



उत्पाद मैनुअल
CHLORINATED POLYVINYL
CHLORIDE COMPOUNDS USED FOR
PIPES AND FITTINGS-SPECIFICATION

IS 15225: 2002 के अनुसार

PRODUCT MANUAL
FOR CHLORINATED POLYVINYL
CHLORIDE COMPOUNDS USED FOR
PIPES AND FITTINGS-SPECIFICATION
ACCORDING TO IS 15225: 2002

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन 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.	मानक संख्या IS No.	:	IS 15225: 2002
	शीर्षक Title	:	CHLORINATED POLYVINYL CHLORIDE COMPOUNDS USED FOR PIPES AND FITTINGS- SPECIFICATION
	संशोधनों की संख्या No. of amendments	:	1
2.	नमूना दिशानिर्देश Sampling Guidelines		

a)	कच्चा माल Raw material	:	The material should be conforming to clause 8.1.1 & 8.1.2 of IS 15225: 2002. Conformity of materials to the requirement of the specification may be established through either of the following or a combination of the same (No testing is required if the material is ISI marked): <i>Supplier test certificate/test report from BIS recognized lab/empanelled lab or any other lab having accreditation as per IS/ISO/IEC17025 or in-house testing.</i>
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer to Annex-A
c)	नमूने का परिमाण Sample Quantity	:	2 Kg Resin + 2 Kg Compound + 3 sheets(30cmx30cm) Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market)
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer to Annex-B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex-C
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	All tests are possible in a day, provided the conditioned samples are available where required.		
6.	लाइसेंस का दायरा/Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 15225: 2002 with the following scope:		
	Name of the product	CHLORINATED POLYVINYL CHLORIDE COMPOUNDS USED FOR PIPES AND FITTINGS-SPECIFICATION	
	Designation/ Classification	Designation of CPVC compound as per Cl. 4 of IS 15225: 2002 For Ex – IS 15225: 2002-CPVC-D-P-114-2-3-3	

ANNEX-A

GROUPING GUIDELINES

1) The manufacturer shall declare, in their application for considering grant of licence and/or change in scope of licence, each designation code which they intend to cover in the scope of the licence.

2) For considering grant of licence and/or change in scope of licence, the following grouping shall be considered:

Data Block	Details of data block	Sample to be drawn/tested pertaining to each data block
Data Block 1	Indian Standard no.	---
Data Block 2	Identification of Plastic	---
Data Block 3	Form of compound	Manufacturer shall declare the commercial form of compound intended to be covered in the scope of licence as per Table 1.
Data Block 4	Method of processing or intended application	Manufacturer shall declare Method of processing or intended application, to be covered in the scope of licence as per Table 2. (This is only to be provided only as information to BIS and has no bearing on the testing)
Data Block 5	Vicat softening temperature	Manufacturer shall declare the Vicat softening temperature for the product being manufactured and intended to be covered in the licence. One sample of highest and lowest Vicat softening temperature shall be tested to cover the entire range of Vicat softening temperatures in the scope of licence.
	Charpy impact strength	Manufacturer shall declare the Charpy impact strength and corresponding code number as per Table 3 being manufactured and intended to be covered in the licence. Unspecified i.e. code-0 may be included on the basis of declaration of the manufacturer. Where the value of Charpy impact is specified, one sample of highest and lowest Charpy impact strength from all the cell codes/ranges under consideration taken together as per table 3 shall be tested to cover the entire range of Charpy impact strength in the scope of licence.

	Tensile Strength	Manufacturer shall declare the Tensile modulus and corresponding code number as per Table 3 being manufactured and intended to be covered in the licence. Unspecified i.e. code-0 may be included on the basis of declaration of the manufacturer. Where the value of Tensile Strength is specified, one sample of highest and lowest Tensile modulus from all the cell codes/ranges under consideration taken together as per table 3 shall be tested to cover the entire range of Tensile modulus in the scope of licence.
	Tensile modulus	Manufacturer shall declare the Tensile modulus and corresponding code number as per Table 3 being manufactured and intended to be covered in the licence. Unspecified i.e. code-0 may be included on the basis of declaration of the manufacturer. Where the value of Tensile Modulus is specified, one sample of highest and lowest Tensile modulus from all the cell codes/ranges under consideration taken together as per table 3 shall be tested to cover the entire range of Tensile modulus in the scope of licence.
Data Block 6	Additional requirements	Manufacturer shall declare additional requirements intended to be covered in the scope of licence as per clause 4.2.6 of IS 15225: 2002 for each combination. (This is only to be provided only as information to BIS and has no bearing on the testing)

- 3) Scope of licence shall be restricted based on the manufacturing and testing facilities available.
- 4) During operation of licence, samples of each variety covered in the scope of licence, shall be tested in rotation, to the extent possible.

ANNEX-B

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Vicat Softening Temperature Clause 4.2.5	a) Liquid filled Heating bath i) Vernier calliper ii) Liquid paraffin or iii) Transformer or iv) Glycerol or v) Silicon oil vi) Stirrer Or b) Direct contact heating unit vii) Heater viii) Blocks Or c) Fluidized Bed ix) Aluminium oxide powder x) Vernier calliper xi) Stirrer d) Cooling device e) Test frame assemblies xii) Rod and frame xiii) Indenting tip xiv) Weights xv) Penetration measuring device xvi) Dial gauge f) Temperature measuring device xvii) Thermometer
2	Charpy Impact Test Clause 4.2.5	a) Charpy Impact Test i) Notch Cutter ii) Charpy Impact tester iii) Micrometre iv) Thickness gauge
3	Tensile Modulus Test Clause 4.2.5	a) Universal testing machine i) Grips ii) Force indicator iii) Strain indicator a. Extensometers b. Strain Gauges b) Vernier Calliper c) Micrometre

4	Ash Content Clause 8.3	a) Weighing Balance(accurate to 0.001 g) b) Silica Crucibles c) Bunsen Burner d) Silica Triangle and Tripod e) Muffle Furnace, capable of being controlled thermostatically at 800°C f) Desiccator g) Gloves and Crucible Holder
5	Resin Chlorine Content Clause 8.1.2/ Compound Chlorine content Clause 8.1.4	Method-A(Combustion in bomb technique method): a) Silver Nitrate, standard volumetric solution (0.1 mol/l or 0.05 mol/l) b) Nitric Acid solution 2 mol/l c) Sodium Peroxide, granulated d) Starch, sucrose or ethylene glycol, as combustion aids e) Drying Oven, capable of being maintained at 50±2 °C or 75±2°C f) Equipment for Volhard titration or for Potentiometric Titration g) Combustion Bomb h) Nickel Crucible with lid i) Safety Oven j) Beaker, capacity 600 ml k) Balance, accuracy 0.1mg Method-B(Oxygen flask method): a) Silver Nitrate, standard volumetric solution (0.1 mol/l or 0.05 mol/l) b) Nitric Acid solution 2 mol/l c) Oxygen d) Sodium Nitrate e) Potassium Hydroxide Solution, 100 g/l f) Hydrogen Peroxide Solution, 300 g/l g) Drying Oven, capable of being maintained at 50±2 °C or 75±2°C h) Equipment for Volhard titration or for Potentiometric Titration i) Round or Flat Bottom Flask, capacity 500ml to 1000 ml with head design for oxygen combustion j) A platinum wire 1.0 mm in diameter and 120 mm long in the shape of a tapered spiral is attached to the stopper, a suitable spiral being 15 mm in diameter and 15 mm long k) Filter Paper, about 3 cm x 3.5 cm, free from halogen and ash l) Beaker, capacity 250 ml
6	Preparation of Test Specimens	a) Injection moulding or compression moulding machine with sample moulds b) Hot air oven

7	Conditioning Requirements	a) Hot Air Oven b) Humidity Chamber with relative humidity and temperature indicator c) Hygrometer d) Thermometer e) Stop Watch f) Air Conditioner

ANNEX C

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 material manufactured under similar conditions of production and with same raw material in a day.

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 container 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 container:

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.

TABLE1
(ONLY FOR GUIDANCE PURPOSE)

(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				
8.1.1	Resin K-Value	Clause 8	4669	S	One	Each Consignment	Conformity of materials to the requirement of the specification may be established through either of the following or a combination of the same:
8.1.2	Resin Chlorine Content	--	IS 15778/ ISO 1158	S			Supplier test certificate/test report from BIS recognized lab/empanelled lab or any other lab having accreditation as per IS/ISO/IEC17025 or in-house testing.
8.1.3	Form	8.1.3	IS 15225	R	Firm to have adequate in-process controls to check compliance of this parameter as per the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity.		
8.1.4	Compound Chlorine Content	--	IS 15778/ ISO 1158	R	One	Each Control Unit	
8.1.5	Appearance	8.1.5	IS 15225	R	Firm to have adequate in-process controls to check compliance of this parameter as per the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity.		

8.2.1	Vicat Softening temperature	--	IS 13360 (Part 6/Sec 1)/ISO 304	R	One	Each Control Unit	
8.2.2	Charpy Impact Strength	--	IS 13360 (Part 5/Sec 5)/ISO 179	R	One	Each Control Unit	
8.2.3	Tensile Strength	--	IS 13360 (Part 5/Sec 1)/ISO 527-1	R	One	Each Control Unit	
8.2.4	Tensile Modulus	--	IS 13360 (Part 5/Sec 1)/ISO 527-1	R	One	Each Control Unit	
8.3	Ash Content	Annex -C	IS 15225	R	One	Each Control Unit	