

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.

The following are represented on Committee PL-021:

Association of Accredited Certification Bodies
Australian Chamber of Commerce and Industry
Engineers Australia
Local Government New Zealand
Master Plumbers, Gasfitters and Drainlayers New Zealand
National Plumbing Regulators Forum
New Zealand Water and Waste Association
Plastics and Chemicals Industries Association
Plastics Industry Pipe Association of Australia
Plastics New Zealand
Water Services Association of Australia

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.saiglobal.com or Standards New Zealand web site at www.standards.govt.nz and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of Standards Australia or the New Zealand Standards Executive at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS 1254.

Australian/New Zealand Standard™

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

Originated in Australia as AS 1254—1973.
Originated in New Zealand as NZS 7649:1974.
Previous edition AS/NZS 1254:2002.
Second edition 2010.
Reissued incorporating Amendment No. 1 (April 2011).
Reissued incorporating Amendment No. 2 (December 2013).
Reissued incorporating Amendment No. 3 (November 2018).

COPYRIGHT

© Standards Australia Limited

© The Crown in right of New Zealand, administered by the New Zealand Standards Executive

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, PO Box 1473, Wellington 6140.

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 practice 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 diametral 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 1.3.11.

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.

A1
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.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE.....	6
1.2 REFERENCED DOCUMENTS.....	6
1.3 DEFINITIONS.....	7
1.4 NOTATION.....	9
1.5 CLASSIFICATION	9
SECTION 2 GENERAL REQUIREMENTS	
2.1 GENERAL.....	10
2.2 COMPOSITION	10
2.3 COLOUR.....	10
2.4 FREEDOM FROM DEFECTS	10
2.5 REQUIREMENTS FOR ELASTOMERIC SEALS	10
2.6 SOLVENT CEMENTS.....	11
2.7 PACKAGING, STORAGE AND TRANSPORTATION	11
2.8 ADDITIONAL REQUIREMENTS FOR BEST ENVIRONMENTAL PRACTICE PVC PIPES AND FITTINGS	11
SECTION 3 PERFORMANCE REQUIREMENTS	
3.1 GENERAL.....	12
3.2 TESTS ON PIPES.....	12
3.3 TESTS ON MOULDED AND FABRICATED FITTINGS	13
3.4 TESTS ON ELASTOMERIC SEAL JOINTS.....	13
SECTION 4 PIPES	
4.1 GENERAL.....	14
4.2 DIAMETER AND WALL THICKNESS.....	14
4.3 LENGTH	14
4.4 PIPE SPIGOT ENDS	14
4.5 SOCKETS FORMED ON PIPE ENDS.....	14
4.6 MARKING	18
4.7 WITNESS MARK	19
SECTION 5 MOULDED FITTINGS	
5.1 GENERAL.....	20
5.2 DIMENSIONS OF MOULDED FITTINGS	20
5.3 WALL THICKNESS	22
5.4 MINIMUM FREE BORE	22
5.5 TEST OPENINGS	23
5.6 MARKING	24
SECTION 6 FABRICATED FITTINGS	
6.1 GENERAL.....	25
6.2 MATERIALS.....	25
6.3 COMPLIANCE	25
6.4 MINIMUM FREE BORE	25
6.5 MARKING	25

Page

SECTION 7 ELASTOMERIC SEAL JOINTS

7.1	GENERAL.....	26
7.2	MATERIALS.....	26
7.3	DESIGN	26
7.4	EFFECTIVE SEALING LENGTH	26

APPENDICES

A2	A	MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS STANDARD	28
	B	ADDITIONAL REQUIREMENTS FOR BEST ENVIRONMENTAL PRACTICE PVC PIPES AND FITTINGS.....	36

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
A2

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

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

- | | |
|----------|--|
| 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

- | | |
|---------|--|
| 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 |