AS 2033—1980

Australian Standard®

Installation of polyethylene pipe systems

THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Confederation of Australian Industry

Department of Construction

Department of Local Government, Qld.

Department of Public Works, N.S.W.

Engineering and Water Supply Department, S.A.

Federated Master Plumbers of Australia

Hunter District Water Board

Melbourne and Metropolitan Board of Works

Metropolitan Water, Sewerage and Drainage Board, N.S.W.

Plastics Institute of Australia Inc.

State Rivers and Water Supply Commission of Victoria

This standard, prepared by Committee PL/6, Polyethylene Pipe, was approved on behalf of the Council of the Standards Association of Australia on 19 July 1980, and was published on 1 November 1980.

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PREFACE

This standard was prepared by the Association's Committee on Polyethylene Pipe, under the authority of the Plastics Standards Board, as the 1980 edition of AS 2033—1977. This edition covers the adoption of the ISO 161* nominal outside diameter series for pipe manufactured in accordance with AS 1159—1979. Previously, pipe sizes in AS 1159 had been referred to in terms of nominal sizes.

This edition still covers handling, transport, and storage of polyethylene pipe. It also states a number of the properties of polyethylene pipe and gives indications of areas where the use of polyethylene pipe is not recommended. It deals with the installation and jointing techniques applicable to polyethylene pipe above or below ground.

In this edition the approach of the former standard has been continued for separate sections on pipes for pressure applications; soil, waste and vent (SWV) pipes; sewer pipes; and drain pipes; and covering both above and below ground installations as applicable. In addition, the installation of pipe as a pipeline liner is covered.

Although not in general use for soil, waste and vent applications in Australia at present, polyethylene pipe has received widespread acceptance for this purpose in Europe and after due consideration the committee agreed to extend the scope to include a section on the installation of polyethylene SWV systems.

The sections relating to jointing techniques and testing of pipelines have not been changed from that of the 1977 edition.

This standard may require reference to the following Australian standards:

AS 1159	Polyethylene (Polythene) Pipe for Pressure Applications
AS 1460	Mechanical Jointing Fittings for Use with Polyethylene Pressure Pipes
AS 1463	Polyethylene Pipe Extrusion Compounds
AS 1529	Installation of Household Type Hot Water Supply Systems
AS 1646	Rubber Joint Rings for Water Supply, Sewerage and Drainage Purposes
AS 1667	Polyethylene Pipes and Fittings for Gas Reticulation
AS 1697	SAA Gas Pipeline Code
AS 2129	Flanges and Bolting for Pipes, Valves and Fittings
AS 3000	Part 1-SAA Wiring Rules
AS CA68	Rules for Plastics Pipelaying Design
AS	Polyethylene Pipe and Fittings for House Drain and Sewer†

* ISO 161, Thermoplastics Pipes for the Transport of Fluids—Nominal Outside Diameters and Nominal Pressures—Part 1: Metric Series.
† In course of preparation.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
THE INSTALLATION OF POLYETHYLENE PIPE SYSTEMS

PART 1. SCOPE, DEFINITIONS AND MATERIAL REQUIREMENTS

1.1 SCOPE. This standard sets out the recommended method of installing polyethylene (hereinafter referred to as PE) pipe-lines, above or below ground, for both pressure and non-pressure applications.

NOTE: Where PE pipelines are to be installed underground the safe installation depths are calculated by reference to AS CA68.

1.2 APPLICATION. This standard is primarily intended for use in association with pipe and fittings complying with AS 1159, AS 1460 and AS ..*

Although AS 1159 does not restrict the pressure applications for PE pipe, installation practices set out in this standard are specifically intended to cover only the conveyance of fluids that are essentially incompressible.

The design and installation of systems for gases (such as compressed air) are not covered by this standard. Reference should be made to AS 1667 for the design of piping and to AS 1697 for guidance on the installation of piping for compressible fluids.

Similarly, the standard does not deal with electrical installations for which reference should be made to AS 3000, Part 1.

1.3 DEFINITIONS. For the purpose of this standard the following definitions apply:

Bedding material—material surrounding the pipe and bedding it in position. The bedding comprises three zones, viz the pipe underlay, the pipe overlay, and the pipe support (see Fig. 1.1).

Pipe underlay—the bedding on which a pipe is laid (see Fig. 1.1).

Pipe overlay—the layer of bedding material between the pipe side-support material and the backfill to protect the pipe from damage and provide a means of distributing superimposed loads (see Fig. 1.1).

Pipe side support—the layer of bedding material between the pipe underlay and pipe overlay material to provide side support to the pipe and to assist the load-carrying ability of the pipeline (see Fig. 1.1).

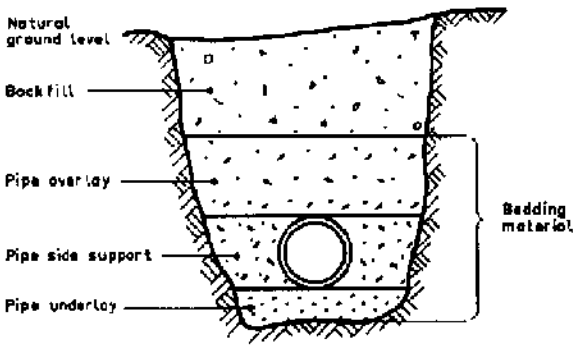

Fig. 1.1. LAYERS IN A TRENCH INSTALLATION

Backfill—material used for filling trenches and excavations after a pipeline has been laid underground. It is normally placed on top of pipe bedding material (see Fig. 1.1).

1.4 MATERIALS.

1.4.1 Pipe and Fittings. Pipe and fittings installed in accordance with this standard shall comply with the relevant Australian standard specified in Clause 1.2.

1.4.2 Fittings. All fittings for PE pipe systems shall be capable of withstanding the same service requirements as the pipe. Additionally the material of fittings shall be compatible with materials used in the pipe system and shall comply with the relevant Australian standard where applicable.

1.4.3 Hangers and Clips. Hangers and clips used in conjunction with this code shall comply with the following requirements:

(a) They shall be made of corrosion-resistant materials.

(b) Metal hangers or clips, if used, shall be coated with a resilient material which is compatible with PE where the hanger or clip comes into contact with the pipe.

(c) Pipe hangers and clips shall be so constructed that, when they are completely tightened, longitudinal movement of the pipe is permitted.

(d) Anchor clips for fixed points shall be so constructed that, when they are tightened, the fitting or pipe is securely and evenly clamped to prevent movement. Care should be taken to ensure that pipes and fittings are not distorted by overtightening.

1.4.4 Rubber Rings. Rubber rings for use with rubber-ring joints shall be those supplied by the manufacturer of the pipe or fittings and shall comply with AS 1646.

1.4.5 Lubricants for Rubber Ring and Expansion Joints. Lubricants used in conjunction with this standard shall be those recommended by the manufacturer of the pipe or fittings.

1.5 IDENTIFICATION. All pipes and fittings to be installed in accordance with this standard shall be identified and marked in the manner specified in the relevant Australian standard listed in Clause 1.2.

*AS..., Polyethylene Pipe and Fittings for House Drain and Sewer (in course of preparation).