

AS/NZS 4130:2003

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Australian/New Zealand Standard™

Polyethylene (PE) pipes for pressure applications

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This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee PL-006, Polyolefin Pipe Systems. It was approved on behalf of the Council of Standards Australia on 28 February 2003 and on behalf of the Council of Standards New Zealand on 20 February 2003. It was published on 18 March 2003.

The following are represented on Committee PL-006:

Australian Gas Association
CSIRO Manufacturing and Infrastructure Technology
Certification Bodies (Australia)
Institution of Engineers
Master Plumbers, Gasfitters and Drainlayers New Zealand
New Zealand Water and Waste Association
Plastics Industry Pipe Association of Australia
Plastics New Zealand
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Polyethylene (PE) pipes for pressure applications

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committees PL-006, Polyolefin Pipe Systems, to supersede AS 4130—2001, *Polyethylene (PE) pipes for pressure applications*, which is withdrawn.

The objective of this document is to provide a standard specification for manufacturers and purchasers of polyethylene pipes used for pressure applications.

This revision is based largely on the latest ISO and CEN documents. The notable exception is the inclusion of Series 3 gas pipes, which are included for reasons of compatibility with existing systems. Series 2 gas pipe dimensions are such as to ensure compatibility with existing systems that conform to the ISO 11922-1 size series. Series 1 pressure pipes are for general pressure applications and are compatible with the ISO 11922-1 size series dimensions.

For installation requirements, see AS 2033, *Installation of polyethylene pipe systems*; AS 3723, *Installation and maintenance of plastics pipe systems for gas*; and NZS 5258, *Code of practice for gas distribution*.

Changes in this revision include the introduction where possible of terminology and definitions adopted in ISO standards. The long-term hydrostatic strength of compounds is referred to as the Lower Prediction Limit (LPL) of the stress when evaluated in accordance with ISO 9080.

The range of pipe dimensions has been extended to cover likely demand for the foreseeable future and the range of standard pressure classes has been extended to include PN 20 and PN 25.

The basic Service (Design) Coefficient of 1.25 has been applied to establish the Hydrostatic Design Stress for Series 1 pipes. A series of cumulative design factors taking into account pipe configuration, location and application has been included in Tables C1 and C2 to allow calculation of maximum allowable operating pressure (MAOP) for both gas and water.

Additional requirements for compatibility, UV resistance and thermal stability have been added for striping and jacket compounds, and the base resin requirements have been established by reference to the revised AS/NZS 4131.

The Committee considered at length the requirements for Slow Crack Growth (SCG) and for the PE 80B and PE 100 materials adopted a minimum test value of 500 hours following ISO decisions for gas applications. These materials are intended for use in more demanding applications, such as high pressure gas and water transmission.

Rapid crack propagation resistance (RCP) requirements have not been included in AS/NZS 4130 but have been included in AS/NZS 4131 for PE 100 materials. For high-pressure gas, and high-pressure water applications with air entrapment, where RCP may be a controlling feature, the designer is advised to seek specific advice from the pipe supplier.

The means of demonstrating compliance with this Standard (Appendix A) have been modified for minimum sampling and testing frequency plans to include batch release tests, process verification tests and type tests requirements, to simplify and improve product quality verification.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

Statements expressed in mandatory terms in notes to tables and figures are deemed to be requirements of this Standard. Other notes are for information only.

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