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उत्पाद मैन्युअल
IS 1235: 2023 के अनुसार

PRODUCT MANUAL FOR ACETIC ANHYDRIDE ACCORDING TO IS 1235:2023

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना के तहत प्रमारण के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैन्युअल का उपयोग सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। इस दस्तावेज़ के उपयोग बीआईएस प्रमारण 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.	**IS No.**	:	IS 1235:2023
	Title	:	Acetic Anhydride-Specification
	No. of amendments	:	Nil
2.	**Sampling Guidelines:**		
a)	**Raw material**	:	NA
b)	**Grouping Guidelines**	:	Nil
c)	**Sample Quantity**	:	One Litre
d)	**Parameters to be Declared in Test Request**	:	i) Name of the product Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable.
3.	**List of Test Equipment**	:	Please refer ANNEX–A
4.	**Scheme of Inspection and Testing**	:	Please refer ANNEX–B
5.	**Possible tests in a day:**		
	All the tests mentioned in the IS are possible to be carried out in a day		

6.	**Scope of the Licence:**	
	Licence is granted to use Standard Mark as per IS 1235:2023 with the following scope:	
	Name of the product	Acetic Anhydride

ANNEX A

LIST OF TEST EQUIPMENT
(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause No.	Test Chemicals/ Equipment List
1.	Description Cl. 3.1	Visual
2.	Distillation Range Cl. 3.2 [Table 1, Sl No. (i)]	Distillation flask Thermometer Rectangular draught screen Liebig condenser Graduated cylinder Bunsen Burner Stop Watch 100 ml Measuring Cylinder
3.	Acetic Anhydride Content, percent by mass, Cl. 3.2 [Table 1, Sl No. (ii)]	**Method-A (By Titration)** Weighing pipette, capacity about 5 ml Stoppered flasks, of capacity 500 ml Stoppered flasks, of capacity 100 ml 1 ml Graduated pipette 0.5 ml Graduated pipette Auto burette 100 ml Measuring Cylinder 100 ml Volumetric Flask 10 ml measuring Cylinder Analytical Weighing balance Standard Sodium Hydroxide Solution, Approximately 1 N. Standard Hydrochloric acid, Approximately 1 N. Rectified Spirit 95 percent by volume, Phenolphthalein Indicator Benzene, dry, freshly distilled Aniline, dry, freshly distilled Analytical Weighing balance **Or** **Method- B (By Gas Chromatography)** Gas Chromatograph with Flame Ionization detector (FID), split/split less injector Nitrogen carries gas Analytical Weighing balance 10 ml Volumetric flask Syringe Acetic Anhydride, certified reference material Acetic Acid, certified reference material
4.	Ash percent by mass, Cl. 3.2 [Table 1, Sl No. (iii)]	Analytical Weighing balance Platinum / Silica Crucible Muffle furnace Desiccator
5.	Colour, Pt-Co, Cl. 3.2 [Table 1, Sl No. (iv)]	Analytical Weighing balance Colour comparator/colorimeter/spectrophotometer 500 ml Capacity volumetric flask 1 ml volumetric pipette 50 ml Measuring Cylinder 1 ml volumetric pipette 250 ml Capacity Volumetric flask Nessler Cylinders Water Bath Chloroplatinic acid

		Cobaltous chloride Hexahydrate Hydrochloric Acid Nitric Acid Distilled water
6.	Insoluble matter, Cl. 3.2 [Table 1, Sl No. (v)]	250 ml Capacity Volumetric flask Analytical Weighing balance 100 ml Measuring Cylinder Distilled water
7.	Non-volatile residue percent by mass, Cl. 3.2 [Table 1, Sl No. (vi)]	Evaporating dish of Silica or platinum Desiccator 50 ml Measuring Cylinder Analytical Weighing balance Oven Hot Plate/Steam Bath
8.	Chlorides (as Cl), Cl. 3.2 [Table 1, Sl No. (vii)]	Analytical Weighing balance 1 ml volumetric pipette 50 ml Measuring Cylinder 5 ml volumetric pipette 5 N Nitric Acid Silver Nitrate Solution (42 g/l) Distilled water
9.	Sulphates (as SO_4) Cl. 3.2 [Table 1, Sl No. (viii)]	Nessler Tubes Analytical Weighing balance 10 ml Volumetric flask 1 ml volumetric pipette 50 ml Measuring Cylinder 0.25 ml pipette Approximately 5 N Hydrochloric Acid Solution Barium Chloride Solution (10 % w/v) Standard Sulphuric Acid 0.01 N Distilled water
10.	Iron, percent by mass, Cl. 3.2 [Table 1, Sl No. (ix)]	**Method-A (By Visual Method)** Platinum, Silica, or borosilicate glass evaporating dish Nessler Tubes Analytical Weighing Balance 50 ml Measuring Cylinder Hot Plate/steam bath 3 ml volumetric pipette 10 ml stoppered measuring cylinder 1ml, 5 ml, 10 ml volumetric pipette Dropper 1 Liter Volumetric flask Hydrochloric acid, 5 N Potassium permanganate, 0.1 N Ammonium Thiocyanate Solution (570 g /l) Amyl Alcohol Amyl Acetate Ammonic ferric Sulphate Concentrated nitric acid Distilled water Or **Alternate Method** **ICP-OES** method as specified in H-3 of the IS 1235:2023 may also be used for determination of iron (as Fe)
11.	Reducing substances, percent by mass, Cl.3.2 [Table 1, Sl No. (X)]	Analytical Weighing balance Stop Watch, graduated pipette for 0.4 ml delivery Distilled Water Potassium permanganate, 0.1 N

ANNEXURE- 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**:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: the entire quantity of the material produced in a day from similar raw materials shall constitute a control unit.

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

1.3.3 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" or other tests which can be subcontracted as "S". Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as "R" in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 **Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as "R" in Column 2 of Table 1)**, where different tests given in the specification shall be carried out in accordance with the method given in the specification**.** They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale 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). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 **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. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

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

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 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**				
3.1	DESCRIPTION	3.1	IS 1235:2023	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 Acetic Anhydride						
i.	Distillation Range	Annex-A	IS 1235:2023	R	One	Once in a week	
ii.	Acetic Anhydride Content, percent by mass	Annex-B	IS 1235:2023	R	One	Each Control unit	
iii.	Ash percent by mass	Annex-C	IS 1235:2023	R	One	Each Control unit	
iv.	Colour, Pt-Co		IS 8768	R	One	Each Control unit	
v.	Insoluble matter	Annex-D	IS 1235:2023	R	One	Each Control unit	
vi.	Non-volatile residue percent by mass	Annex-E	IS 1235:2023	R	One	Each Control unit	
vii.	Chlorides (as Cl)	Annex-F	IS 1235:2023	R	One	Each Control unit	
viii.	Sulphates (as SO4)	Annex-G	IS 1235:2023	R	One	Each Control unit	
ix.	Iron, percent by mass	Annex-H	IS 1235:2023	R	One	Each Control unit	
x.	Reducing substances, percent by mass	Annex-J	IS 1235:2023	R	One	Each Control unit	