भारतीय मानक

(Reaffirmed 1997)

संवातन और वर्षा के पानी के तन्त्र सहित भवनों के अन्दर की मिट्टी तथा अपशिष्ट निरावेशन तन्त्र के लिए अनम्यकृत पी वी सी पाइपें – विशिष्टि

Indian Standard

UNPLASTICIZED POLYVINYL CHLORIDE (UPVC) PIPES FOR SOIL AND WASTE DISCHARGE SYSTEM INSIDE BUILDINGS INCLUDING VENTILATION AND RAIN WATER SYSTEM — SPECIFICATION

UDC 621·643·2 [678·743·22] : 628·245

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

December 1992

Price Group 4

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Plastic Pipes and Fittings Sectional Committee had been approved by the Civil Engineering Division Council.

Unplasticized PVC pipes are widely used in practically all types of piping systems. This standard has been formulated with a view to provide guidelines in the manufacture and use of UPVC pipes for soil and waste discharge system including ventilation and rainwater for inside buildings.

In the formulation of this standard, assistance has been derived from the following ISO Standards:

a) ISO 3633 : 1991 Unplasticized polyvinyl chloride (PVC-U) pipes and fittings for soil and waste discharge (low and high temperature) systems inside buildings — Specification

b) ISO 8283 : 1991 Plastic pipes and fittings — Dimensions of sockets and spigots for discharge systems inside buildings : Part 1 Unplasticized polyvinyl chloride (PVC-U) and chlorinated polyvinyl chloride (PVC-C).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

UNPLASTICIZED POLYVINYL CHLORIDE (UPVC) PIPES FOR SOIL AND WASTE DISCHARGE SYSTEM INSIDE BUILDINGS INCLUDING VENTILATION AND RAIN WATER SYSTEM — SPECIFICATION

1 SCOPE

This standard covers requirements for plain and socket end unplasticized polyvinyl chloride (UPVC) pipes with nominal outside diameters 40 mm to 160 mm for use for soil and waste discharge system inside buildings including ventilating and rain water applications.

2 REFERENCES

The Indian Standards listed below are the necessary adjuncts to this standard:

IS No.	*Title*
4905 : 1968	Methods for random sampling
6307 : 1985	Specification for rigid PVC sheets (*first revision*)
8543 (Part 4/Sec 1) : 1984	Methods of testing plastics : Part 4 Short term mechanical properties, Section 1 Determination of tensile properties
12235	Methods of test for unplasticized PVC pipes for potable water supplies
(Part 5) : 1986	Reversion test
(Part 6) : 1986	Stress relief test
(Part 7) : 1986	Test for resistance to sulphuric acid
(Part 9) : 1986	Impact strength test

3 TYPES OF PIPES

Type A — for use in ventilation pipe work and rain water applications

Type B — for use in soil and waste discharge systems

4 SIZE DESIGNATION

4.1 Pipes shall be designated by the nominal outside diameter DN, in mm.

4.2 Nominal outside diameter DN of pipes as covered in the standard are 40, 50, 63, 75, 90 110, 125, 140 and 160 mm.

5 COLOUR OF PIPE

Surface colour of the pipes shall be dark shade of grey.

6 MATERIALS

6.1 The material from which the pipes are produced shall consist essentially polyvinyl chloride to which may be added only those additives that are needed to facilitate the manufacture of sound pipes of good surface finish, mechanical strength, and opacity under condition of use. None of these additives shall be used separately or together in quantities sufficient to constitute a toxic hazard, impair the fabrication, welding, chemical and physical properties of the fittings. The material should also consist of sufficient quantity of stabilizer to withstand thermal ageing and exposure to ultra-violet light.

6.2 The addition of the manufacturer's own rework material produced during the manufacture and work testing of pipes complying with this standard is permissible up to 10 percent. No other rework material shall be used.

7 DIMENSIONS

7.1 Diameter and Wall Thickness

Mean outside diameter, outside diameter at any point and wall thickness for Type A and Type B pipes manufactured plain or with socket shall be as given in Table 1.

7.2 Length of Pipe

Pipes shall be supplied in nominal lengths of 2, 3, 4 or 6 meters either plain or with sliding/ grooved socket. Tolerances on specified length shall be +10 mm and −0 mm.

Table 1 Dimensions of Pipes

(*Clause* 7.1)

All dimensions in millimetres.

Nominal Outside Diameter, *DN*	Mean Outside Diameter		Outside Diameter at Any Point		Wall Thickness, *S* Type A		Wall Thickness, *S* Type B	
	Min	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
40	40·0	40·3	39·5	40·5	1·8	2·2	3·2	3·8
50	50·0	50·3	49·4	50·6	1·8	2·2	3·2	3·8
63	63·0	63·3	62·2	63·8	1·8	2·2	3·2	3·8
75	75·0	75·3	74·1	75·9	1·8	2·2	3·2	3·8
90	90·0	90·3	88·9	91·2	1·9	2·3	3·2	3·8
110	110·0	110·4	108·6	111·4	2·2	2·7	3·2	3·8
125	125·0	125·4	123·5	126·5	2·5	3·0	3·2	3·8
140	140·0	140·5	138·3	141·7	2·9	3·4	3·6	4·2
160	160·0	160·5	158·0	162·0	3·2	3·8	4·0	4·6

NOTE — The pipes may be supplied in other lengths where so agreed to between the manufacturer and the purchaser.

7.2.1 The effective length of the pipe with sliding/grooved socket shall be as given in Fig. 1.

7.3 Socket of Pipe

7.3.1 Minimum wall thickness of sockets on pipes shall be as given in Table 2 read with Fig. 2 and 3.

7.3.2 Dimensions of sliding socket and grooved sockets of pipes shall be as given in Tables 3 and 4 respectively, read with Fig. 2 and 3.

Table 2 Minimum Wall Thickness of Sockets on Pipes

(*Clause* 7.3.1)

All dimensions in millimetres.

Nominal Outside Diameter, *DN*	S_2, *Min*		S_3, *Min*	
	Type A	Type B	Type A	Type B
40	1·6	2·9	1·0	2·4
50	1·6	2·9	1·0	2·4
63	1·6	2·9	1·0	2·4
75	1·6	2·9	1·0	2·4
90	1·7	2·9	1·1	2·4
110	2·0	2·9	1·2	2·4
125	2·3	2·9	1·4	2·4
140	2·6	3·2	1·6	2·7
160	2·9	3·6	1·8	3·0

Table 3 Dimensions for Sliding Sockets

(*Clause* 7.3.2)

All dimensions in millimetres.

Nominal Outside Diameter, *DN*	Socket Depth, *C* *Min*	Mean Inside Diameter of Socket at Midpoint, D_1	
		Min	*Max*
(1)	(2)	(3)	(4)
40	26·0	40·1	40·3
50	30·0	50·1	50·3
63	36·0	63·1	63·3
75	40·0	75·1	75·3
90	46·0	90·1	90·3
110	48·0	110·1	110·4
125	51·0	125·1	125·4
140	54·0	140·2	140·5
160	58·0	160·2	160·5

8 PHYSICAL TEST REQUIREMENTS

8.1 Visual Appearance

The internal and external surfaces of the pipes shall be smooth and clean, and free from groovings and other defects. The end shall be clearly cut and shall be square with the axis of the pipe. The end may be chamfered on the plain sides. Slight shallow longitudinal grooves or irregularities in the wall thickness shall be permissible provided the wall thickness remains within the permissible limits.

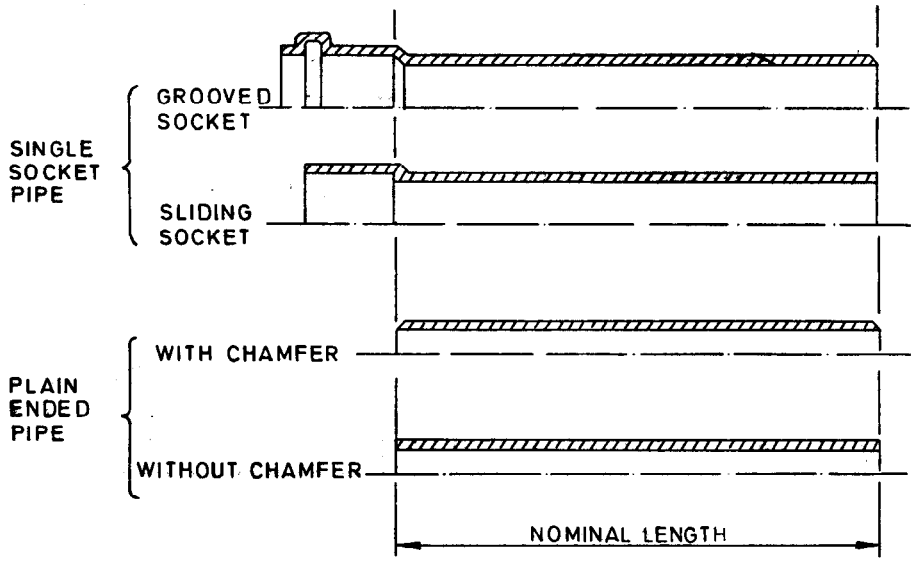

FIG. 1 NOMINAL PIPE LENGTH AND DEFINITIONS

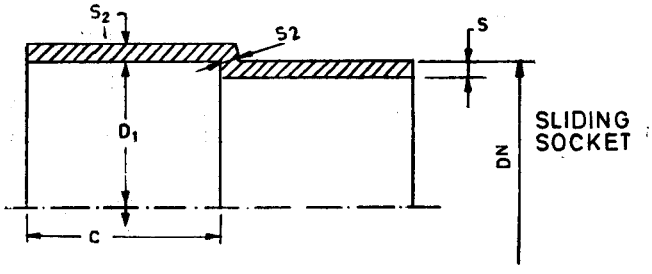

FIG. 2 SLIDING SOCKET DETAILS

Table 4 Dimensions of Grooved Socket

(*Clause* 7.3.2)

All dimensions in millimetres.

Nominal Outside Diameter *DN*	Inside Diameter of Socket, D_1		Inside Diameter of Beading, D_2		Length of Beading and Neck, *A*	Neck of Socket *B*	Length Beyond Beading *C*
	Min	*Max*	*Min*	*Max*	*Max*	*Min*	*Min*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
40	40·3	41·1	49·6	50·6	18	5	18
50	50·3	51·1	59·6	60·6	18	5	20
63	63·3	64·1	72·9	73·9	18	5	23
75	75·3	76·2	84·5	85·5	20	5	25
90	90·3	91·2	99·5	100·5	23	5	28
110	110·4	111·3	120·3	121·3	26	6	32
125	125·4	126·4	137·1	138·2	28	7	35
140	140·5	141·4	152·1	153·2	30	8	38
160	160·5	161·5	173·8	175·0	32	9	42

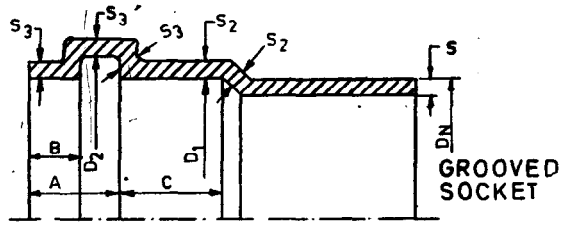

FIG. 3 GROOVED SOCKET DETAILS

8.2 Reversion Test

When tested by the method described in IS 12235 (Part 5) : 1986 a length of pipe of approximately 300 mm shall not alter in length by more than 5 percent. In the case of socket end pipes, this test shall be carried out on the plain portion of pipe taken at least 100 mm away from the root of the socket.

8.3 Stress Relief Test

This test shall be carried out for socket end pipes only. When tested by the method described in IS 12235 (Part 6) : 1986 the test specimens shall not show blisters, excessive delamination or cracking or signs of weld line splitting. The weld line or lines may become pronounced during the test, but this shall not deemed to constitute failure.

8.4 Vicat Softening Temperature

The vicat softening temperature shall not be less than 79°C when determined in accordance with IS 6307 : 1985.

NOTE — This test may be done on specimen cut from the pipes of dimensions as specified in IS 6307 : 1985. The specimen shall be supported on a suitable concave surface of radius equal to that of pipe ensuring support on all ends.

8.5 Effect of Sunlight

Two samples each 300 mm long from different lengths of pipes shall be prepared. One sample shall be kept covered in thick paper and kept in shade as control sample and the other exposed to sun for not less than 1 600 hours at ambient temperature. After the required period of exposure the two samples when compared shall not show any difference in colour or physical appearance.

NOTE — Alternatively, effect of sunlights on the pipe may be tested using weatherometer for an equivalent exposure time. Relationship, however, shall be established to the satisfaction of purchaser/ inspection agency that duration of the exposure required using weatherometer is compatible with the stipulated exposure to the sun for 1 600 hours.

9 RESISTANCE OF SULPHURIC ACID

When tested by the method described in IS 12235 (Part 7) : 1986, the mass of specimen shall neither increase by more than 0·32 g nor decrease by more than 0·13 g. The effect of the acid on the surface appearance of the specimen (roughening, bleaching, or blackening) shall be ignored.

10 MECHANICAL PROPERTIES

10.1 Impact Strength at 0°C (Alternate to 10.2)

When tested by the method described in IS 12235 (Part 9) : 1986, the pipe sample shall not fracture or crack through its complete wall thickness.

In the case of socket end pipes, this test shall be carried out on the plain portion of the pipe taken at least 100 mm away from the root of the socket.

10.2 Tensile Strength (Alternate to 10.1)

When determined in accordance with the method described in IS 8543 (Part 4/Sec 1) : 1984, the maximum tensile strength and elongation at break shall not be less than 45 MPa and 80 percent respectively.

10.3 Axial Shrinkage (for Type B Pipes Only)

The axial shrinkage shall not exceed 2 percent when determined in accordance with Annex A.

11 WATER TIGHTNESS OF JOINT

The assembly of pipe and fittings shall be tested for water tightness in a apparatus which consist of two end sealing devices for the open ends of the fittings, one end connected to a hydraulic pressure source shall be capable of allowing the system to bled and the other end blanked.

Assemble the fittings with the sealing devices, fill with water ensuring all air is removed.

Apply a pressure of 0·5 MPa for a period of 15 minutes and there should be no leakage at any joint.

12 SAMPLING AND CRITERIA FOR CONFORMITY

12.1 Acceptance Test

The scale of sampling and criteria for conformity of a lot for acceptance tests specified in Table 5 shall be as given in Annex B.

12.2 Type Tests

Type test given in Table 5 shall be conducted whenever a charge is made in the polymer composition, method of manufacture or a new size of pipe is to be introduced. However if no change is envisaged, at least one sample from each size and type produced during the period shall be subjected to type tests once in six months.

13 MARKING

13.1 Each pipe shall be clearly and indelibly marked with the following informations at intervals not more than 3 meters:

a) Manufacturer's name or trade-mark,
b) Nominal outside diameter of pipe,
c) Type A or Type B, as appropriate, and
d) Batch Number.

13.2 The pipes may also be maked with Standard Mark.

Table 5 Acceptance and Type Tests

(*Clauses* 12.1 *and* 12.2)

Sl No.	Test	Clause	Acceptance Test	Type Test
(1)	(2)	(3)	(4)	(5)
1.	Colour	5	√	
2.	Dimensional	7.1 7.2 7.3	√	
3.	Visual	8.1	√	
4.	Reversion	8.2	√	
5.	Stress relief test	8.3	√	
6.	Impact strength	10.1	√	
7.	Tensile	10.2	√	
8.	Arcial shrinkage	10.3	√	
9.	Water tightness of joint	11	√	
10.	Vicat softening temp	8.4		√
11.	Effect of sunlight	8.5		√
12.	Resistance to H_2SO_4	9		√

ANNEX A

(*Clause* 10.3)

DETERMINATION OF AXIL SHRINKAGE OF PIPES

A-1 GENERAL

This Annex prescribes determination of the permanent axial shrinkage at 90°C.

A-2 APPARATUS

A-2.1 Thermostatically Controlled Water-Bath, capable of being maintained at 90°C ± 2°C.

The volume and performance of the bath shall be such that there is virtually no variation in temperature when the test pieces are immersed. The water in the bath shall not contain substances which can alter the product investigated.

Adequate stirring shall be provided so that the temperature limits are complied with at all points in the bath water.

A-2.2 Mounting Device for the Test Pieces

A-2.3 Thermometer, graduated in divisions of 0·5°C.

A-3 TEST PIECES

Select three pipes 300 mm ± 20 mm in length. Mark each pipe, for example by means of a scriber around the circumference with two circular marks. 200 mm apart, such that one of them is approximately 10 mm from one of the ends.

A-4 CONDITIONING

Condition the test pieces for at least 2 h at 23°C ± 2°C.

A-5 PROCEDURE

With the test pieces at a temperature of 23°C ±2°C, measure the distance between the marks to the nearest 0·25 mm. Regulate the temperature of the heating water to 90°C ± 2°C. Suspend the test pieces vertically in the heating water by the ends furthest from the marks, such that the whole test piece is immersed in the water and the upper end is at least 50 mm below the surface of the water.

The test pieces shall be placed in such a position that they touch neither the walls nor the bottom of the bath.

Leave the test pieces immersed for 1 h.

Remove the test pieces from the bath and after complete cooling at 23°C ± 2°C and measure, under the same conditions as above, the distance between the marks along two lines. running parallel to the longitudinal axis of the pipe and diametrically opposite each other on the pipe.

A-6 EXPRESSION OF RESULTS

Calculate the percentage change in distance between the marks on the test piece using the equation:

$$T = \frac{|\Delta L|}{L_o} \times 100$$

where

T is the percentage change in length or shrinkage.

$\Delta L = L_o - L$

L_o is the distance in millimetres between the marks before the test.

L is the distance, in millimetres between the marks after the test.

Select the value of L which gives the greatest value of ΔL.

For the value of axial shrinkage of the pipe, take the arithmetic mean of the values obtained for each of three test pieces.

ANNEX B

(*Clause* 12.1)

SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY FOR ACCEPTANCE TEST

B-1 LOT

B-1.1 All pipes, in a single consignment, of the same size and manufactured under essentially similar conditions shall constitute a lot.

B-1.2 For ascertaining conformity of the lot to the requirements of the specification, samples shall be tested from each lot separately.

B-2 COLOUR VISUAL APPEARANCE AND DIMENSIONAL REQUIREMENTS

B-2.1 The number of test samples to be taken from a lot shall depend on the size of the lot and size of pipes. This shall be in accordance with Tables 6 or 7, as appropriate.

B-2.2 The pipes shall be selected at random from the lot and in order to ensure the randomness of selection, a random number table shall be used. For guidance and use of random number tables, IS 1905 : 1968 may be referred to. In the absence of a random number table, the following procedure may be adopted:

Starting from any pipe, in the lot, count them as 1, 2, 3, etc, up to r and so on, where r is the integral part of N/n, N being the number of pipes in the lot and n, the number of pipes in the sample. Every rth pipe so counted shall be withdrawn so as to constitute the required sample size.

B-2.3 The number of pipes given for the first sample in col 3 of Tables 6 or 7 shall be taken from the lot and examined for colour, visual appearance and for dimensional requirements. A pipe failing to satisfy any of the requirements shall be considered as defective. The lot shall be deemed to have satisfied these requirements, if the number of defectives found in the first sample is less than or the corresponding acceptance number given in col 5 of Tables 6 or 7. The lot shall be deemed not to have met these

requirements if the number of defectives found in the first sample is greater than or equal to the corresponding rejection number given in col 6 of Tables 6 or 7. If however, the number of defectives found in the first sample lies between the corresponding acceptance and rejection numbers given in col 5 and 6 a second sample of the size given in col 3 shall be taken and examined for these requirements. The lot shall be considered to have satisfied these requirements if the number of defectives found in the cumulative sample is less than or equal to the corresponding acceptance number given in col 5 otherwise not.

B-3 OTHER ACCEPTANCE TESTS

The lot having satisfied the colour, visual and dimensional requirements shall be tested for reversion, stress relief, tensile (alternate to impact) and axial shrinkage tests.

For this purpose a sub sample from those tested under **B-2.3** shall be drawn as given in col 3 of Tables 8 or 9, as appropriate for the first/second sample size. The lot shall be deemed to have met the requirements given in the specification, if the number of defective found in the first sample is less than or equal to the corresponding acceptance number given in col 5 of Tables 8 or 9, as relevant. The lot shall be deemed not to have met these requirements, if the number of defectives found in the first sample is greater than or equal to the corresponding rejection number given in col 6 of Tables 8 or 9. If however the number of defectives found in the first sample lies between corresponding acceptance and rejection numbers given in col 5 and 6 of Tables 8 or 9, a second sample of size given in col 3 shall be taken and examined for the requirements. The lot shall be considered to have satisfied the requirements, if number of defectives found in the cumulative sample is less than or equal to the corresponding acceptance number given in col 5, otherwise not.

Table 6 Scale of Sampling for Colour, Visual Appearance and Dimensional Requirements (For DN Up to and Including 110 mm)

(*Clauses* B-2.1 *and* B-2.3)

Number of Pipes in the Lot	Sample Number	Sample Size	Cumulative Sample Size	Acceptance Number	Rejection Number
(1)	(2)	(3)	(4)	(5)	(6)
Up to 1 000	First	13	13	0	2
	Second	13	26	1	2
1 001 to 3 000	First	20	20	0	3
	Second	20	40	3	4
3 001 to 10 000	First	32	32	1	4
	Second	32	64	4	5
10 001 and above	First	50	50	2	5
	Second	50	100	6	7

Table 7 Scale of Sampling for Colour, Visual Appearance and Dimensional Requirements (For DN Above 110 mm)

(*Clauses* B-2.1 *and* B-2.3)

Number of Pipes in the Lot	Sample Number	Sample Size	Cumulative Sample Size	Acceptance Number	Rejection Number
(1)	(2)	(3)	(4)	(5)	(6)
Up to 3 000	First	8	8	0	2
	Second	8	16	1	2
3 001 to 10 000	First	13	13	0	2
	Second	13	26	1	2
10 001 to above	First	20	20	0	3
	Second	20	40	3	4

Table 8 Scale of Sampling for Reversion, Stress Relief, Tensile and Axial Shrinkage Tests (For DN Up to and Including 110 mm)

(*Clause* B-3)

Number of Pipes in the Lot	Sample Number	Sample Size	Cumulative Sample Size	Acceptance Number	Rejection Number
(1)	(2)	(3)	(4)	(5)	(6)
Up to 1 000	First	5	5	0	2
	Second	5	10	1	2
1 001 to 3 000	First	8	8	0	2
	Second	8	16	1	2
3 001 to 10 000	First	13	13	0	2
	Second	13	26	1	2
10 001 and above	First	20	20	0	3
	Second	20	40	3	4

Table 9 Scale of Sampling for Reversion, Stress Relief, Tensile and Axial Shrinkage Tests (For DN Above 110 mm)

(*Clause* B-3)

Number of Pipes in the Lot	Sample Number	Sample Size	Cumulative Sample Size	Acceptance Number	Rejection Number
(1)	(2)	(3)	(4)	(5)	(6)
Up to 3 000	First	3	3	0	2
	Second	3	6	1	2
30 001 to 10 000	First	5	5	0	2
	Second	5	10	1	2
10 001 and above	First	8	8	0	2
	Second	8	16	1	2

4 IMPACT STRENGTH (ALTERNATE TO TENSILE STRENGTH)

B-4.1 Number of Test Specimens

Initially sufficient number of specimens shall be taken at random from each batch of maximum 8 hours run and at least 14 strikes are made per extrusion run. If no specimen fails, no further test specimen be taken. If the initial 14 strikes, one, two or three specimen fail, further specimen shall be taken at random and tested to ensure a total of at least 42 strikes. If during the test more than four specimen fail, the test shall be discontinued and the production discarded.

B-5 WATER TIGHTNESS TEST

B-5.1 The lot having been found satisfactory according to **B-2** to **B-4** shall be subjected to this test.

B-5.2 For determining the conformity of pipes in the lot to the requirements for water tightness, the number of pipes to be taken from the lot shall be according to Table 10.

B-5.3 The pipes shall be taken at random from the lot in accordance with the procedure given in **B-2.2.**

B-5.4 The lot shall be considered to have met the requirements for this test; if the number of test samples failing in this requirements is equal to the corresponding acceptance number given in col 3 of Table 10.

Table 10 Scale of Sampling for Water Tightness Test

Number of Pipes in the Lot	Sample Size	Acceptance Number
(1)	(2)	(3)
Up to 3 000	2	0
3 001 to 10 000	3	0
10 001 and above	5	0

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 331 01 31, 331 13 75

Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices :	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002	331 01 31, 331 13 75
Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola, CALCUTTA 700054	37 84 99, 37 85 61, 37 86 26, 37 86 62
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(*Page* 5, *clause* 11, *line* 1) — Substitute '0.05 MPa' *for* '0.5 MPa'.

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(*First cover page and Page* 1, *Title*) — Substitute the following for the existing title:

'UNPLASTICIZED POLYVINYL CHLORIDE (UPVC) PIPES FOR SOIL AND WASTE DISCHARGE SYSTEM FOR INSIDE AND OUTSIDE BUILDINGS INCLUDING VENTILATION AND RAIN WATER SYSTEM — SPECIFICATION'

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Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 3 JULY 2003
TO
IS 13592 : 1992 UNPLASTICIZED POLYVINYL CHLORIDE (UPVC) PIPES FOR SOIL AND WASTE DISCHARGE SYSTEM FOR INSIDE AND OUTSIDE BUILDINGS INCLUDING VENTILATION AND RAIN WATER SYSTEM — SPECIFICATION

(*Page* 1, *clause* **2**) — Insert the following at the end of the clause:

'14182 : 1994 Solvent cement for use with polyvinyl chloride pipes and fittings'

(*Page* 2, *clause* **7.2.1**, *line* 1) — Substitute 'nominal' *for* 'effective'.

(*Page* 2, *clause* **7.3.2**, *line* 1) — Substitute 'socket for solvent cementing' *for* 'sliding socket'.

(*Page* 2, *Title of Table* 3) — Substitute **'Socket for Solvent Cementing'** *for* **'Sliding Sockets'**.

(*Page* 3, *Fig.* 2, *Caption*) — Substitute 'SOCKET FOR SOLVENT CEMENTING' *for* 'SLIDING SOCKET DETAILS'.

(*Page* 4, *clause* **11**, *para* 2) — Substitute the following for the existing para:

'Assemble the fittings with the sealing devices [(a) in the case of socket for solvent cementing, the joint has to be achieved by using solvent cement; and (b) in the case of grooved socket, the joint has to be achieved by fitting the rubber sealing ring in the groove], fill with water ensuring all air is removed. Jointing of solvent cementing joints is to be carried out using solvent conforming to IS 14182.'

(CED 50)

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