



Dual Wall Tanks For Longer & Safer Sodium Hypochlorite Storage

Tanks designed and built in Australia by Fusion





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11 Cocos Drive
Bibra Lake WA 6163

QLD

18 Woomera Place
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Fusion often design and fabricate single wall PE100 tanks for sodium hypochlorite storage. While they are a great solution, due to the harshness of the chemical, the design life of a single wall tank is only ~5 years.

Our aim was to develop an alternative solution that would significantly improve longevity against sodium hypochlorite as well as a range of other oxidising chemicals.

Our design team has created a dual skin sodium hypochlorite tank model offering a design life of 25 years. With the trend in the market towards dual skin tanks, this new design takes both safety and longevity to a whole new level.

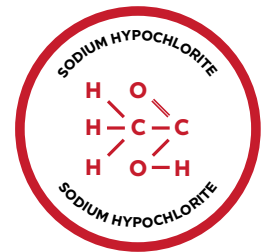
What is Sodium Hypochlorite?

It's a chemical compound composed of a sodium cation and a hypochlorite anion. It is a highly corrosive chemical frequently used as a disinfectant or bleaching agent.

Sodium hypochlorite is used in a wide variety of applications such as bleaching, disinfecting, stain removal and deodorising and is used for both domestic and Industrial purposes.

Domestic applications: household cleaning agents such as bleach and stain removal products.

Industrial applications: commonly used as a biocide in industrial applications to control slime and bacteria formation in water systems used in power plants, pulp and paper mills, etc. Sodium hypochlorite solutions are also used to treat, disinfect and dilute wastewater & drinking water.



How To Store Sodium Hypochlorite

Three main factors must be taken into consideration:

UV degradation

The sun's UV light degrades the product.

Gas formation

Chemical gas builds up in the tank.

Corrosion

Sodium hypochlorite is a harsh, highly corrosive chemical.

Which is the best option for you?

That depends on a few factors, take a look on the next page for more information.





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Which is the best option for you?



**Option 1:
Single Wall**

HDPE

Sodium Hypochlorite Tank

- + Typically PE100 has a design life of 5-7 years when storing sodium hypochlorite, however this is dependent on a range of features which include but not limited to: temperature, storage time, agitation, venting, etc.
- + PE100 is conditionally resistant to 12.5% sodium hypochlorite, as sodium hypochlorite is a strong oxidizing agent, and can cause material embrittlement which in turn leads to stress cracking in PE100.
- + This degradation is similar to that which occurs in FRP, rotationally moulded, and cross linked PE material.
- + As a result, we recommend regular checks (yearly or more) of the system.



Option 2:

Dual Walled

UPVC (inner) / PE100 (outer)

Sodium Hypochlorite Tank

- + UPVC has a design life of 25 years when storing sodium hypochlorite.
- + The dual wall design ensures the UPVC inner is protected from UV light and impacts (as it is more brittle than PE100).
- + Fusion's dual wall tank design meets all the requirements specified by AS3780:2008: The Storage and Handling of Corrosive Chemicals and therefore doesn't require external bunding.
- + Fusion dual walled UPVC inner / PE100 outer tanks are readily available in 1.5kL, 5kL, 10kL and 20kL sizes.
- + If required, dual walled UPVC inner / PE100 outer tanks can be made in custom sizes.
- + An outlet/drain valve in the bottom of the tank ensures the vessel can be completely drained while thermal expansion couplers prevent thermal stresses in the wall of the inner and outer tank.
- + Not only suitable for sodium hypochlorite storage, but also for a range of oxidising chemicals which are not compatible with PE, most notably sulphuric acid (from 86-96 wt%), nitric acid (up to 53 wt%) and hydrogen peroxide (up to 70 wt%).



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Cost Comparison

Although the dual wall hypochlorite tank is initially more expensive than its single walled PE100 counterpart, it's comparatively much less expensive over its operational lifespan. The table below details and compares the capital expenditure (capex) and operational expenditure (opex) of the two hypochlorite storage options.

Tank Type	5kL PE100 Single Walled Tank	5kL UPVC inner / PE100 outer Dual Walled Tank
Design Life	5 years (approx)	25 years
Capex	~\$9,500 with Manufacturer's Data Report (MDR)	~\$16,000 with Manufacturer's Data Report (MDR)
Opex	\$2000 per annum for draining, inspection and refilling.	Nil - Visual Inspection only.
Comments	Needs to be drained annually and inspected for material fatigue and weld deterioration - opportunity cost of production not factored in. After 5 years of operation, tanks would need to be replaced and approximately \$16,000 would have been spent on Capex and Opex.	Next to maintenance free and a much longer design life.

Project BW1185 Photography

A recent dual wall sodium hypochlorite storage tank fabricated at the Fusion Queensland branch.



To find out more about our chemical storage solutions visit:

fusionaus.com