



UNDERSTANDING STORAGE TANKS

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Maybe it's just me, but despite offering fuel tanks and storage as a significant part of my businesses for over a decade, I really didn't have a solid grasp on the differences between one tank and another.

After all, they're all the same right? A metal box for storing and dispensing fuel on a site or project.

Well, after years of not being able to adequately explain the difference between one tank and another, I made the effort to do some proper research and spend some time with folks who've forgotten more about this topic than I could ever

hope to know. For the purposes of this discussion, I will share what I have learned about:

- 1.** Bunding: Double walled tanks vs Self bunded tanks.
- 2.** The difference between a quality tank and a cheap one.
- 3.** The role of your fuel cell in ensuring fuel quality.
- 4.** Other benefits that can be derived by applying some of this knowledge to your purchasing decision.



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Firstly, I will tighten the scope of this discussion to the most common site applications for bulk tanks.

The first use is to provide connected bulk supply to fixed engines that run a lot of hours. The best example of this is a generator.

In a fixed prime application, a generator may be the sole source of power for a pump, portable building or other energy requirement and need to

run many hours per week for a long time. The generators on board or day tank may provide 24 hours or so of supply, and it is simply too costly or inconvenient to refuel it every day. A bulk fuel tank is then connected to the generator and will provide enough fuel so that refuelling is only required weekly or sometimes even monthly.

The second most common application is for on site refuelling of mobile plant and vehicles.

In this instance, the bulk fuel cell is effectively a mobile service station with a pump and bowser just like you would find at your local service station.

BUNDING & CHEAP VS QUALITY TANKS

If you're like me, you've at best had a laymans understanding of what bunding actually means. The principle of course is a no brainer. If for some reason, my tank leaks, there is a secondary barrier or skin that catches the leaking fuel and thus prevents it from getting to ground. In practice though, there are generally two types of banded fuel cells; "Double Wall", and "Self Banded".



A double wall tank is exactly as the name suggests. The tank literally has two walls, welded together and if the first wall ruptured from the inside, there is a second wall that stops the entire tank from leaking into the environment.

A self banded tank is literally one tank placed inside another tank. The outer tank is 110% the size of the inner tank. If the inner tank leaks, the outer tank captures up to 110% of the maximum available fluids.

Contrary to popular belief, both double wall and self banded tanks comply with AS1940 and can be used in any application unless a particular site or business has a specification that dictates the use of self banded tanks.

As a general rule, self banded tanks are roughly 30% more expensive to manufacture than double wall tanks. So if both types comply with the relevant standards, why would anyone buy the more expensive self banded type?

The answer is simple; provided the manufacturer has the appropriate certification, a self banded tank can be transported legally whilst full of fuel whereas a double walled tank cannot.

This can be an enormous benefit to most tank owners and especially construction companies, rental companies and other fleet owners.

At present, many tank owners are flouting the law by transporting double walled tanks whilst full of fuel. In my view, it is simply a matter of time until this leads to a safety incident that will bring the spotlight on this practice.

My strong advice for operators that carry fuel cells in their fleet, is to do a review on how many of their tanks are double walled vs self bundled and

put strict policies in place to ensure double walled tanks are never transported unless completely empty of liquids.

On top of this, even if you have self bundled tanks, it is important to seek the appropriate certification from the tank manufacturer that confirms your self bundled tanks are approved for transport whilst containing fluids. In my experience, the practice of fleet owners moving double walled tanks around with fluids in them is the rule, rather than the exception.



A TANKS ROLE IN ENSURING FUEL QUALITY

This is perhaps the most overlooked opportunity for improvement in managing your fuel cell fleet every time a litre of fuel is dispensed from a tank it once again takes a litre of air back into the tank.

Given the dusty conditions that many of the installations find themselves in, you don't need to have a chemical engineering degree to realise the enormous amount of fuel contamination that occurs during this process.

Modern engines are more sensitive than ever to fuel quality, in terms of operating efficiently preventing maintenance issues and ensuring a long operating life.

The cost of including filtration at the fuel ingress,

egress and breather part of your tank represents a very small percentage of the tank's capital or rental cost. This cost is further minimised when you consider the savings that can be realised in reducing maintenance issues on your engines, fuel consumption efficiency and extending the life of your engine/s.

Fleet operators in particular should be engaging the services of experts in order to conduct fuel integrity audits.

The customers I have been engaged with in reviewing these issues have universally been astounded at how little is required in terms of cost, to prevent potentially catastrophic long term engine damage and loss of fuel efficiency.

OTHER BENEFITS IN BEING SMARTER WITH YOUR FUEL TANK POLICIES

Hopefully this has been sufficient to make many of you realise that your choice and ongoing review of fuel tank management suppliers is not as simple as most people think.

My research into this topic has also made it clear to me that fuel cells can go far beyond their traditionally accepted use in delivering real cost reduction benefits to a project or site. For most construction, industrial, oil and gas, mining, rental and government organisations, fuel is one of their biggest costs.

Most organisations I talk to have a common story. They know how much fuel they're buying and using, but they have very little hard data on how it is being used. Inefficient use and theft of fuel on site is an unspoken epidemic that has almost

become accepted as an unavoidable part of being a volume fuel user.

Most sites can tell you how much fuel is being delivered, how much they have in storage and how much has been dispensed. What they can't tell you is where that fuel is going and more importantly if that fuel is being used for its intended application and at optimum efficiency.

With my experience in generators and other fixed speed diesel products, most bulk users simply have no way of understanding if their fuel is going to the right place and being used in the right way. On any site of scale, the financial impact of this lack of data is often in the millions of dollars.



"JUST LIKE GENERATORS, ENGAGING EXPERTS IN FUEL MANAGEMENT CAN DELIVER COST AND ENVIRONMENTAL BENEFITS THAT DWARF THE CAPITAL OR RENTAL COST OF THE PRODUCTS IN SHORT ORDER"

Engaging experts in the field and making small investments in fuel tracking devices and software can quickly capture waste improvement opportunities and deliver material cost and efficiency benefits.

This kind of management process can also be adopted by the tank providers and rental companies themselves, and sold on to the end user as a point of difference and a value-add opportunity.

As with most things that seem simple on the surface, my deeper delve into the world of site fuel storage and management has left me in little doubt that a little thought can go a long way to delivering material cost benefits that make the capital cost of the hardware completely insignificant.

I am certainly a convert and you will never hear me utter the phrase "a tank is a commoditised steel box," ever again.

