AS/NZS 4766:2006
(Incorporating Amendment No. 1)

AS/NZS 4766:2006

Australian/New Zealand Standard™

Polyethylene storage tanks for water and chemicals

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Association of Rotational Moulders (Australasia)
Australian Industry Group
Institute of Materials Engineering Australasia
Water Services Association of Australia

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee PL-046, Polyethylene Storage Tanks.

This Standard incorporates Amendment No. 1 (June 2010). 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 design of a tank, its fittings and accessories should consider long-term fitness for purpose including service environment and decrease in physical properties of the material due to environmental effects.

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. Notes to text are for information and guidance only.

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1 SCOPE AND LIMITATIONS

1.1 Scope

This Standard specifies requirements for the design and manufacture of polyethylene storage tanks that are rotationally moulded in one-piece seamless construction. The tanks are for non-buried, vertical installation and capable of containing water, liquids used in food and beverage manufacture and chemical solutions at atmospheric pressure.

Separation of the roof (lid) from the body of the tank, after moulding, is permitted for transport purposes, provided that—

(a) the structural integrity of the tank is not adversely affected after the roof has been refitted by the manufacturer or its nominated representative in the manner prescribed by the design engineer; and

(b) the prevention of insect and/or vermin ingress is maintained.

Methods for demonstrating compliance with this standard are given in Appendix A.

1.2 Limitations

This Standard does not provide design criteria for—

(a) liquid contents heated above their flash points;

(b) liquid contents with service temperatures above—

  (i) 40°C; or

  (ii) the rated service temperature of the tank material.

(c) superimposed pressure exceeding 0.25 m head of water, or 2.5 kPa above the maximum recommended fill level; and

(d) superimposed mechanical forces, such as seismic forces, wind load or agitation.

Where criteria in Items (a) to (d) apply, special design consideration shall be given.

A tank shall have provision for overflow of contents.

The tank material supplier shall be consulted where the anticipated service temperature of the liquid stored within the tank exceeds 40°C.

Tank design analysis and independent verification shall be performed by qualified professional engineer(s) as defined in Clause 4.3. Material data used as a basis for the design may include ‘hydrostatic design stress data’ and/or ‘creep and creep rupture data’.

This Standard does not apply to portable tanks for the transport of liquids.

2 OBJECTIVE

The objective of this Standard is to—

(a) ensure secure storage of water and other liquids or chemicals (see Clause 1.1);

(b) ensure performance and workmanship of the finished tank is adequate for the intended application;