PRODUCT MANUAL FOR SPECIFICATION FOR ACETIC ACID ACCORDING TO IS 695:2020

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 695: 2020
	Title	:	Specification for Acetic Acid
	No. of Amendments	:	00
2.	**Sampling Guidelines:**		
a)	**Raw material**	:	NA
b)	**Grouping guidelines**	:	NA
c)	**Sample Size**	:	Minimum of 500 g
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 695:2020 with the following scope:		
	Name of the product	Acetic Acid	
	Grade/Variety	As Applicable (Technical/Pure/Analytical Reagent)	

ANNEX A

List of Test Equipment

Major test equipment required to test as per the Indian Standard

S. No.	Clause No.	Test Chemicals/ Equipment List*
1.	Description	Visual
2.	Color as per IS 8768	Color comparator Spectophotometer or Calorimeter Cobalt Chloride Hydrochloric Acid Potatssium cholro Platinate Filter Paper/ Centrifuge Nesslers Tube
3.	Determination of Solubility in water Table 1, Clause 3.3	 Distilled Water Test Tubes
4.	Determination of Relative density at 27/27°C Reference to IS 82 Table 1, Clause 3.3	Standard hydrometer/ Westphal hydrostatic balance/ Relative density bottle or pyknometer Distilled Water Jar of Dia min 2.5cms Filter Paper Water Bath
5.	Determination of Acetic acid content (CH3COOH) Table 1, Clause 3.3	Lunge-Rey Pipette Conical Flask - 250-ml Phenolphthalein - 0.1 g 60% ethyl alcohol Standard Sodium Hydroxide Solution - 1 N Weighing Balance Formic Acid Distilled Water
6.	Determination of Crystallizing point, °C Table 1, Clause 3.3	Test-Tube - about 25 mm in diameter and 150 mm in length Thermometer - graduated for partial immersion to a depth of 100 mm and possessing the following characteristics : a)Graduations : 0.1°C b) Overall length : About 400 mm c) Length of main scale, Min : 280 mm d) Bulb length : 10 to 15 mm e) Stem diameter : 5.5 to 7.0 mm f) Distance from bottom of bulb to main scale : Not less than 30 mm g) Max. error: 0.4°C h) Max. error in an interval: 0.4/ 5°C OR Thermometer having similar properties
7.	Determination of Residue on evaporation Table 1, Clause 3.3	Tared silica basin Hot Air Oven Desiccator Weighing machine Water Bath

S. No.	Clause No.	Test Chemicals/ Equipment List*
8.	Determination of Chlorides (as Cl) Table 1, Clause 3.3	Volumetric flask - 250 ml Nessler Cylinders - 100 ml Dilute Nitric Acid - approximately 5 N Silver Nitrate Solution - 5% (m/v) Standard Chloride Solution Pipette Petroleum Hydrocarbon Solvent Glass rod
9	Determination of Iron (as Fe) Table 1, Clause 3.3	Nessler Cylinders - 50-ml Concentrated Hydrochloric Acid Thioglycolic Acid - 50% Ammonium Hydroxide - relative density 0.92 at 25/25°C. Pipette Standard Iron Solution : a. Ferrous ammonium sulphate b. Concentrated sulphuric acid Bunsen Burner Filter Paper Volumetric Flask
10	Determination of Sulphates (as SO_4) Table 1, Clause 3.3	Nesslers Cylinder - 50-ml Sodium Carbonate Solution - 1 N Dilute Hydrochloric Acid - 1 N Barium Chloride Solution Standard Sulphate Solution Standard Sulphuric Acid - 0.01 N 250-ml beaker Potassium Sulphate Distilled Water Water Bath Filter Paper Glass Rod
11	Determination of Heavy metals (including iron) calculated as Pb 1, Table 1, Clause 3.3	Nessler Cylinders - 50-ml Ammonium Hydroxide - relative density 0.92 at 25/25°C Litmus Paper Sodium Sulphide Solution Standard Lead Solution/ Lead Nitrate Pipette Weighing BALANCE Formic Acid Sodium Hypo bromide (Bromine & Sodium Hydroxide) Potassium Iodide Solution Dilute Hydrochloric Acid Standard Sodium Thio sulphate Solution Iodine Flask
12	Determination of Formic acid (HCOOH) Table 1, Clause 3.3	Sodium Hypobromite Solution -0.1 N a. Bromine b. Sodium Hydroxide Potassium Iodide Solution - approximately 25% Dilute Hydrochloric Acid - approx. 5 N Standard Sodium Thiosulphate Solution - 0.1 N Two iodine flasks
13	Determination of Acetaldehyde (CH_3CHO), percent by mass, Table 1, Clause 3.3	Sodium Hydrogen Sulphite Solution - approx. 1.25% Standard Iodine Solution - 0.1 N 250-ml glass stoppered flask Distilled Water Weighing Balance Pipette

S. No.	Clause No.	Test Chemicals/ Equipment List*
14	Determination of Oxidizable impurities Table 1, Clause 3.3	Potassium Permanganate Solution - 0.1 N 250 ml volumetric flask 100 ml test-tube Weighing Balance Pipette
15	Determination of Water content, Reference to IS 2362 (1993) Table 1, Clause 3.3	Karl Fischer Reagent a. Methanol -Shall not contain more than 0.05% of water b. 2- Methoxy ethanol (Ethylene Glycol Monomethyl Ether) - Shall not contain more than 0.05 percent of water c. By Distillation from Manganese Turnings d. Iodine e. Pyridine f. Sulphur Dioxide dried flask - coloured brown or painted black on the outside, fitted with a ground-glass stopper and having a capacity slightly more than 1 litre. g. Ice bath h. Thermometer inlet glass tube of 6 to 8 mm i. Cork j. Flexible connection k. drying tube filled Sodium Tartrate, Crystalline Water-Methanol Standard Solution- 10 mg/ml Water-Methanol Solution - Approx. 2 g/l, Aluminium Sodium Silicate/Activated Silica Gel Hot Air Oven Desiccator Karl Fischer titrator with electrometric end point detection Syringe Sulphur Dioxide Brown or Black Painted Glass Flask with stopper, Capacity more than 1 Litre Weighing Balance Ice Bath or Crushed Solid Carbon Dioxide Pipette Burette Volumetric Flask Silicone Based Grease
16	Arsenic Content Clause 5.1 & 5.2 of IS 2088 as referenced by Clause 3.4 of IS 695	Bottle Tubes Tweezers Distilled Water (free from Arsenic) Standard Arsenic Solution Dry lead acetate paper/ strip Lead acetate solution Mercuric Bromide paper/ strip Hydrochloric Acid Dilute Sulphuric acid Stannous chloride solution stoppers Cotton wool Potassium iodide solution Zinc/ Zinc Granules Bromine

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 Table1) 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. TESTRECORDS–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 the product 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/L……...….and

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 (one grade) produced in a day from similar raw materials 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 Table1, 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 away so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE -1
LEVELS OF CONTROL

(1) Test Details				(2)	(3) Levels of Control		
				Test equipment requirement R: required (or)S: Sub-contracting permitted			
Cl.	**Requirement**	**Test Method**			**No. of Sample**	**Frequency**	**Remarks**
		Clause	**Reference**				
4.1	DESCRIPTION	4.1	IS 695:2020	R	One	Every Control Unit	
4.3	REQUIREMENTS						
Table 1 sl.noi	Solubility in water	A-1	IS 695:2020	R	-do-	-do-	APPLICABLE ONLY FOR PURE AND ANALYTICAL GRADE
ii	Relative density at 27/27°C	6	IS 82:1973	R	-do-	-do-	
iii	Colour		IS 8768	R	-do-	-do-	-
iv	Acetic acid content (CH_3COOH)	A-2	IS 695:2020	R	-do-	-do-	
iv.	Crystallizing point	A-3	IS 695:2020	R	-do-	-do-	APPLICABLE ONLY FOR PURE AND ANALYTICAL GRADE
v.	Residue on evaporation	A-4	IS 695:2020	R	-do-	-do-	
vi.	Chlorides (as Cl)	A-5	IS 695:2020	R	-do-	-do-	
vii.	Iron (as Fe)	A-6	IS 695:2020	R	-do-	-do-	APPLICABLE ONLY FOR PURE AND ANALYTICAL GRADE
viii.	Sulphates (as SO_4)	A-7	IS 695:2020	R	-do-	-do-	
ix.	Heavy metals [(including iron) calculated as Pb]	A-8	IS 695:2020	R	-do-	-do-	
x.	Formic acid (HCOOH)	A-9	IS 695:2020	R	-do-	-do-	
xi.	Acetaldehyde (CH_3CHO)	A-10	IS 695:2020	R	-do-	-do-	

xii.	Oxidizable impurities	A-11	IS 695:2020	R	-do-	-do-	APPLICABLE ONLY FOR PURE AND ANALYTICAL GRADE
xiii.	Water content	IS 2362	IS 2362	R	-do-	-do-	APPLICABLE ONLY FOR ANALYTICAL GRADE
3.4	Arsenic	IS 2088	IS 2088	R	-do-	-do-	If being used for pharmaceutical purposes

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.