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Australian Standard®

Polybutylene pipe systems

Part 1: Polybutylene (PB) pipe extrusion compounds

AS/NZS 2642
Polybutylene pipe systems

AS/NZS 2642.1:1994
Polybutylene (PB) pipe extrusion compounds
(In Professional Package 61B)
11pp *DD*
Specifies the requirements for polybutylene extrusion compounds suitable for making polybutylene pipe for hot and cold water applications. Polybutylene compound complying with this Standard is not intended to be manufactured into pipes for use in gas reticulation.
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STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee PL/3, Polybutylene Pipe Systems. It was approved on behalf of the Council of Standards Australia on 2 May 1989 and published on 13 November 1989.

The following interests are represented on Committee PL/3:

Confederation of Australian Industry

Engineering and Water Supply Department, S.A.

Hunter District Water Board, N.S.W.

Melbourne and Metropolitan Board of Works

Plastics Institute of Australia

Water Board, Sydney

Water Resources Commission, Qld

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PREFACE

This Standard was prepared by the Standards Australia Committee on Polybutylene Pipe Systems, acting under the authority of the Plastics Standard Board, to supersede the 1984 edition. The Standard is one of a series relating to polybutylene pipe systems; other Standards are AS 2642.2, *Polybutylene (PB) pipe for hot and cold water applications*, AS 2642.3, *Mechanical jointing fittings for use with polybutylene (PB) pipes for hot and cold water applications.*

In the preparation of this Standard the committee took cognizance of ASTM D 2581, *Polybutylene plastics moulding and extrusion materials.*

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STANDARDS AUSTRALIA

Australian Standard
Polybutylene pipe systems

Part 1: Polybutylene (PB) pipe extrusion compounds

1 SCOPE. This Standard specifies requirements for polybutylene extrusion compounds suitable for making polybutylene pipe for hot and cold water applications.

NOTES:

1. Advisory information on alternative methods of determining compliance of a lot with this Standard is given in Appendix A.
2. Polybutylene compound complying with this Standard is not intended to be manufactured into pipes for use in gas reticulation.

2 REFERENCED DOCUMENTS. The following documents are referred to in this Standard:

AS
1193 Methods for the determination of the density and relative density of plastics excluding cellular plastics
1199 Sampling procedures and tables for inspection by attributes
1349 Bourdon tube pressure and vacuum gauges
1399 Guide to AS 1199, Sampling procedures and tables for inspection by attributes
1821-23 Suppliers quality systems
1984 Vernier callipers
2000 Guide to AS 1821-23—Suppliers quality systems
2101 Internal micrometers (including stick micrometers)
2102 External micrometers
2490 Sampling procedures and charts for inspection by variables for percent defective
2642 Polybutylene pipe systems
2642.2 Part 2: Polybutylene (PB) pipe for hot and cold water applications
3900 Quality systems—Guide to selection and use
3901 Quality systems design/development, production, installation and servicing
3902 Quality systems for production and installation
3903 Quality systems for final inspection and test
3904 Quality systems—Guide to quality management and quality system elements

ASTM
D 1238 Test method for flow rates of thermoplastics by extrusion plastometer

BS
2782 Methods of testing plastics
Part 8: Methods 823A and 823B—Methods for the assessment of carbon black dispersion in polyethylene using a microscope

BS
6920 Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water

3 DEFINITIONS. For the purpose of this Standard, the definitions below apply.

3.1 Hoop stress—the stress in a pipe or fitting under pressure acting tangentially to the perimeter of a transverse section.

3.2 Long-term hydrostatic stress—the continuously applied hoop stress which it is estimated will cause failure at a specified temperature and time.

3.3 Hydrostatic design stress—the estimated hoop stress due to internal hydrostatic pressure, that can be applied continuously at a specified temperature with a high degree of certainty that failure will not occur. It is obtained by the application of a safety factor to the extrapolated 100 000-hour long-term hydrostatic stress value.

3.4 Working pressure—the maximum pressure that can be sustained by the type and class of pipe or fitting for its estimated useful life under the anticipated working conditions.

3.5 Test pressure—the pressure applied internally to pipes and fittings when being tested for strength and watertightness.

3.6 Reference curve—the curve obtained by connecting the points 7.2 MPa at 0.1 h, 6.8 MPa at 170 h, and 4.1 MPa at 100 000 h, of a failure stress-time graph plotted on log/log graph paper.

3.7 Pipe material temperature—the average temperature estimated as applying through the full wall thickness.

3.8 Type test—a test intended to prove the suitability and performance of a new composition, a new compounding or processing technique, or a new design or size of pipe, joint or fitting.

4 TYPES. Polybutylene compound shall be classified into types as follows:

(a) *Type POTABLE*—suitable for use in the conveyance of potable substances.

(b) *Type NON-POTABLE*—for use in applications not requiring a potable grade of compound, e.g. transport of slurries, chemicals.

5 COMPOSITION.

5.1 General. Polybutylene polymer shall be prepared by the polymerization of not less than 85 percent butene-1 and not less than 95 percent of total olefins by mass. Polybutylene polymer shall be pre-compounded.