

## Steel Water Tanks: Galvanised Steel, Zincalume®, Stainless Steel, Aquaplate®

Water storage tanks can be found in a range of materials including polyethylene (plastic), galvanised steel, Zincalume®, stainless steel, a combination of steel and poly (Aquaplate®), fibreglass and also concrete.

Although Clark Tanks manufacture [poly water tanks](#), because we believe it provides a number of benefits over other materials, in this article we take look at some steel tanks alternatives, how they differ to each other and some advantages and disadvantages.

### Alloy Coated Steel Tanks

Many steel water tanks are galvanised, being made with a zinc coating that protects the steel within from oxidisation which results in rust and corrosion. Eventually, however, the galvanised layer oxidises and the steel that it protects rusts and corrodes with negative consequences to your water.

Zincalume® is more corrosion resistant than galvanised steel, up to four times greater. It is a specially constructed zinc/aluminium alloy-coated steel often used for roofs. Sadly, corrosion can occur if it makes contact with many other materials and liquids including lead, copper, treated timber, uncoated steel, fertilisers and pesticides.

### Stainless Steel Tanks

Stainless steel water tanks are a much more expensive water storage solution. They are often considered elite, being made of a high quality steel which is resistant to rust and corrosion. This can actually be true and false, and it is really dependent upon the tank and situation.

What makes the steel “stainless” is the amount of chromium present and how uniformly it is mixed into the steel. Chromium is a hard white metal. Steel that contains a low level of chromium, or chromium that has not been uniformly mixed into it, may still be vulnerable to corrosion.

If the stainless steel is truly “stainless” then contamination can occur from a number of other factors. For example, rust can occur on stainless steel if ordinary steel is rubbed off against it. Welding can also release traces of iron-rich material that then rusts.

[An investigation by the Public and Environment Health Services in Tasmania](#) found water contained in some stainless steel tanks possessing high levels of lead. Lead is toxic to our bodies and is especially harmful to the development of young children. In this case, lead was

used in the solders which then corroded against the stainless steel releasing high levels of lead into the stored water.

## Poly Lined Steel

Aquaplate® is a material developed by Bluescope Steel for specific use in water tanks. During the manufacturing process, a tough internal food-grade, two-ply polymer lining is bonded to the steel. This stops water coming into contact with the steel to help prevent rust and corrosion.

Most steel water tanks come with an internal food-grade poly lining for greater corrosion protection, however the difference with Aquaplate® is that this poly lining is added during the manufacturing process. The poly lining also helps to prevent the unpleasant metallic taste of water in steel tanks.

Care must be taken when installing and cleaning poly lined tanks to ensure they are not damaged. Scratches to the poly lining can introduce many points of weakness, so if damaged, then it needs to be repaired immediately to prevent rust and corrosion.

According to [BlueScope Steel's guidelines](#), amongst other things, Aquaplate® steel must also not come into contact with copper, kerosine cannot be used as an anti-mosquito measure, and stored water cannot be in excess of 65 degrees Celsius.

## Conclusion

There are obviously many types of steel water tanks. The three most important deciding factors is:

- **Safety** – the quality of water for drinking purposes
- **Lifetime** – how long the steel tank will last and be able to withstand corrosion
- **Price** – how much the particular tank will cost.

All steel tanks can be safe for drinking purposes, but we recommend testing be performed especially to test for lead should your tank not be put together entirely right (as in the case of some stainless steel tanks that were soldered with lead).

Lifetime, a properly fabricated stainless steel tank would win since they can withstand corrosion, however that also generally comes with a hefty price tag. Some tout being able to recycle or sell off the stainless steel, however will you benefit from this or the new owners of your property?

In order of Aquaplate®, Zinalume® and galvanised are your next by way of water tank lifetime. Zinalume® is like a middle-ground alternative between galvanised steel and the more expensive stainless steel. This is true lifetime-wise as well as price.

Aquaplate® is slightly more expensive than Zinalume® upfront, but over its lifetime would likely be more cost effective. Keep in mind that poly linings are used as a protective measure against corrosion and for fresher tasting water. If this is damaged, then these tanks are vulnerable.

Clark Tanks is committed to manufacturing quality poly products designed to meet the needs of rural and residential Australia. If you have found this article helpful, why not contact us today to discuss your needs. [Send an enquiry via our website](#) or call us on 1800 252 758.

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