



Underwriters Laboratories Inc. (UL)  
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UL Standard for Safety  
for

Pipe and Couplings, Polyvinyl Chloride (PVC), for Underground Fire Service, UL 1285

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A change is indicated by a note following the affected item. The note is preceded and followed by an asterisk.

The new and/or revised requirements are substantially in accordance with UL's Bulletin on this subject dated March 15, 1996. The bulletin is now obsolete and may be discarded.

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**1**

**UL 1285**

**Standard for**

**Pipe and Couplings, Polyvinyl Chloride (PVC),  
for Underground Fire Service**

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**Third Edition**

**April 17, 1995**

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Revisions of this standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest set of revised requirements.

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**CONTENTS****FOREWORD****INTRODUCTION**

|                 |   |
|-----------------|---|
| 1 Scope .....   | 5 |
| 2 General ..... | 5 |

**CONSTRUCTION**

|                         |   |
|-------------------------|---|
| 3 Materials .....       | 6 |
| 4 Pipe Joints .....     | 6 |
| 5 Dimension Ratio ..... | 6 |
| 6 Imperfections .....   | 7 |
| 7 Sealing Gaskets ..... | 7 |

**PERFORMANCE**

|                                              |    |
|----------------------------------------------|----|
| 8 General .....                              | 7  |
| 9 Rubber Materials Tests .....               | 7  |
| 9A Elastomeric Parts .....                   | 8  |
| 10 Hydrostatic-Pressure Test .....           | 9  |
| 11 Leakage Test for Joints .....             | 10 |
| 12 Assembly Test .....                       | 10 |
| 13 Flattening Test .....                     | 10 |
| 14 Impact Resistance Test .....              | 11 |
| 15 Longitudinal Tensile-Strength Test .....  | 11 |
| 16 Long-Term Hydrostatic-Pressure Test ..... | 11 |
| 17 Extrusion Quality Test .....              | 11 |
| 18 Light and Water Test .....                | 12 |

**MANUFACTURING AND PRODUCTION TESTS**

|                                                    |    |
|----------------------------------------------------|----|
| 19 General .....                                   | 12 |
| 20 Production-Line Hydrostatic-Pressure Test ..... | 12 |

**MARKING**

|                         |    |
|-------------------------|----|
| 21 General .....        | 13 |
| 22 Pipe .....           | 13 |
| 23 Couplings .....      | 14 |
| 24 Rubber Gaskets ..... | 14 |

## FOREWORD

A. This Standard contains basic requirements for products covered by Underwriters Laboratories Inc. (UL) under its Follow-Up Service for this category within the limitations given below and in the Scope section of this Standard. These requirements are based upon sound engineering principles, research, records of tests and field experience, and an appreciation of the problems of manufacture, installation, and use derived from consultation with and information obtained from manufacturers, users, inspection authorities, and others having specialized experience. They are subject to revision as further experience and investigation may show is necessary or desirable.

B. The observance of the requirements of this Standard by a manufacturer is one of the conditions of the continued coverage of the manufacturer's product.

C. A product which complies with the text of this Standard will not necessarily be judged to comply with the Standard if, when examined and tested, it is found to have other features which impair the level of safety contemplated by these requirements.

D. A product employing materials or having forms of construction differing from those detailed in the requirements of this Standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be judged to comply with the Standard.

E. UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of UL represent its professional judgment given with due consideration to the necessary limitations of practical operation and state of the art at the time the Standard is processed. UL shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. UL shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of or reliance upon this Standard.

F. Many tests required by the Standards of UL are inherently hazardous and adequate safeguards for personnel and property shall be employed in conducting such tests.

**Table 5.1**  
**Dimension ratio (DR)**

| Pipe type                                                  | Pipe class/ pressure rating | Dimension ratio (DR) |
|------------------------------------------------------------|-----------------------------|----------------------|
| Distribution [Sizes 4 – 12 inches (nominal 100 – 300 mm)]  | 100                         | 25                   |
|                                                            | 150                         | 18                   |
|                                                            | 200                         | 14                   |
| Transmission [Sizes 14 – 36 inches (nominal 350 – 900 mm)] | 100                         | 41                   |
|                                                            | 125                         | 32.5                 |
|                                                            | 160                         | 26                   |
|                                                            | 165                         | 25                   |
|                                                            | 200                         | 21                   |
|                                                            | 235                         | 18                   |

## 6 Imperfections

6.1 Pipe shall be homogeneous throughout and shall have no voids, cracks, inclusions, or other defects that would impair the intended performance of the product.

6.2 Axial dents, gouges, bruises, tool marks, or grooves in the gasket seating area of a pipe section or coupling shall not be deeper than 1/32 inch (0.8 mm).

6.3 For the purposes of this standard, a gasket-seating area of a pipe section or coupling is defined as an area that is, or could be, in contact with the sealing surfaces of the gasket in intended assemblies.

## 7 Sealing Gaskets

7.1 A sealing gasket shall be made of a vulcanized natural rubber or a synthetic rubber compound and shall have uniform dimensions and sufficient thickness to provide a compression-like seal. See Elastomeric Parts Test, Section 9A.

\*7.1 revised July 15, 1996\*

## PERFORMANCE

### 8 General

8.1 Representative samples of each class, pressure rating and size of PVC pipe and couplings shall be subjected to the tests described in Sections 9 – 18.

### 9 Rubber Materials Tests

\*Section 9 deleted July 15, 1996\*

## 9A Elastomeric Parts

9A.1 An elastomeric part used to provide a seal shall have the following properties when tested as specified in the Standard for Gaskets and Seals, UL 157:

a) Single material and sealing (soft) portion of dual material gaskets:

- 1) Minimum tensile strength — 2000 psi (13.8 MPa), and minimum ultimate elongation — 300 percent [1 to 4 inches (25.4 to 102 mm)].
- 2) Maximum set of 3/16 inch (4.8 mm) when 1 inch (25.4 mm) marks are stretched to 3 inches (76.2 mm), held for 2 minutes, released, and measured 2 minutes after release.
- 3) Those properties relating to minimum tensile strength and elongation after oven aging; and hardness after oven aging, all as specified in UL 157. The maximum service temperature used to determine the oven time and temperature for oven aging is considered to be 60°C (140°F).
- 4) The compression set of samples of rubber seals shall not exceed 20 percent of the original thickness after being compressed to three-fourths of the original thickness.

b) Retaining (hard) portion of dual material gaskets:

- 1) Minimum tensile strength — 1200 psi (8.3 MPa), and minimum ultimate elongation — 125 percent [1 to 2.25 inches (25.4 to 57.2 mm)].
- 2) Those properties relating to minimum tensile strength and elongation after oven aging as specified in UL 157. The maximum service temperature used to determine the oven time and temperature for oven aging is considered to be 60°C (140°F).

\*9A.1 added July 15, 1996\*

## 10 Hydrostatic-Pressure Test

10.1 Pipe and couplings (if provided) shall withstand for 5 seconds, without rupture, an internal hydrostatic pressure as specified in Table 10.1 based on the minimum wall thickness of the pipe, when tested as specified in 10.2 and 10.3.

**Table 10.1**  
**Hydrostatic test pressures**

| Pipe type                                            | Multiple of rated pressure |
|------------------------------------------------------|----------------------------|
| Distribution [4 – 12 inches (nominal 350 – 900 mm)]  | 5                          |
| Transmission [14 – 36 inches (nominal 100 – 300 mm)] | 3.2                        |

10.2 Representative samples of each pressure class and size of pipe and couplings are to be prepared for hydrostatic pressure testing for short-time rupture strength in accordance with the Test Method for Short-Time Hydraulic Failure Pressure of Plastic Pipe, Tubing, and Fittings, ASTM D1599-88. The minimum wall thickness, average wall thickness (minimum of six points), outside diameter and length of the samples are to be measured and recorded. The test pressure is to be determined based on the calculated hoop stress for the minimum wall thickness and minimum test pressure (5 times rated working pressure) using the measured minimum wall thickness. For sizes up to and including 6 inches (152.4 mm), the sample length (between end caps) is to be at least five times the nominal diameter; for sizes 8 to 12 inches (203.2 to 304.8 mm), the length is to be at least three times the nominal diameter; and for sizes larger than 12 inches, the pipe sample is to be at least 36 inches (0.91 m) in length.