



उत्पाद मैनुअल
आई एस 17546 : 2021 के अनुसार
जल की पूर्ती हेतु साल्वेंट सीमेंट जॉइंट्स के साथ इंजेक्शन
मौलडेद पीवीसी सॉकेट फिटिंग्स के लिए

दस्तावेज संख्या - पीएम/आईएस 17546/2/मार्च 2021

भारतीय मानक ब्यूरो की स्कीम-I (अनुरूपता मूल्यांकन) विनियम , 2018 के तहत यह उत्पाद मैनुअल प्रमाणीकरण के प्रचालन में रीति और पारिश्रिता की सुसंगतता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसी द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस प्रमाणीकरण लाइसेंस/ प्रमाणपत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज का उपयोग किया जा सकता है ।

PRODUCT MANUAL FOR
CHLORINATED POLYVINYL CHLORIDE (CPVC) FITTINGS
FOR POTABLE HOT AND COLD WATER DISTRIBUTION
SUPPLIES ACCORDING TO IS 17546 : 2021

Document No - PM/ IS 17546/2/Mar 2022

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.

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, ९, बहादुर शाह ज़फ़र मार्ग
Manak Bhawan, 9, Bahadur Shah Zafar Marg
नई दिल्ली- ११०००२
New Delhi – 110002



**PRODUCT MANUAL FOR
CHLORINATED POLYVINYL CHLORIDE (CPVC) FITTINGS FOR
POTABLE HOT AND COLD WATER DISTRIBUTION SUPPLIES
ACCORDING TO IS 17546 : 2021**

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 17546:2021
	Title	:	CHLORINATED POLYVINYL CHLORIDE (CPVC) FITTINGS FOR POTABLE HOT AND COLD WATER DISTRIBUTION SUPPLIES — SPECIFICATION
	No. of Amendments	:	NIL
2.	Sampling Guidelines:		
a)	Raw material	:	Clause 6 of IS 17546:2021
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	15 Nos Fittings + 1m x 4 pcs CPVC pipes
d)	Sampling guidelines during operation of licence	:	Please refer ANNEX – B
3.	List of Test Equipment	:	Please refer ANNEX – C
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – D
5.	Possible tests in a day : Please refer ANNEX – E		
6.	Scope of the Licence : Please refer ANNEX – F		

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

ANNEX A**Grouping Guidelines**

1. IS 17546:2021 covers requirements for various types of Chlorinated Polyvinyl Chloride (CPVC) Fittings for Hot and Cold Water Distribution Supplies for water service up to and including 82 °C, intended for connection to CPVC pipes covered by IS 15778.
2. Chlorinated Polyvinyl Chloride (CPVC) Fittings for Hot and Cold Water Distribution Supplies as per IS 17546:2021 are categorized as follows:

a) SDR & Size:

SDR	Sizes
11	15 - 50 mm
17	65 – 150 mm

The standard covers SDR 11 and SDR 17 fittings, however, IS 15778 covers SDR 13.5 pipes also, apart from SDR 11 and SDR 17 pipes. Thus, fittings for SDR 13.5 pipes are not covered in this standard. The SDR 11 fittings can be used for SDR 13.5 pipes as well with higher factor of safety.

b) Types of Fittings:

- (i) Fittings for Solvent Cement Joint
- (ii) Compression fittings
- (iii) Flanged fittings
- (iv) Flat Seat Union Fitting
- (v) Fitting with Incorporated Inserts

(vi) Considering the above, grouping guidelines as given below shall be followed for GoL/CSoL:

- Highest size from each SDR and type of fitting shall be tested for all requirements (except Thermal Stability by Hydrostatic Pressure Testing - clause 9.2) to cover all the sizes upto and including the size tested of that particular SDR for that particular type of fitting.
- CPVC fittings of any SDR/ type of fitting, preferably the highest size, shall also be tested for Thermal Stability by Hydrostatic Pressure Testing while processing the case for GoL/CSoL.

(vii) The Firm shall declare the types of fittings, SDR and sizes they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.

(viii) During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation, to the extent possible.

ANNEX B

Sampling guidelines during operation of licence

- 1) Two Factory Sample (FS) and two Market Sample (MS) shall be drawn during an operative period of one year.
- 2) FS and MS drawn in an operative year shall be tested for all tests except Thermal stability by Hydraulic Pressure test (Cl 9.2).
- 3) Thermal stability by Hydraulic Pressure test (Cl 9.2) (test duration- 8760 hr) is to be tested once in 3 years and shall be tested in a Factory Sample.

ANNEX C**List of Test Equipment***Major test equipment required to test as per the Indian Standard*

S. No.	Tests used in with Clause Reference	Test Equipment
1	Dimension (clause 7)	- Vernier Calliper - Micrometre - Angle Protractor - Steel Scale
2	Opacity (Clause 8.2)	- Opacity Test Apparatus - Standard sample of opacity - 0.2 %
3	Stress relief test (Clause 8.3)	- Hot air oven or thermostatically control oil bath - Thermometer - Vernier Calliper - Stop watch
4	Vicat Softening Temperature (Clause 8.4)	- Oil heating Bath equipped with means to raise the temperature at uniform rate of $50 \pm 5^{\circ}\text{C/hr.}$ with suitable stirrer. - Rod with loading plate, load and indenting tips - Micrometer dial gauge - Thermometer or temperature measuring equipment
5	Density (clause 8.5)	- Balance - Thermometer - Demineralized water - Beaker - Corrosion resistant wire
6	Effect on water (Clause 6.3)	- Distilled water - Air conditioner - pH meter - Testing reagent and equipment for determination of cadmium, mercury, lead, tin and other toxic substances.
7	Hydrostatic Characteristics (Clause 9.1)	- Hydrostatic pressure testing apparatus with pressuring unit and multiple outlets - Water bath with temperature control - Thermometer - End plugs/ caps/pipes
8	Thermal Stability by Hydrostatic Pressure Testing (Clause 9.2)	

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

ANNEX D

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 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. LABELLING AND MARKING – As per the requirements of IS 17546:2021

4. CONTROL UNIT – All fittings of same type, size and SDR manufactured from same compound in a maximum duration of 24 h 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.

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

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

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
6	COMPOSITION						
6.2.1	Compound	4.2	IS 15225	S	One	Each consignment	No further testing is required if received with manufacturers test certificate.
6.2.2 & 6.2.3	Compound Chlorine Content	Annex B	IS 15778	S	One	Each consignment	No further testing is required if received with manufacturers test certificate.
6.2.4	Density	6.2.4	IS 13360 (Part 3/Sec 10) and IS 13360 (Part 3/Sec 11)	S	One	Each consignment	No further testing is required if received with manufacturers test certificate.
6.2.5	Verification of the Malfunction Temperature, T _{mal}	Annex C	IS 15778	S	One	Once in three months or whenever there is change in composition of compound or source of CPVC resin or compound.	
7	Dimension	Table 2 & 3	IS 17546	R	Ten fittings	Each Control Unit	In case of failure, twice the number of samples shall be tested for that requirement from the same control unit. In case of any further failure, the entire control unit shall be rejected
8.1	Visual appearance	8.1	17546	R	Each piece	-	-
8.2	Opacity	8.2	IS 12235 (part3)	S	Two	Once in three months	Pipe with thinnest wall section shall be tested *
8.3	Stress relief test	8.3	IS 12235 (part 6)	R	Three	Each Control Unit	-
8.4	Vicat Softening Temperature	8.4	IS 12235 (part 2)	S	Two	Once in three months	-
8.5	Density	8.5	IS 12235 (part 14)	R	Two	Each Control Unit	-

8.6	Effect on water	8.6	IS 12235 (part 4 &10)	S	Three	Once in six months	*
9	MECHANICAL PROPERTIES						
9.1	Hydrostatic Characteristics						
a)	Acceptance Test (20°C for 1 h)	Table 4	IS 17546 IS 12235 (Part 8/Sec 1)	R	One	Each Control Unit	
b)	Type Test (95°C for 165 h)	Table 4	IS 17546 IS 12235 (Part 8/Sec 1)	S	One	Once in three months	One size for each SDR and fitting type shall be tested at least once in an operative year. *
	Type Test (95°C for 1000h)				One	Once in six months	
9.2	Thermal stability by hydrostatic pressure testing (95°C for 8760 h)	Table 4	IS 17546 IS 12235 (Part 8/Sec 1)	S	One	Once in three year	This test shall be carried out whenever there is change in composition in raw material/ source of raw material.

* Test shall be carried out whenever polymer composition or source of compound or processing techniques is changed; or a new size is introduced. In an operative year, production from all the machines may be covered to the extent possible.

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.

ANNEX – E

Possible tests in a day

- a) Dimensions (Clause 7)
- b) Visual appearance (Clause 8.1)
- c) Opacity (Clause 8.2)
- d) Stress Relief test (Clause 8.3)
- e) Vicat softening temperature (Clause 8.4)
- f) Density (Clause 8.5)
- g) Hydrostatic characteristics (Acceptance test) (clause 9.1)

ANNEX – F**Scope of the Licence**

Licence is granted to use Standard Mark as per IS 17546:2021 with the following scope:	
Name of the product	Chlorinated Polyvinyl Chloride (CPVC) Fittings for Potable Hot and Cold Water Distribution Supplies
Type of Fittings	Fittings for Solvent Cement Joint/ Compression fittings/ Flanged fittings/ Flat Seat Union Fitting/ Fitting with Incorporated Inserts
SDR	SDR 11/ SDR 17
Sizes, mm	