

Australian/New Zealand Standard™

**PVC-U pipes and fittings for stormwater  
and surface water applications**



## **AS/NZS 1254:2010**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee PL-021, PVC, ABS and Polyamide Pipe Systems. It was approved on behalf of the Council of Standards Australia on 12 March 2010 and on behalf of the Council of Standards New Zealand on 8 February 2010. This Standard was published on 6 April 2010.

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The following are represented on Committee PL-021:

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Engineers Australia  
Local Government New Zealand  
Master Plumbers, Gasfitters and Drainlayers New Zealand  
National Plumbing Regulators Forum  
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*This Standard was issued in draft form for comment as DR AS/NZS 1254.*

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Australian/New Zealand Standard<sup>™</sup>

## PVC-U pipes and fittings for stormwater and surface water applications

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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee PL-021, PVC, ABS and Polyamide Pipe Systems, to supersede AS/NZS 1254:2002, *PVC pipes and fittings for stormwater and surface water applications*.

*This Standard incorporates Amendment No. 1 (April 2011), Amendment No. 2 (December 2013) and Amendment No. 3 (November 2018). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.*

The objective of this Standard is to outline minimum requirements for the manufacture and performance of PVC-U pipes and fittings for stormwater applications for use by manufacturers, specifiers and purchasers of such products.

For pipe of nominal diameter DN 75 there is one classification based on minimum wall thickness. This is class SN2. For pipe of nominal diameter DN 90 and DN 100 there are three classifications based on minimum pipe stiffness. These are pipe stiffness classes SN2, SN4 and SN8. For pipes greater than DN 100 there are 4 stiffness classes, SN1.5, SN2, SN4 and SN8.

Sufficient dimensional information is provided to ensure compatible joints, minimum bore and resistance to abrasion.

Stiffness class SN8 has been included for applications where heavy loads, for example deeper burial, traffic loads or poor installation practices for which higher pipe stiffness may be required to minimize deflection of the installed pipes.

Stiffness class SN1.5 in sizes greater than DN 100 has been included to accommodate pipes currently manufactured and shown to perform satisfactorily.

Pipe stiffness is a measure of resistance of a pipe to ring deflection and is determined by testing or calculation, in newtons per metre circumferential deflection per metre length.

Users wishing to compare the stiffness of pipes made to the previously superseded classification scheme (AS 1254—1981 and NZS 7649—1988), with current requirements may use the equation of Clause 3.11.

The  $E_b$  value for sandwich construction pipe may be less than that for plain wall pipe of the same wall thickness. To achieve the same pipe stiffness, a sandwich construction pipe might require a greater wall thickness than for an equivalent plain wall pipe.

Caution is advised, however, because it is necessary to assume a value of the initial three-minute ring bending modulus  $E_b$  of PVC in the equation. The committee has assumed a value of 3200 MPa for PVC (as recommended in AS/NZS 2566.1) for the three-minute ring bending modulus ( $E_b$ ). This value is not a 'material constant'; it depends on the resin used, and the influence of the additives and fillers used in the manufacture of PVC stormwater pipes. While calculations are useful for estimating pipe stiffness and wall thickness, these values should only be used as guidelines.

The test criteria of this Standard apply to pipes and fittings at the time of manufacture and should not be used to assess the results from tests on pipes or fittings that have been in service.

It should be noted that, by convention, plastics pipe systems are often designed on the basis of 50 years extrapolated test data. This is established international practice but is not intended to imply the service life of drainage pipes is limited to 50 years. For correctly manufactured and installed systems, the actual life cannot be predicted, but can logically be expected to be well in excess of 100 years before major rehabilitation is required.

Changes to this edition include the exclusion of additives containing compounds based on lead, cadmium or mercury and changing the reporting requirements for ring flexibility to reflect the changes in the test method.

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A2

Appendix B sets out the provisions for best environmental practice PVC for stormwater and surface water applications. These provisions are in accordance with the credit criteria established by the Green Building Council of Australia in their Green Star rating program.

For best environmental practice PVC satisfying the provisions of Appendix B, an attestation of compliance for upstream materials such as chlorine and vinyl chloride, is necessary. Such attestations can take the form of a declaration of conformity prepared and maintained in accordance with ISO/IEC 17050, *Conformity assessment—Supplier's declaration of conformity*, Part 1: *General requirements*, and Part 2: *Supporting documentation*. Part 1 addresses the contents of the declaration of conformity and the procedures necessary to ensure ongoing compliance. Part 2 addresses the documentation required to support a declaration of conformity including the contents, traceability, availability and retention period.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

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## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**Australian/New Zealand Standard****PVC-U pipes and fittings for stormwater and surface water applications**

## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE**

This Standard specifies requirements for PVC-U pipes and fittings for conveyance of stormwater or surface water. The Standard includes requirements for both plain and structured wall pipes and fittings.

Alternative methods for determining compliance with this Standard are given in Appendix A.

NOTE: Pipe manufactured to this Standard should only be used and installed in accordance with AS/NZS 2032, AS/NZS 2566.1, AS/NZS 2566.2 and AS/NZS 3500.3.

A1 Appendix B sets out additional requirements for pipes and fittings classed as best  
A2 environmental practice PVC for stormwater and surface water applications.

**1.2 REFERENCED DOCUMENTS**

The following documents are referred to in this Standard.

## AS

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|----------|--|
| 681      | Elastomeric seals—Material requirements for pipe joint seals used in water and drainage applications |
| 681.1    | Part 1: Vulcanized rubber  |
| 681.2    | Part 2: Thermoplastic elastomers   |
| 1199     | Sampling procedures and tables for inspection by attributes  |
| 1199.1   | Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection         |
| 1646     | Elastomeric seals for waterworks purposes  |
| HB 18.28 | Conformity assessment—Guidance on a third party certification system for products                    |

## AS/NZS

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|---------|--|
| 1260    | PVC-U pipes and fittings for drain, waste and vent application           |
| 1462    | Methods of test for plastics pipes and fittings                          |
| 1462.1  | Method 1: Method for determining the dimensions of pipes and fittings    |
| 1462.3  | Method 3: Method for determining the impact characteristics of pipes     |
| 1462.8  | Method 8: Method for testing the leaktightness of assemblies             |
| 1462.11 | Method 11: Method for high temperature stress-relief testing of fittings |
| 1462.15 | Method 15: Method for determination of vinyl chloride monomer content    |
| 1462.21 | Method 21: Method for determination of bond strength                     |
| 1462.22 | Method 22: Method for determination of pipe stiffness                    |
| 1462.23 | Method 23: Method for determination of ring flexibility                  |
| 1477    | PVC pipes and fittings for pressure applications                         |
| 2032    | Installation of PVC pipe systems   |