

AS/NZS 4766:2020
(Incorporating Amendment No. 1)



Australian/New Zealand Standard™

Rotationally moulded buried, partially buried and non-buried storage tanks for water and chemicals



AS/NZS 4766:2020

This Joint Australian/New Zealand Standard™ was prepared by Joint Technical Committee PL-046, Rotationally Moulded Storage Tanks. It was approved on behalf of the Council of Standards Australia on 1 June 2020 and by the New Zealand Standards Approval Board on 3 June 2020.

This Standard was published on 26 June 2020.

The following are represented on Committee PL-046:

- Association of Rotational Moulders Australasia
- Australian Building Codes Board
- Australian Wastewater Treatment Association
- Composites Australia
- Environmental Health Professionals Australia
- Master Plumbers Australia and New Zealand
- Plastics Industry Pipe Association of Australia
- Plastics New Zealand
- Rainwater Harvesting Association of Australia
- WorkSafe New Zealand

This Standard was issued in draft form for comment as DR AS/NZS 4766:2019.

Keeping Standards up-to-date

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

www.standards.org.au

www.standards.govt.nz

ISBN 978 1 76072 870 0

Australian/New Zealand Standard™

Rotationally moulded buried, partially buried and non- buried storage tanks for water and chemicals

Originated as AS/NZS 4766(Int):2002.
Revised and redesignated as AS/NZS 4766:2006.
Third edition AS/NZS 4766:2020.
Reissued incorporating Amendment No 1 (April 2024).

© Standards Australia Limited/the Crown in right of New Zealand, administered by the New Zealand Standards Executive 2024

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 (Cth) or the Copyright Act 1994 (New Zealand).

Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee PL-046, Rotationally Moulded Storage Tanks, to supersede AS/NZS 4766:2006, *Polyethylene storage tanks for water and chemicals*.

A₁ This Standard incorporates Amendment No. 1 (April 2024). The start and end of changes introduced by the Amendment are indicated in the text by tags including the Amendment number 1. **A₁**

A₁ The objective of this Standard is to specify requirements for the design and manufacture of storage tanks that are rotationally moulded either in one piece or multiple pieces (subsequently joined together with structural connections). The storage tank can be constructed using either single or multi-layer construction. This includes the following: **A₁**

- (a) Where the tank is non-buried, ensure secure storage of contents.
- (b) Where the tank is partially buried or buried, ensure secure storage of contents and prevent inflow or infiltration of surface water and soil water.
- (c) Ensure performance and workmanship of the finished tank is adequate for the intended application.
- (d) Ensure tank fittings are suitable for the intended application.
- (e) Specify design criteria and material selection to ensure the above.

The major changes in this edition are as follows:

- (i) Inclusion of buried and partially buried tanks.
- (ii) Changes to design criteria of all tanks.
- (iii) Ability to manufacture with multiple layers of material.

The terms “normative” and “informative” are used in Standards to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

A₁ [Text Deleted] **A₁**

Contents

Preface	ii
Section 1 Scope and general	1
1.1 Scope	1
1.2 Exclusions	1
1.3 Normative references	2
1.4 Terms and definitions	3
1.5 New designs and innovations	4
1.6 Retrospective upgrade	4
1.7 Limitations on design actions	5
Section 2 Materials	6
2.1 Polyethylene	6
2.2 Compounds	6
2.3 Rework of material in compounding	6
2.4 Melt flow index (MFI)	6
2.5 Thermal stability of base resin	6
2.6 Carbon black for UV stability	6
2.7 UV resistance	6
2.7.1 Application	6
2.7.2 Exposure to sunlight for non-buried and partially buried tanks	7
2.7.3 All other tank types	7
2.7.4 Alternative test methods	7
2.8 Dispersion of additives and pigments	7
2.8.1 General	7
2.8.2 Non-UV stabilized base resins	7
2.8.3 UV-stabilized base resins	7
2.9 Light penetration	8
2.10 Stress-cracking resistance	8
2.11 Chemical resistance	8
2.12 Materials in contact with drinking water and food	8
2.13 Mechanical properties of base resin	9
2.13.1 Virgin polymer resins	9
2.13.2 Material test data	9
2.13.3 Short-term mechanical properties	9
2.13.4 Long term mechanical properties	9
2.13.5 Extrapolation of material test data	10
Section 3 General considerations for structural analysis and design of rotationally moulded tanks	11
3.1 Structural analysis	11
3.2 Design	11
Section 4 Structural analysis and design of non-buried tanks	12
4.1 General	12
4.2 Design	12
4.3 Applied loads	13
4.4 Load case combinations	14
4.5 Stability limit states	14
4.6 Strength limit states	14
4.7 Minimum material thickness	15
4.8 Required material thickness	15
4.9 Provision for overflow	16
Section 5 Structural analysis and design of buried and partially-buried tanks	17
5.1 General	17
5.2 Loads on tanks	17
5.2.1 General	17

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-