

Australian Standard<sup>®</sup>

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**DOMESTIC GARDEN HOSE**

**Part 1—REINFORCED HOSE**

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The following interests are represented on Committee PL/13:

Australian Federation of Consumer Organizations Inc.

Australian Retailers Association

Confederation of Australian Industry

Plastics Institute of Australia Inc.

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**Part 1—REINFORCED HOSE**

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## PREFACE

This standard was prepared by the Association's Committee for PVC Garden Hose under the direction of the Plastics Standards Board. It is intended to afford guidance to manufacturers regarding necessary requirements for reinforced garden hose such that the hose will give reasonable performance under normal Australian climatic conditions.

This standard constitutes Part 1 of the standard for domestic garden hose. Part 2 covers unreinforced garden hose and is a revision of AS N39—1963, PVC Garden Hose, which was withdrawn in 1979. Each part lays down requirements for minimum wall thickness, ability to withstand pressure, low temperature flexibility and accelerated exposure, together with relevant methods of test.

No requirements for appearance have been included in either Part 1 or Part 2 as the defects described were of a qualitative nature and could not be sensibly quantified. Where it is considered that the presence of any defects such as foreign matter, undispersed raw materials, die lines or striations may adversely affect the performance of a hose, arrangements should be made between purchaser and supplier.

The sizes of hose that were in AS N39 have been 'soft' metricated. Requirements for minimum sheath thickness have not been included in the interests of allowing greater flexibility in hose design. The sheath thickness was found to be normally determined by aesthetic reasons rather than by any likely strength contribution. As a certain sheath thickness is necessary to cover the reinforcement to prevent it unravelling and the hose has to pass the ply adhesion and pressure tests, the committee felt there would not be a reduction in performance. The committee gave consideration to specifying an abrasion test in lieu of the minimum sheath thickness, but failure of the hose due to this aspect alone was thought to be unlikely.

AS N39 specified that the bore of the hose be smooth. No method of test was included and assessment was entirely subjective. In the preparation of this standard, it was found that testing to determine smoothness could be both difficult and expensive and a very large degree of roughness was necessary before any significant difference in flow-rate was obtained.

The committee also examined the problem of hoses kinking and reference was made to various BSI and ISO test methods. The criterion specified in the ISO standard was a minimum bend radius of 5 times the minimum hose bore and all hoses commonly available were found to be able to easily meet this requirement without kinking. However, the same hoses could be made to kink if they were subjected to mishandling during uncoiling or if there was a failure to notice the hose twisting around an object in its path. In this respect it was decided that inclusion of a test of this nature would serve little purpose.

It should be noted that garden hose is not intended to be used for the conveyance of potable water, unless the manufacturer states otherwise, and in such cases the composition would comply with AS 2070, Plastics Materials for Food Contact Use.

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## STANDARDS ASSOCIATION OF AUSTRALIA

**Australian Standard**  
for  
**DOMESTIC GARDEN HOSE**  
**PART 1—REINFORCED HOSE**

**1 SCOPE.** This standard specifies requirements for domestic garden hose made of PVC compound or other suitable materials reinforced by a means other than the inherent hardness and thickness of the wall, for use with mains pressure reticulated cold water. Reinforced garden hose is intended for use with pressure containment within the hose.

This standard does not include requirements for fittings. Hose manufactured in accordance with this standard is not intended to be used with fittings likely to cause cutting of the inner hose or outside sheath wall.

Advisory information on the determination of compliance of a 'lot' with this standard is given in Appendix A.

**2 REFERENCED DOCUMENTS.** The following standards are referred to in this standard:

- AS 1199 Sampling Procedures and Tables for Inspection by Attributes
- AS 1399 Guide to AS 1199, Sampling Procedures and Tables for Inspection by Attributes
- AS 1821-23 Suppliers Quality Control Systems
- AS 2000 Guide to AS 1821-23, Suppliers Quality Control Systems
- AS 2433 Plastics—Method for Exposure to Ultraviolet Lamps
- AS 2490 Sampling Procedures and Charts for Inspection by Variables for Percent Defective
- ISO 105 Textiles—Tests for Colour Fastness
- Attention is drawn to the following related standard:
- AS 1327 Standard Environments for Conditioning and Testing Plastics Materials

**3 MATERIAL.** The hose shall be made of a consistent quality of compound in each of its stages.

**4 CLASSIFICATION.** Hose shall be classified on the basis of pressure rating determined in accordance with Clause 7, as follows:

- (a) Class 1200—pressure rating of 1200 kPa.
- (b) Class 700—pressure rating of 700 kPa.

**5 LENGTH.** When measured horizontally in its relaxed state under ambient conditions, the actual length of the hose shall be not less than that designated.

**6 INSIDE DIAMETER AND WALL THICKNESS.** When measured in accordance with Appendix B, the inside diameter and wall thickness of the hose, at any point, shall not be less than the value specified in Table 1.

**TABLE 1**  
**INSIDE DIAMETER AND WALL THICKNESSES**

| millimetres  |                         |                        |
|--------------|-------------------------|------------------------|
| Nominal size | Minimum inside diameter | Minimum wall thickness |
| 12           | 11.1                    | 1.7                    |
| 18           | 17.5                    | 2.4                    |
| 24           | 23.8                    | 2.7                    |

**7 HYDROSTATIC PRESSURE.** When tested in accordance with Appendix C, the hose shall withstand the following water pressure at  $40 \pm 2^\circ\text{C}$  for the period specified in Table 2, as appropriate to the hose class:

- (a) Class 1200—hydrostatic pressure of 1200 kPa.
- (b) Class 700—hydrostatic pressure of 700 kPa.

Swelling of the hose during testing shall not exceed 25 percent of the outside diameter of the unpressurized hose.

**TABLE 2**  
**HYDROSTATIC PRESSURE**

| Nominal size<br>mm | Minimum bursting time<br>min |
|--------------------|------------------------------|
| 12                 | 20                           |
| 18                 | 10                           |
| 24                 | 5                            |

**8 LOW TEMPERATURE FLEXIBILITY.** When tested in accordance with Appendix D, the hose shall bend sufficiently to break the surface of the liquid within 20 s, using the mass specified in Table 3 appropriate to the hose size.

**TABLE 3**  
**LOW TEMPERATURE FLEXIBILITY**  
**TEST MASSES**

| Nominal size<br>mm | Specified test mass<br>kg |
|--------------------|---------------------------|
| 12                 | 3.5                       |
| 18                 | 9.0                       |
| 24                 | 14.0                      |

**9 ACCELERATED EXPOSURE.** When tested in accordance with Appendix E, the exposed hose shall comply with the criteria set out therein.

**10 PLY ADHESION.** When tested in accordance with Appendix F, the sheath wall shall support a weight of mass  $1.5 + 0.1, - 0$  kg for a period of not less than 1 min, without separating from the hose core.