

Samoa National Standard

SNS 4766: 2019 Polyethylene storage tanks for water and chemicals.

AS/NZS 4766: 2006 Polyethylene storage tanks for water and chemicals.

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 a 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 of the standard.

Abstract

The objective of this standard is to ensure; secure storage of water and other liquids, the performance and workmanship of the finished tank and incorporated fittings are adequate for the intended application.

Adopted

The text AS/NZS 4766: 2006 Polyethylene storage tanks for water and chemicals has been adopted as SNS 4766: 2019 and can be sourced from Standards Australia.

Link – https://www.techstreet.com/standards/as-nzs-4766-2006?product_id=2050899 or https://infostore.saiglobal.com/en-au/Standards/AS-NZS-4766-2006-116055_SAIG_AS_AS_242555/?source=predictive

With the following modifications

Clause	Paragraph	Variation
4.3	1	Delete from the first line “either chartered membership of ‘The Institute of Engineers Australia’ or registration on the ‘National Professional Engineers Register’” and substitute with “is fully registered on the ‘Samoa Register of Professional Engineers’ in respect to the fields of structural products/applications design utilizing polyolefin plastic materials and computerized FEA programs.”. Delete from the first line “organisation in Australia or New Zealand.” and substitute with “International organization.”.
5.6	3	Delete “elongation after 8000 h” and substitute with “ elongation after 12000 h”
5.6	4	Delete “energy output of 8 000 hrs exposure” and substitute with “energy output of 12 000 hrs exposure”
6.2.1	1	Insert before paragraph 1, the words “The design of the tanks and fittings intended to hold drinking water shall prevent insect and/or vermin ingress and minimise as far as reasonably practical the risk of water contamination from those vectors. Such design shall include a removable inlet cover.”.
6.3	1	Insert following the first line, the words “Overflow fittings shall not be less than 90 mm diameter.”

Clause	Paragraph	Variation
7.2.2	3	Insert following sentence 1 of paragraph 3, the words “The following shall be reported: (a) Identification of the tank. (b) Date of the measurement. (c) Each measurement taken. (d) Whether the tank is within its design specification.”.
7.2.2	4	Insert following paragraph 3, the words “Equipment used to measure wall, floor and roof thickness shall be calibrated as per the manufacturer’s instructions, but no less than annually. A record shall be kept for the duration of the calibration period, recording: (a) Identification of the equipment. (b) Date of the calibration. (c) Due date of recalibration. (d) Calibration method. (e) Whether the equipment passed or failed calibration.”.
9	2	Delete sentence 2 “In the absence of such regulations, the aperture size and material of the screen shall be by mutual agreement between the purchaser and the manufacturer” and substitute with the words “Screens shall be made of brass, copper, aluminium or stainless steel gauze, have a mesh size of 1mm or less, installed in a way that does not cause or accelerate corrosion, and stops mosquitoes passing through the openings.”.
9	3	Insert following paragraph 2, the words “Where a flap valve is installed they shall be able to stop mosquitoes passing through the openings when they are closed.”.
13	2	Insert following point (c) in paragraph 2, the words “(d) Tank maintenance instructions.”.
13	2	Insert following paragraph 2, the words “NOTE: An example of manufacturer’s installation instructions is given in Appendix E.”.
14	2	Insert following paragraph 1, the words “Polyethylene tanks that do not fully comply with this standard shall not be marked in any way that suggests or infers that it complies with this standard. Each tank that fails to meet the conformity assessment requirements of this standard shall be legibly, permanently and unambiguously marked on the external surface of the vertical wall, or where it can be seen in its normally installed position to identify that the tank does not conform to this standard.”.
A3.1	2	Delete all of paragraph 2 and substitute with the words “For tanks less than or equal to 5 000 L, one tank”
A4	4	Delete “the joint Accreditation System for Australia and New Zealand (JAS-ANZ) or by another certification body that is acceptable to JAS-ANZ.” and substitute with “an Accreditation body that is a ‘Multilateral Recognition Arrangement’ signatory member of the International Accreditation Forum.”.
A5	Table A1	For table row ‘Batch release tests (BRT)- tanks, Moulding process evaluation- test frequency’. Delete “Each tank >5 000 litres, and every 1 st and 10 th tank otherwise” and substitute with the words “Each tank”.
A5	Table A1	For table row ‘Batch release tests (BRT)- tanks, Dimension- frequency’. Delete “Every 1 st and 10 th tank ≤5 000 litre-” and substitute with the words “Every tank ≤5 000 litre-”.
New Appendix		Insert following Appendix D, the Appendix E.

NOTE: The referenced paragraph in the above table, is the paragraph the amended text appears in or the new paragraph when the amended text involves addition of a new paragraph.

APPENDIX E

Example of Installation Instructions for Water tanks

(Informative)

These instructions only apply to Polyethylene tanks intended for storage of household or domestic water.

For tanks intended for use with substances other than household or domestic water more detailed and specific instructions should be obtained from the manufacturer.

SITE SELECTION and PREPARATIONS

NOTE: Installation and use of Polyethylene tanks for storage of household or domestic water must always be in accordance with any prevailing government regulations or instruction.

Water tanks should be installed in a location;

- That minimises the possibility of contamination from contaminants such as; leaching from preserved timbers, dust, leaves, pesticides, fertilisers, debris, vermin, birds, animals, and insects. Tanks installed below ground level will also need to be located or protected from surface runoff or ground water particularly that which could include animal or human faecal material or soil.
- That prevents or minimises the possibility of being damaged by vehicles or machinery.
- To minimise pooling of water in gutters or downpipes and where the tank overflow is diverted away from the tank base, buildings or other structures.

The tank base should be;

- A 100 mm (thickness) reinforced concrete pad that is level and 100 mm wider than the diameter of the tank, constructed with a 15 mpa concrete mix. or
- A tank stand designed to hold the weight of the tank when full. Using hard wood decking with gaps no greater than 10 mm and surface area at least 300 mm wider than the diameter of the tank. Water tank stands should be designed by a qualified engineer, then constructed and installed by competent trade's people.

Where tanks have been manufactured with lifting lugs, those lugs should only be used on already vertical tanks for repositioning, involving straight vertical lifts. Use of lifting equipment and lift activities should only be done by trained and competent people.

As soon as the tank has been located in its final position the tank should be secured by either tying down adequately to prevent 'blow-away' in the event of serious weather conditions such as cyclone or strong winds to prevent damage.

PLUMBING CONNECTIONS

Water inlets - Water should be directed into the tank through the inlet screen. Where fixed inlets are used these pipes must be supported (not by/on the tank) and include a flexible hose or knuckle.

Water outlet – A 300 mm long flexible hose should be installed between the valve (fitted to the tank) and all other plumbing or fixed pipework.

Tank overflow – The overflow water must be piped away from the tank base, buildings or other structures to prevent undermining or damage to those structures. The size and capacity of the overflow pipes must be equal to or greater than the rate of inflow from all the tank inflows (water inlets). Where fixed overflow pipework is used these pipes must be supported (not by/on the tank)

and include a flexible hose or knuckle.

Materials including pipework and fittings intended to be in contact with drinking water should be food grade and comply with SNS_AS/NZS 4766 : 2019 Polyethylene storage tanks for water and chemicals [clause 5.11], so that they do not harmfully affect that water.

MAINTENANCE

Good quality 'plastic' or polyethylene water tanks do not require much maintenance over their designed life but there are a few things that will ensure you maximise their service life, the good quality of your water and to prevent mosquitoes breeding.

Maintaining your water tank is an important responsibility and can include maintenance activities detailed in the table below.

When	What to do.
Every 3 months	Check and clean any 'first flush' devices fitted.
Every 6 months	Check the tank, mosquito-proof screens and/or flap valves for rips, holes and defects. Repair straight away if any damage is found.
Every 6 months	Check roofs and gutters for accumulated debris such as leaves and other plant material, dust, dirt or other solid materials. Remove debris and prune overhanging tree branches and foliage.
Every 6 months	Check for evidence of animal, bird or insect access into the tank. If present, find and close where they are getting in.
Every 12 months	Check that the tank base has not subsided or that the tank is being undermined. If the base is damaged, drain the tank and repair the base.
Every 1 to 2 years	Check inside the tank for accumulated sludge and sediment. If sludge is covering the bottom of the tank, siphon it out or drain the tank and clean it out (without getting into the tank).



Important; No one should get into a tank that has had water in it or could have water get into it without taking special precautions.

WARNING: These are some of the common errors that can lead to early failure of your tank.



Rocky or uneven ground with little or no base preparation.



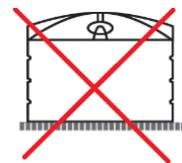
Must not be undersize or undermined.



Unsupported pipework or no flexible section.



Wooden sleepers or beams are generally too uneven.



Don't use corrugated iron decking or base.