PRODUCT MANUAL
FOR ASCORBIC ACID- FOOD GRADE

ACCORDING TO IS 5342 : 1996

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 5342 : 1996
	Title	:	Ascorbic acid- Food Grade
	No. of Amendments	:	02
2.	**Sampling Guidelines:**		
a)	Raw material	:	No specific guidelines
b)	Grouping guidelines	:	NA
c)	Sample Size	:	500 grams approximately.
3.	**List of Test Equipment**	:	ANNEX - A
4.	**Scheme of Inspection and Testing**	:	ANNEX - B
5.	**Possible tests in a day :**		
	(i) Description (ii) Identification (iii) Specific Rotation (v) pH (vi) Purity (vii) Sulphated ash (viii) Arsenic (ix) Heavy metal as Pb		
6.	**Scope of the Licence :**		
	"Licence is granted to use Standard mark as per IS 5342 : 1996 with the following scope:		
	Name of the product	Ascorbic Acid- Food Grade	

ANNEX-A

TO PRODUCT MANUAL
FOR ASCORBIC ACID- FOOD GRADE
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LIST OF TEST EQUIPMENTS

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Identification Cl. 4.1 to 4.1.3	Sodium nitroferricyanide, 0.1N of sodium hydroxide, Sodium bicarbonate, Ferrous sulphate, Sulphuric acid, Ethanol, 2,6-dichlorophenol-indophenol, weighing balance,
2	Specific rotation Cl. 4.2	Polari meter
3	pH Cl. 4.3	PH meter
4	Purity Cl. 4.4 & Table 1 (Annex A of IS 5342)	Vacuum Dessicator, 90% H_2SO_4, 0.1N Iodine, Starch Sol. Weighing Balance, Carbondioxide free water
5	Loss on drying over sulphuric acid by 24 hours Cl. 4.4 & Table 1 (Method II of Annex C of IS 4818)	Weighing Balance, Dessicator, H_2SO_4, Petridish.
6	Sulphated Ash Cl. 4.4 & Table 1 (Annex A of IS 4750)	Dessicator, Weighing balance, Hot Plate/Muffle furnace.
7	Arsenic Cl. 4.4 & Table 1 (Cl. 15 of IS 1699)	**Instrumental Method (Referee method)** Weighing balance, hot plate 50 ml one-mark graduated flask, 100 ml one-mark volumetric flasks, Modified Kjeldahl flask (as per Fig 4 of IS 1699), Atomic absorption spectrophotometer (with Hydride generation vessel accessory and potentiometric recorder), nitric acid, Perchloric acid, Sulphuric acid, Hydrochloric acid, metal-free Distilled water, Sodium sulphate, Sodium borohydride pellets, Potassium chloride, standard lead solution **Note**: *Reagents shall be of an order of purity higher than accepted analytical reagent grade quality*. **Chemical Method** **Method 1**: Distillation apparatus (as per Fig 6 of IS 1699), conical flask (as per Fig 7 of IS 1699), microburner, water bath, Sulphuric acid, potassium permanganate, ferrous

		sulphate, Hydrochloric acid, Potassium bromide solution, Aluminium strips, Tin chloride solution, Test paper (dried strips of filter paper in saturated ethanolic solution of mercuric bromide), nitric acid, distilled water **Method 2 (Modified Gutzeit method)** Distillation setup, Modified Gutzeit Apparatus/Spectrophotometer, Weighing balance, Distilled water, Concentrated Hydrochloric acid, Hydrazinc Sulphate, Sodium Bromide, Lead Acetate, Filter paper strips, Absorbent Cotton Wool, Mercuric Bromide Paper, Dilute Sulphuric Acid, Potassium Iodide, Stannous Chloride, Zinc granules, Arsenic trioxide, Sodium hydroxide
8	Heavy metal (as Pb) Cl. 4.4 & Table 1 (Annex B of IS 5342)	50 ml Nessler tubes, pH meter/pH indicator paper, weighing balance, igniting crucible, muffle furnace, steam bath, litmus paper, Ammonia solution, Hydrochloric Acid, Lead nitrate, distilled water, nitric acid, sulphuric acid, Hydrogen sulphide, acetic acid, filter funnel, filter paper.
9	Lead Cl. 4.4 & Table 1 (Cl 15 of IS 1699)	**Instrumental Method (Referee method)** Weighing balance, hot plate 50 ml one-mark graduated flask, 100 ml one-mark volumetric flasks, Modified Kjeldahl flask (as per Fig 4 of IS 1699), Atomic absorption spectrophotometer (with Hydride generation vessel accessory and potentiometric recorder), nitric acid, Perchloric acid, Sulphuric acid, Hydrochloric acid, metal-free Distilled water, Sodium sulphate, Sodium borohydride pellets, Potassium chloride, standard lead solution **Note**: *Reagents shall be of an order of purity higher than accepted analytical reagent grade quality*. **Chemical Method** Digestion funnel, separatory funnel, Hot plate, Nitric acid, Sulphuric acid, Ammonium acetate-citrate solution, ammonia solution, Carbon tetrachloride, Ammonium hydroxide, Potassium cyanide, Hydroxylamine hydrochloride solution, Dithizone solution, pH 2 buffer,

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

ANNEX B
SCHEME OF INSPECTION AND INSPECTION FOR ASCORBIC ACID- FOOD GRADE ACCORDING TO IS 5342 : 1996

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 equipment.

2. **TEST RECORDS**- The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. **PACKING, STORAGE AND MARKING-** The Standard Mark as given in Schedule of the licence shall be stenciled/printed on each container of **Ascorbic acid, Food Grade** or printed on the labels applied to the container, as the case may be, 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** – The material shall be securely packed in containers with minimum access to light and air. The containers shall be such as to preclude contamination of the contents with metals or other impurities.

3.2 **Storage –** The material shall be stored in a cool and dry place so as to avoid excessive exposure to heat.

3.3. **Marking –** Each container shall be legibly and indelibly marked with the information given under clause 5.3.1 of IS 5342. In addition, the following details shall be mentioned on each container legibly and indelibly:

a) BIS Licence No. CM/L_____.
b) BIS website details i.e – "For details of BIS Certification please visit www.bis.gov.in"

4. **CONTROL UNIT-**

4.1 **BATCH PROCESS**- For the purpose of this Scheme the entire quantity of the material crystallized, dried and stored at a time shall constitute a control Unit.

4.2 **CONTINUOUS PROCESS**- In case of continuous production, for the purpose of this scheme, the material manufactured continuously in a day shall constitute one control unit.

5. **LEVELS OF CONTROL** – The analysis and tests as indicated in Table 1 and at the levels of control specified therein shall be carried out on the entire production of the

factory covered by this scheme and appropriate records and charts shall be maintained in accordance with paragraph 2 and 3 above. All the production which conform to the Indian standards and covered by this licence shall be marked with the standard Mark.

5.1 On the basis of tests and analysis results, the decision regarding conformity or otherwise of a control unit shall be taken as follows:

5.2 Two independent samples drawn from each control unit or batch and tested for purity test, shall individually satisfy the requirements given in the specification. If any one of the sample fails, the entire material in the control unit shall be considered as unfit for the purpose of marking.

5.2.1 A composite sample made from the two independent samples drawn under 5.2 and tested for the remaining characteristics of the specification, expect lead and purity test, shall satisfy the corresponding requirements. If it fails in any one or more of these requirements, the entire material in the control unit represented by the sample shall be considered unfit for the purpose of marking.

5.2.2 A composite sample made from the two independent samples drawn once in a month and tested for the requirement of 'Lead', shall satisfy the corresponding requirement. If it fails in this requirement, the entire material in the control unit shall be considered as unfit for the purpose of marking. One sample from every subsequent control unit shall be tested for the requirement till seven consecutive control units are found meeting the specification requirements, whereupon the original frequency of testing may be resumed.

6. REJECTION- 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 Cl. Ref.**	**Test Method IS**		**No. of Sample**	**Frequency**	**Remarks**
3	Description	3	IS 5342	R	One	Each control unit	Refer para 5.2.1 of SIT
4.1 to 4.1.3	Identification	4.1.1 to 4.1.3	IS 5342	R	One	Each control unit	--do--
4.2	Specific rotation	4.2	IS 5342	R	One	Each control unit	--do--
4.3	pH	4.3	IS 5342	R	One	Each control unit	--do--
4.4 & Table 1	Purity as $C_6H_8O_6$	Annex A	IS 5342	R	One	Each control unit	Refer para 5.2 of SIT
4.4 & Table 1	Loss on drying over sulphuric acid by 24 hours	Method II of Annex C	IS 4818	R	One	Each control unit	Refer para 5.2.1 of SIT
4.4 & Table 1	Sulphated Ash	Annex A	IS 4750	R	One	Each control unit	--do--
4.4 & Table 1	Arsenic	15	IS 1699	R	One	Each control unit	--do--
4.4 & Table 1	Heavy metal	Annex B	IS 5342	R	One	Each control unit	--do--
4.4 & Table 1	Lead	15	IS 1699	S	One	Once in a month	Refer para 5.2.2 of SIT

Note-1: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control and submit his own levels of control in column 3 with proper justification for approval by BO Head.

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.