



उत्पाद मैनुअल
विनाइल क्लोराइड मोनोमर – विशिष्टि
17442 : 2020 के अनुसार

PRODUCT MANUAL FOR
VINYL CHLORIDE MONOMER - SPECIFICATION
ACCORDING TO IS 17442 : 2020

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 लाइसेंस धारियों द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस लाइसेंस/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 license/certificate.

1	उत्पाद Product	:	IS 17442 : 2020
	शीर्षक Title	:	VINYL CHLORIDE MONOMER - SPECIFICATION
	संशोधनों की संख्या No. of Amendments	:	0 Nil
2	नमूनाकरण दिशा निर्देश Sampling Guidelines:		
A	कच्चा माल Raw material	:	No specific requirement
B	समूहीकरण दिशा निर्देश Grouping guidelines	:	Not Applicable
C	नमूने का परिमाण Sample Size	:	Vinyl Chloride Monomer is in gaseous state at room temperature and is extremely toxic and flammable. Further, it requires specialized equipment and atmosphere for storage and

			transport. Accordingly, all applications for the product Vinyl Chloride Monomer shall be processed on factory testing basis only and no samples for the product shall be drawn for independent testing. (Please refer Circular No. CMD-2/16 : 17442 dated 28-07-2022).
3	परीक्षण उपकरणों की सूची List of Test Equipment	:	कृपया Annex-A देखें Please refer Annex-A
4	निरीक्षण व परीक्षण स्कीम Scheme of Inspection and Testing	:	कृपया Annex-B देखें Please refer Annex-B
5	एक दिन में संभावित परीक्षण Possible tests in a day :	:	All tests
6	लाइसेन्स का कार्यक्षेत्र / Scope of the License:		
	IS 17442: 2020 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेन्स निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है License is granted to use Standard Mark as per IS 17442 : 2020 with the following scope:		
	उत्पाद का नाम Name of the product	Vinyl Chloride Monomer	

BUREAU OF INDIAN STANDARDS
Manak Bhawan, 9, Bahadur Shah Zafar Marg,
New Delhi – 110002

ANNEX – A
TO PRODUCT MANUAL FOR
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ACCORDING TO IS 17442 : 2020
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	Appearance and Colour, Cl. 3.1, Table 1; Reference method Annex-A of IS 17442	- Erlenmeyer Flask 250 ml, - Filter assembly (if filtration is done) with hoke stainless steel removable filter (5-9 micron), - Grounding strap with alligator clip attachment, - Water bath
2	Water content, Cl. 3.1, Table 1; Reference method Annex-B of IS 17442/IS 2362	- Karl Fischer Titrator as per Cl. 6 of IS 2362 - Weighing Balance - Methanol - shall not contain more than 0.05 percent of water. 2-Methoxyetbanol (Ethylene Glycol Monomethyl Ether) - shall not contain more than 0.05 percent of water. - Iodine - Pyridine - shall not contain more than 0.05 percent of water. - Sulphur Dioxide - Dark painted Flasks with ground glass stoppers - Solid CO₂ - Cork with a thermometer and an inlet glass tube of 6 to 8 mm, reaching to within 10 mm of the bottom of the flask, and a small capillary tube for connecting to the atmosphere. - Aluminum Sodium Silicate/Activated Silica Gel - Karl Fischer Reagent (Non- pyridine based Karl Fischer Reagents are available commercially and may be used after standardization.) - Water-Methanol Standard Solution - Silicone Base Grease - Sodium Tartarate (crystalline)
	Water content, Cl. 3.1, Table 1; Reference method Annex-B of IS 17442/ASTM D 3401	APPARATUS - Karl Fisher Titrator, Coulometric Titrator (for test method A only) - Karl Fisher Titrator, Volumetric Titrator (for test method B only) - Syringes - Silicon Rubber Blocks or Silicon Rubber Septa - Drying Oven - Desiccator

		- Analytical Balance REAGENTS Anode Reagents (for test method A only) Cathode Reagents (for test method A only) Single Bath Reagent (for test method A only) Karl Fischer Volumetric Titrant (for test method B only) – typically consists of a mixture of an organic amine, sulfur dioxide and iodine dissolved in non-hygroscopic solvents. Karl Fischer Solvent (for test method B only) – typically consists of a mixture of an organic amine and sulfur dioxide dissolved in anhydrous methanol.
	Water content, Cl. 3.1, Table 1; Reference method ASTM E 203	APPARATUS - Karl Fischer Volumetric Titrator - Weighing Balance REAGENTS - Karl Fischer reagents - Sodium Tartrate Dihydrate – Grind certified material (water content 15.61 to 15.71 percent) to a fine powder. - Acetic Acid, glacial - Ethylene Glycol Monomethyl Ether (maximum 0.1 percent water) - Methanol (maximum 0.15 percent water) - Pyridine (maximum 0.1 percent water) - Mixed solvents - Methanol-Chloroform (1+3) - Methanol-Salicylic Acid (150 g salicylic acid in 1 l methanol) - Pyridine-Ethylene Glycol (1+4) - Pyridine-Methanol (1+4) - Sulfur Dioxide
3	Acidity by mass, Cl. 3.1, Table 1; Reference method Annex-C of IS 17442	APPARATUS - Vinyl chloride scrubber station - Balance - 3000 g capacity - Burette - 10 ml, 25 ml - Glass Cylinder - 225 ml - Magnetic Stirrer Bar – 30 mm - Magnetic Stirrer - pH meter - Erlenmeyer Flask – 250 ml REAGENTS - Deionized Water (pH between 5.0 - 7.0) - NaOH standard solution – 0.01 N

		- Hydrochloric acid standard solution – 1.0 N - Bromothymol Blue or Bromophenol Blue or Bromo-cresol-purple or Phenolphthalein indicator
4	Non-volatile matter, Cl. 3.1, Table 1; Reference method Annex-D of IS 17442	APPARATUS - Grounding Strap - Balance, top loading, weighs to 0.1 gm - Balance, analytical, weighs to 0.1 mg - Erlenmeyer Flask – 125 ml - Desiccator - Metal Tongs - Water bath
5	Total Iron , Cl. 3.1, Table 1; Reference method Annex-E of IS 17442	APPARATUS - Spectrophotometer - Cuvettes (10 mm square or 50 mm) - Balance, weighs to 0.1 gm - Erlenmeyer Flask, 250 ml - Graduated Cylinder, 25 ml - Beakers - Filter assembly with hoke stainless steel removable filter (5-9 micron) - Electric Timer - Static Grounding Strap - Volumetric Flasks and pipettes REAGENTS - Deionized Water - Iron reagent - Fe standard – 1000 mg/l - Concentrated Hydrochloric Acid
	Total Iron , Cl. 3.1, Table 1; Reference method Annex-E/ ASTM E 394	APPARATUS - Photometer - Absorption Cells REAGENTS - Hydroxylamine Hydrochloride Solution (100 g/l) - Iron Standard Solution 1,10-Phenanthroline Solution (3 g/l) - Ammonium Acetate – Acetic Acid Solution
6	Purity, Cl. 3.1, Table 1; Reference method Annex-F of IS 17442	APPARATUS - Chromatograph - Integrating Device REAGENTS - Pure Components

		— Ethylene — Acetylene — Propylene — 1,3-butadiene — Methyl chloride — 1,1-dichloroethane — 1,2-dichloroethane • Carrier Gas (Helium or nitrogen)
	Purity, Cl. 3.1, Table 1; Reference method ASTM D 5507	APPARATUS • Gas Chromatograph • Syringes REAGENTS • Helium • Hydrogen • Air • Liquid CO₂ • Standards

This is an indicative list and may not be taken as being exhaustive

ANNEX – B
TO PRODUCT MANUAL FOR
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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 equipments.
- 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 or printed on the label applied to it, provided that the product so marked conform to requirements of the specification. If the product is bulk loaded for example, onto vessels through pipeline, 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 consignment as per the format at **Appendix-1** enclosed, provided that the product thus marked conforms to all the requirement of the specification.
- 3.1** Packing and Marking shall be done as per Cl. 4 of the Indian Standard. In addition, the following details shall be marked on each container :-
 - 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** – For the purpose of this scheme entire quantity of material manufactured continuously in a single day or part there of 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.
- 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)
(Para 5 of Scheme of Inspection and Testing)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Subcontracting permitted	Levels of Control		
Cl.	Requirement	Test method			No. of Sample	Frequency	Remarks
		Clause	Reference				
Cl. 3.1, Table 1 Sl. No.(i)	Appearance and Colour	Annex-A	IS 17442	R	One	Each Control Unit	
Cl. 3.1, Table 1 Sl. No. (ii)	Water content	Annex-B	IS 17442/ ASTM D 3401/ ASTM E 203	R	One	-do-	
Cl. 3.1, Table 1 Sl. No. (iii)	Acidity	Annex-C	IS 17442	R	One	-do-	
Cl. 3.1, Table 1 Sl. No. (iv)	Non-volatile matter	Annex-D	IS 17442	R	One	-do-	
Cl. 3.1, Table 1 Sl. No. (v)	Total Iron	Annex-E	IS 17442	R	One	-do-	
Cl. 3.1, Table 1 Sl. No. (vi)	Purity	Annex-F	IS 17442/ ASTM D 5507	R	One	-do-	

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 the approval by BO Head.

Appendix-1

TEST CERTIFICATE FORMAT

XYZ COMPANY

TEST CERTIFICATE FOR VINYL CHLORIDE MONOMER

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 17442 : 2020.

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

(PLEASE REFER TO IS 17442 : 2020 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order no and date	Name of the material	Requirement	Observed Value	Control Unit/Batch Number	Month and Year of Packaging	Quantity	Remarks
		Enclose sheet containing requirement wise observed values of all requirements of the Indian Standards					

The material supplied conforms to specified requirements of IS 17442 : 2020.

REMARKS:

TANK CAR/ TANK TRUCK NO/ VESSEL NO. -

MATERIAL SUPPLIED BY

Name and Address of manufacturer:

Recognized Trade Mark if any:

BIS Licence Number:

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