____ are as indicated below against each order no. etc.

(PLEASE REFER TO IS 799:2023 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order no and date	Name of the material	Test	Requirement	Observed value	Control Unit/ Batch Number	Month and Year of manufacture	Quantity	Remarks
		Description						
		Ammonia,						
		Residue on evaporation,						
		Carbonate (as CO_2)						
		Chloride (as Cl)						
		Phosphate (as PO_4)						
		Silicate (as SiO_2)						
		Sulphate (as SO_4)						
		Sulphide (as S)						
		Arsenic (as As),						
		Calcium and magnesium (as Ca)						
		Copper (as Cu)						
		Iron (as Fe),						
		Heavy metals (as Pb),						
		Reducing substances (as O)						
		Pyridine and homologues,						

The material supplied conforms to specified requirements of IS 799:2023 .

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:

LIQUID CAUSES BURNS – VAPOUR EXTREMELY IRRITATING
HANDLE WITH CARE

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