



**PRODUCT MANUAL FOR VINYL ACETATE MONOMER
ACCORDING TO IS 12345:1988**

**PRODUCT MANUAL FOR SPECIFICATION FOR
VINYL ACETATE MONOMER ACCORDING TO IS 12345:1988**

भारतीय मानक ब्यूरो (अनुरूपता निर्धारण) विनियम, 2018 की स्कीम-I के तहत यह उत्पाद मानुयल प्रमाणीकरण के प्रचलन में रीति और पारदर्शिता के सुसंगतता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों एवं लाइसेंसधारियों द्वारा सदर्थ 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 licence/certificate.

1.	उत्पाद Product	:	IS 12345: 1988
	शीर्षक Title	:	Specification for VINYL ACETATE MONOMER
	संशोधन संख्या No. of Amendments	:	02
2.	नमूनाकरण दिशा निर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	NA
b)	समूहीकरण दिशा निर्देश Grouping guidelines	:	NA
c)	नमूने का परिमाण Sample Size	:	1 L.
3.	परिक्षण उपकरणों की सूची List of Test Equipment	:	Please refer ANNEX – A

4.	निरिक्षण एवं परिक्षण स्कीम Scheme of Inspection and Testing	:	Please refer ANNEX – <u>B</u>
5.	एक दिन में संभावित परिक्षण Possible tests in a day:		
	All the tests mentioned in the IS are possible to be carried out in a day		
6.	लाइसेंस का कार्यक्षेत्र Scope of the Licence:		
	—के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है Licence is granted to use Standard Mark as per IS12345:1988 with the following scope:		
	उत्पाद का नाम Name of the product		VINYL ACETATE MONOMER
	Grade/Variety		--

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

ANNEX A

List of Major Test Equipment, Glassware and Reagents, required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference		Test Equipment
	Test	Clause/App endix (A) of IS 12345	
2	Acidity (as acetic acid), percent by mass	Cl. 2.2 and A-2	i) Weighing Balance ii) Measuring Cylinder iii) Erlenmeyer flask – 250 ml. iv) Micro Burette v) Graduated cylinder vi) Bromothymol Blue Indicator vii) Methanol viii) Standard Sodium Hydroxide Solution ix) Crushed Ice
3	Vinyl acetate content (as ester), percent by mass	Cl. 2.2 and A-3	Ester Value Method Lung-ray pipette as per A-3.1.1.1 of IS 12345 Standard Sodium Hydroxide Solution- 1 N Standard Sulphuric Acid Phenolphthalein indicator solution – Burette Iodine Flask Crushed ice Lung ray pipette Distilled water Stoppered flask GLC Method i) Gas chromatograph with an FID and integrator, recorder, packed columns with specifications as per A-3.2.3 of IS 12345 ii) Acetaldehyde iii) Acetone iv) Methyl acetate v) Vinyl acetate vi) Ethyl acetate vii) Acroline
4	Aldehyde (as acetaldehyde), percent by mass	Cl. 2.2 and A-3	-do-
5	Moisture, percent by mass	Cl. 2.2 and IS 2362	i) Methanol/2-Methoxyethanol, ii) Iodine, iii) Pyridine, iv) Sample Solvent v) Sulphur dioxide,

			vi) Karl Fischer Reagent (Non pyridine based solution may also be used), vii) Ice-bath or in crushed solid carbondioxide. viii) Sodium tartarate, Crystalline, ix) Water-Methanol Standard Solution - 10 mg/ml x) Water-Methanol Solution – approximately 2 g/l, xi) Aluminium Sodium Silicate/Activated Silica Gel, xii) Silicone base grease, xiii) Karl Fischer Titrator as per Cl. 6 of IS 2362, xiv) Reagent bottle of brown or black-painted glass, xv) Microburette or a pipette, xvi) Dry 100 ml one-mark volumetric flask, xvii) Dry 500 ml one-mark volumetric flask, xviii) Oven xix) Desiccator xx) Weighing balance
6	Distillation range at 760 mm of Hg	Cl. 2.2 and [P : 18] of 1448	Method A : i) Distillation apparatus with accessories as per IS 1448 (Part 18) along with condenser tube and cooling bath, electric heat source and flask support with residue cylinder. ii) Receiving cylinder iii) Distillation flasks and distillation flask with ground glass joint iv) Temperature measurement system (As per Cl 6.8.2 of IS 1448 (Part 18) with centering device) v) Barometric pressure measuring device
7	Colour	Cl. 2.2 and IS 8768	Cobalt Chloride Hexahydrate, Chloroplatinic acid or Potassium Chloroplatinate Hydrochloric acid, Nitric Acid Platinum-Cobalt Stock Solution Standard Platinum - Cobalt Scale Matching Solutions, Colour Comparison Tubes - matched 100 ml, tall form Nessler tubes with 100 ml mark at 275 mm to 295 mm above bottom, Colour comparator, Spectrophotometer with 10 mm cells, (may be used for routine tests) Volumetric Flasks Glass or Porcelain Dish Stoppered Glass bottles Micro/semi micro Burette Weighing Balance Water Bath
8	Specific gravity	Cl. 2.2 and 6 of IS 82	i) Relative density bottle or pycnometer. ii) Hydrometer (may also be used) iii) Westphal hydrostatic balance, and (may also be

			used) iv) Hydrometer Jar v) Filter Paper vi) Constant temperature bath vii) Distilled water
	Inhibitor Content: a) Hydroquinone	Cl. 2.2 and A-4	i) Rotary Film Evaporator with vacuum pump ii) Ceric Ammonium Nitrate iii) Sulphuric Acid iv) Diphenylamine v) Weighing Balance vi) Beaker vii) Volumetric Flask viii) Stirrer ix) Distilled Water x) Standard Hydroquinone Solution xi) Pipette xii) Erlenmeyer flask xiii) Constant temperature bath xiv) Dropper
	b) Diphenylamine	Cl. 2.2 and A-5	i) Spectrophotometer with hydrogen lamp and matched 10ml Silica Cell i) Rotofilm Evaporator with vacuum pump i) Vacuum Aspirator ii) Beaker iii) Volumetric Flask iv) Brown bottle. v) Burette vi) Pipette vii) Hot water Bath with temperature $50 \pm 5^{\circ}\text{C}$ viii) Erlenmeyer flasks. ix) Electronic Weighing Balance. x) Methanol – Reagent grade xi) Diphenylamine Stock Solution (inhibitor grade)
10	Polymer Content	Cl. 2.2 and A-6	i) Roto Film Evaporator with vacuum pump ii) Erlenmeyer flask iii) Oven iv) Desiccator v) Pipette xv) Constant temperature water bath vi) Stop Watch

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

ANNEX B

SCHEME OF INSPECTION AND TESTING (SIT)

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 marked on the container 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 and as per the details given below:

3.1.1 Each Container shall be securely closed and marked or labelled with the following:

- a) Name of the Manufacturer;
- b) Recognized trade-mark, if any.
- c) Name of the material;
- d) Gross, tare and net mass;
- e) Month and Year of manufacture;

3.1.2 Each container shall bear the caution label worded as under.

CORROSIVE! VAPOUR AND LIQUID DANGEROUS TO EYES!

3.1.3 For supplies of the product (VAM) in tankers or shipment containers, a Test Certificate as per Appendix-1 shall be provided with each tanker:

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

- i) BIS Licence Number CM/L..... and
- ii) BIS website details i.e. for details of BIS certification, please visit www.bis.gov.in

3 CONTROL UNIT – For the purpose of this scheme, the entire quantity of the material produced in one day (24 hours) shall constitute a control unit.

4 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.

4.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

- 5 **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

(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				
2.1	Description	Clause2.1		R	One	Every Control Unit	
2.2 and Table 1							
(i)	Acidity (as acetic acid), percent by mass	Clause2.2 Sl. No. i) of Table 1	A-2 of IS : 12345	R	One	Every Control Unit	
(ii)	Vinyl acetate content (as ester), percent by mass	Clause2.2 Sl. No. ii) of Table 1	A-3 of IS : 12345	R	-do-	-do-	
(iii)	Aldehyde (as acetaldehyde), percent by mass	Clause2.2 Sl. No. iii) of Table 1	A-3 of IS 12345	R	-do-	-do-	
(iv)	Moisture, percent by mass	Clause2.2 Sl. No. iv) of Table 1	2362-1973	R	-do-	-do-	
(v)	Distillation range at 760 mm of Hg	Clause2.2 Sl. No. v) of Table 1	Method A of [P : 18] of IS: 1448	R	-do-	-do-	
(vi)	Colour, APHA	Clause2.2 Sl. No. vi) of Table 1	IS 8768	R	-do-	-do-	
(vii)	Specific gravity 20°/20°C	Clause2.2 Sl. No. vii) of Table 1	6 of IS 82-1973	R	-do-	-do-	

(viii)	Inhibitor Content : a) Hydroquinone	Clause2.2 Sl. No. viii a) of Table 1	A4 of IS: 12345	R	-do-	-do-	
	b) Diphenylamine	Clause2.2 Sl. No. viii b) of Table 1	A5 of IS :12345				
(ix)	Polymer content	Clause2.2 Sl. No. ix) of Table 1	A6 of IS : 12345	R	-do-	-do-	

NOTE 1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled 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 VINYL ACETATE 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 12345: 1988.

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 12345: 1988 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						
		Acidity (as acetic acid), percent by mass						
		Vinyl acetate content (as ester), percent by mass						
		Aldehyde (as acetaldehyde), percent by mass						
		Moisture, percent by mass						
		Distillation range at 760 mm of Hg						
		Colour						
		Specific gravity						
		Inhibitor Content:						
		a) Hydroquinone						
		b) Diphenylamine						
		Polymer Content						

The material supplied conforms to specified requirements of IS 12345: 1988.

REMARKS:

Tank Car / Tank Truck / Container ship no.

(Signature)
For XYZ Company

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