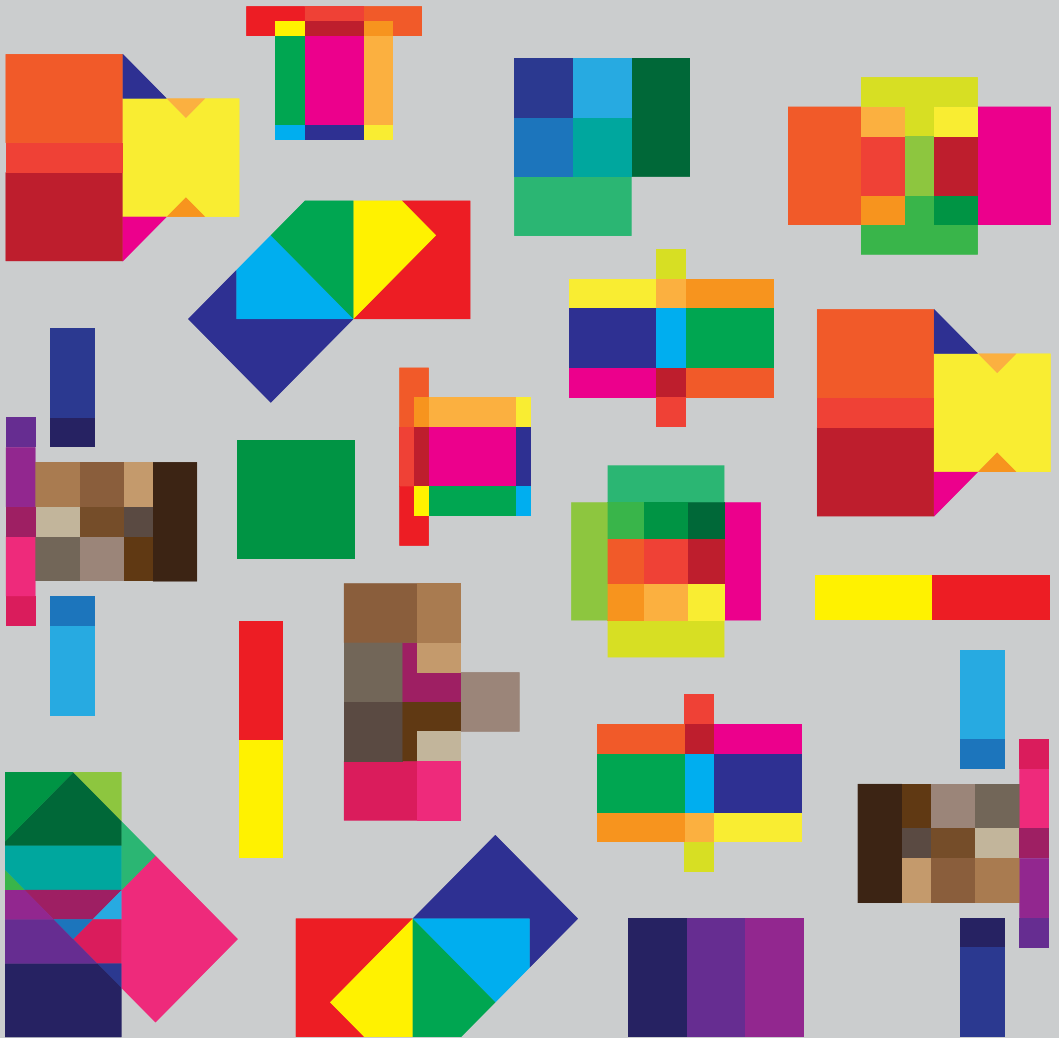


OUR CAPABILITIES

INNOVATIVE PRODUCTS FOR CHEMICAL STORAGE AND CONVEYANCE



Supply

Fusion is one of Australia's largest stockists and suppliers of specialist plastic piping system products.

Our experienced team, technical knowledge, excellent stock holding and fast turnaround time provides market leading service and supply.

Our extensive range includes pipe, fittings, valves, actuation, flow control, parts, accessories and consumables.

These are available in a variety of materials including UPVC, CPVC, ABS, PP, PVDF and PE. This enables our clients to tailor product specifications to their individual applications.

Each product has been carefully selected from global leading brands including Asahi Valves, Charlotte Pipe Co, Polypipe, Flowline Level Measurement and others.

For information on our full range of brands visit fusionaus.com



Advanced Digital Dosing Pumps & Accessories

GRUNDFOS 

Dosing Pumps

Grundfos is a global pump manufacturer specialising in energy-efficient solutions for water and fluid management. Their dosing pumps are renowned for precision, reliability, and chemical resistance, catering to industries like water treatment, and chemical processing.

grundfos.com



UPVC BS Fittings & Pipe Clips.



Van de Lande

Pipe Clips & UPVC Fittings

Van de Lande is a Dutch manufacturer specialising in PVC pipe clips. They produce over 4,500 distinct items. Van de Lande's commitment to quality and innovation has solidified their reputation in the global market.

vandelande.com

Our Brands



UPVC & CPVC
Schedule 80 Pipe & fittings

CHARLOTTE
PIPE AND FOUNDRY COMPANY

Plastic Pipe and Fittings

Charlotte Pipe has been manufacturing pipe and fittings in the USA for over a century. Charlotte supplies product extensively throughout the USA and over 35 countries.

Charlotte products include pipe and fittings made from Schedule 80 UPVC & CPVC.

charlottepipe.com



BS UPVC fittings.
ABS pipe and fittings.

EFFAST

Cemented Piping Systems

Polypipe Italia (Effast) is a large plastic piping systems manufacturer based in Genoa, Italy. They produce over 100 product systems and more than 20,000 product lines including pipe and fittings in ABS, PP and UPVC.

Polypipe's products are sold under the Effast brand.

effast.com



Industrial valves
with a 3 year warranty.

ASAHI/AMERICA

Valves & Actuation

Asahi America is a diversified ISO9001 certified manufacturer and supplier of thermoplastic corrosion resistant fluid flow products including valves and actuators.

Manufactured in Japan and the USA, renown for exceptional quality and application specific products.

asahi-america.com



Level measurement
for liquids and solids.

FLOWLINE
LEVEL BEST

Level Measurement

Flowline's quality solutions measure tank inventories and automate tank processes.

With a focus on reliability, quality and ease of use, Flowline's range includes reflective ultrasonic and radar level transmitters, level switches, level controllers and indicators.

flowline.com



UPVC & CPVC Schedule
80 Pipe & fittings

Eslon

PVC, CPVC Pipe & Fittings

Sekisui Chemical (Eslon) is a large Japanese industrial product manufacturer known internationally for their high quality schedule 80 pipe and fittings as well as valves and much more.

Sekisui's products are sold under the Eslon brand.

eslon-plant.jp/web-en/



Advanced Plug & Play
Chemical Storage
Systems.

snosko

Chemical Storage

Snosko is a market leader in corrosion resistant systems for chemical storage. Snosko offers solutions for a wide range of water treatment, oil & gas, chemical, mining and commercial applications.

Snosko products are designed and manufactured in Australia.

snosko.com

Plastic Fabrication

Fusion is recognised throughout Australia for plastic fabrication expertise, the fast supply of plastic piping systems products and over 22 years of extensive site service history — including installation and maintenance.

Our team of project managers, mechanical engineers, fabricators and installers, can guide you from concept, design, engineering, fabrication, through to final product delivery. Our engineers utilise sophisticated design software to provide a solution to suit most application requirements.

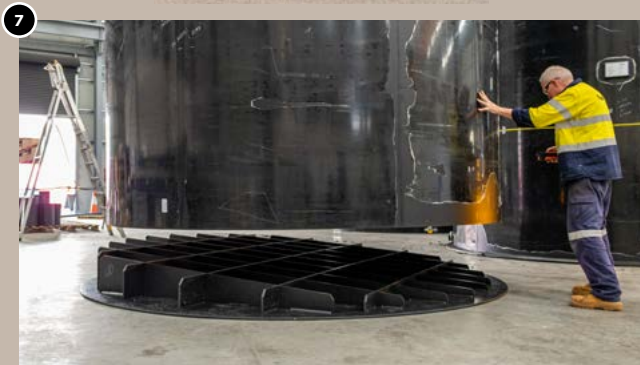
Our manufactured products include; chemical storage tanks, chemical dosing panels, pipe spooling, launders, chutes, machine guards, electro-winning cells, pontoons, machined plastics and just about any custom option our clients require. Industries include; water treatment, chemical processing, mining, shipping, infrastructure and food and beverage.

Fusion complies with the requirements of ISO 9001 for the fabrication and installation of plastic products and piping systems.



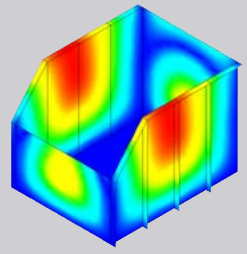
Fusion Plastics & Piping are certified to ISO:

- 9001 (Quality)**
- 45001 (Environment)**
- 14001 (Health & Safety)**



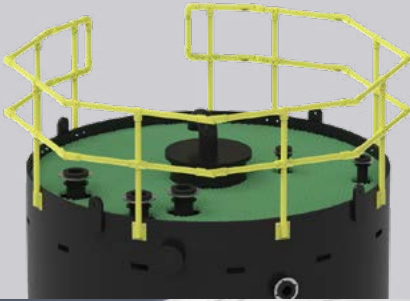
1. PE IBC Bund
2. PP Chemical Dosing cabinet with lower PE overflow base
3. PE Chemical storage tank with sight glass
4. Reinforced PE square storage tanks
5. PE Pipe spool
6. Yellow PE machine guards
7. A large, round PE tank being assembled onto a sloped base with stiffeners
8. HDPE Chemical storage tank for HCL, integrated FRP stairwell and platform for roof manway access.
9. A PP Dosing cabinet's PE overflow base.

Engineering & Design



We draw on our extensive history in industrial plastics, combined with in-house expertise in engineering, design, drafting, and project management. To enhance our capabilities, we also engage specialist consultants for process and electrical engineering. This integrated approach allows us to deliver robust, cost-effective, and efficient solutions.

Our engineering and design team includes experienced engineers and fabricators who excel at conceptualising and implementing innovative designs tailored to meet both project and client requirements.



Our Team's key assets include:

- + Finite Element Analysis
- + First Engineering Principles
- + Static Structural Analysis
- + Australian and International Standards
- + Factory Acceptance Testing (FAT) regimes
- + 3D CAD Modelling and Drafting
- + Pump and Instrumentation Selection
- + Batching Tanks and Mixing Tank Design
- + Design Verification by Registered Professional Engineers
- + Material selection for plastics for industrial applications
- + Chemical Storage System Design
- + Scrubber and Degasser/ Stripper Design
- + Chemical Dosing Systems and Skid Design
- + Intelligent Piping Layout and Design
- + Level sensor and corresponding PLC design
- + Access Stairs, Ladders, Platforms, Handrails and Walkways Design

No matter the application, our team can assess your requirements and deliver an effective, engineered plastic-based solution.



Hire Equipment

Fusion has an extensive fleet of specialised equipment available for hire to suit plastic fabrication and piping installation requirements. Our fleet of equipment is tested, calibrated and serviced to ISO9001 as well as rigorous internal quality standards.

Our Equipment Fleet

- + Butt fusion welding machinery
- + Electrofusion welding machinery
- + Socket fusion welding machinery
- + Rotary Peelers
- + Generators
- + Hand tools and accessories

Fusion's fleet includes over 80 machines that can be hired and delivered to your site Australia wide. Our teams have the experience and knowledge to advise on your project requirements.

For more information contact us:

fusionaus.com



Site Services

Fusion's team of site services technicians are highly skilled in the installation of plastic fabricated products and specialised piping systems across metropolitan, regional, and remote sites throughout Australia.

Our team provides:

- + Maintenance
- + Installation
- + Plant upgrades

Our site services include:

- + Fabrication and installation of storage tanks, dosing panels and machine guards.
- + Supply and installation of plastic piping systems.
- + Butt, electro and socket fusion welding.

Our site services team regularly complete comprehensive training and obtain high risk tickets from external training providers.

Their qualifications include:

- + Glue jointing
- + Butt fusion and Electrofusion welding
- + Working at heights and EWP
- + Confined space
- + Manual handling
- + Lifting and rigging

Our teams are proficient with all installation guidelines, industry standards and quality documentation requirements.

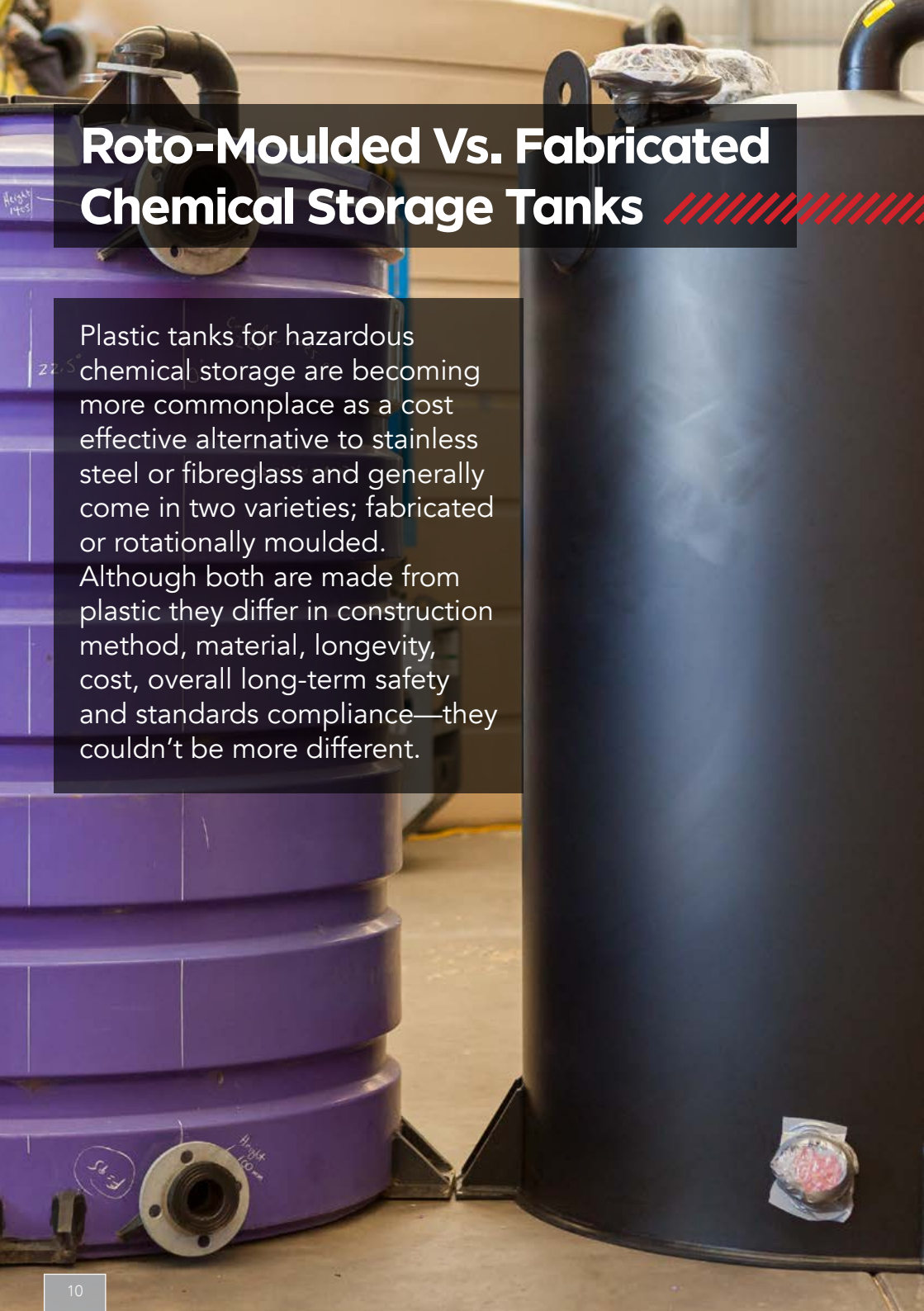
Fusion complies with the requirements of ISO 9001 for the fabrication and installation of plastic products and piping systems.





1. PE pipework at a water treatment plant
2. UPVC pipework being installed at a chemical processing plant
3. PE pipeline at a rural mine site
4. UPVC pipe, fittings and Asahi valves installed at a chemical processing plant
5. Pipe spools being loaded for a site project
6. A PE pipeline being butt welded
7. Complex UPVC and CPVC pipework for a chemical manufacturing plant

Roto-Moulded Vs. Fabricated Chemical Storage Tanks



Plastic tanks for hazardous chemical storage are becoming more commonplace as a cost effective alternative to stainless steel or fibreglass and generally come in two varieties; fabricated or rotationally moulded.

Although both are made from plastic they differ in construction method, material, longevity, cost, overall long-term safety and standards compliance—they couldn't be more different.

Fusion Fabricated Tanks

Benefits

Guaranteed Consistent Wall Thickness

Fusion fabricated tanks are made from sheets of HDPE or PP material (others available upon request) in a technique similar to manufacturing stainless steel tanks. Sheet plastic is manufactured to within a $\pm 0.1\text{mm}$ thickness tolerance; thereby making it a consistently strong material.

To build a fabricated tank, sheet is bent into an open-ended cylinder and the two parallel, touching edges are welded together (fig.1). The base and roof are cut from sheet plastic and welded to the open ends of the cylinder to form an enclosed tank.



fig.1

Sheet Material Benefits

High Density Polyethylene (PE100)

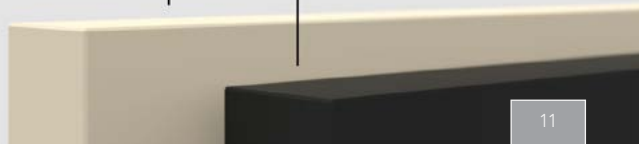
- + 100% weld integrity with PE100 pipe
- + Superior, long term material strength
- + Exceptional weld strength
- + Construction of higher tanks
- + Superior acid resistance
- + Weatherproof (exceptional UV stability)

Polypropylene (PP)

- + Very high chemical resistance
- + Excellent high temperature resistance
- + Excellent impact resistance
- + Higher scratch resistance than HDPE
- + Excellent moisture resistance
- + Food grade

Polyethylene

Polypropylene



Fabricated Tanks

Benefits



Greater Design Flexibility

Customisation is a key advantage in fabricated tank manufacturing. Without the need for expensive moulds, tanks can be scaled from 300L to 80,000L and customised in shape and diameter.

Fusion tanks are designed and manufactured to DVS2205 and BS/EN12573 standards, globally recognised for thermoplastic tank and apparatus calculations. These standards account for load stresses, environmental factors, safety features, and strict welding and construction requirements.

By adhering to these standards, Fusion ensures durable, long-lasting tanks with versatile nozzle configurations (see Fig. 2), ideal for chemical processing and storage.

300L to 80kL Chemical Storage

Custom Modifications & Designs

Fusion fabricated tanks can be customised with various modifications for applications in water treatment, mining, oil and gas, food and beverage, pharmaceuticals, and other industrial and chemical processing sectors. Tanks can be equipped with process nozzles ranging from DN15 to DN600. Fig. 3 illustrates a process tank with a custom, client-specified nozzle arrangement.

Fusion fabricated tanks can be designed with structural and nozzle variations to meet various Australian and German engineering standards. Custom features include:

- + Chemical storage and processing safety – vents and overflows
- + Working at heights compliance – FRP platforms, balustrades, and ladders (Fig. 4)
- + Seismic resilience – hold-down clamps and stays
- + Confined space access – roof-mounted and sideways-mounted manways
- + Ease of installation – rated lifting lugs for safe manoeuvrability

Custom Designs

Process Tank

+ Homogeneous Material

Nozzles are welded onto the tank with homogeneous material to DVS2205 guidelines. This prevents cracks and subsequent leaks.

+ Nozzle Size Range

Nozzle sizes range from DN15 to DN600.

+ Prevents Wall Fatigue and Buckling

Filling and empty load factors associated with process tanks are taken into consideration, preventing wall fatigue and buckling.

fig.3



Assembly Tank

A Roof Mounted Manhole Access

Sideways manways can also be manufactured.

B Balustrade

Designed and constructed to AS1657 and constructed from polyester FRP to suit corrosive environments

C Overflow and Vent

Designed and constructed to AS3780 for corrosive chemicals.

D Tank Hold-Down Anchors

Designed and constructed to DVS 2205.

E Lifting Lugs

Designed and constructed for easy handling of tanks.

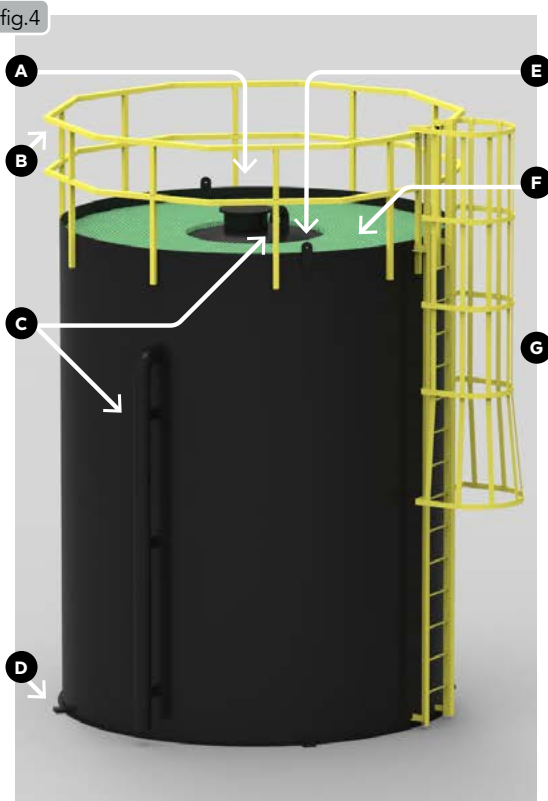
F Tank Platform

Designed with loadings according to AS1170.

G Lockable Ladder / Cage

Constructed from polyester FRP to suit corrosive environments and lockable cage to prevent non-permitted access.

fig.4



Fabricated Tanks

Custom Designs

Conical or Sloped Tanks

Fusion's fabricated tanks can be manufactured with a variety of conical or sloped bases to allow for easy draining. For applications involving chemical blending or powder dissolution, mixing baffles can be incorporated to enhance performance. Structural support frames—

made from plastic and/or steel—can also be added, and are designed using harmonic analysis techniques to minimise the effects of vibrational fatigue on the vessel. An example of a conical mixing vessel is shown in Fig. 5.

Sloped Base Mixing Tank

A Mixer Support Structure

Designed using harmonic analysis and constructed to DVS 2205 guidelines.

B Baffles

Dimensioned and sized according to mixing process (e.g. chemical or powder)

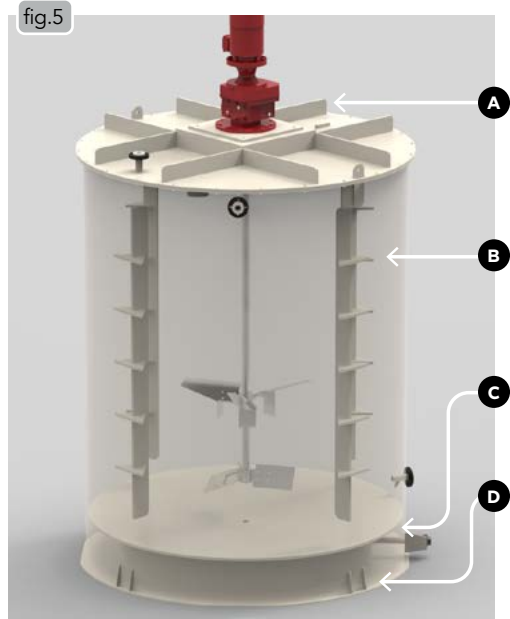
C Conical Base

Designed and constructed to DVS 2205.

D Seismic Supports

Designed using finite element analysis (FEA) and constructed to DVS 2205 guidelines.

fig.5: A fabricated thermoplastic mixing vessel with a conical base, mixing baffles and a harmonically balanced agitator structural support.



Dual Skin Tank

A Double Skin Volume

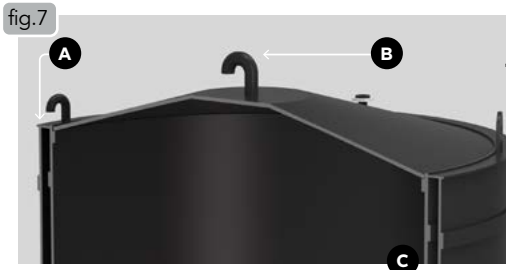
Designed and constructed to AS3780 for corrosive chemicals.

B Vents

Prevent pressure build-up in the event of a leak.

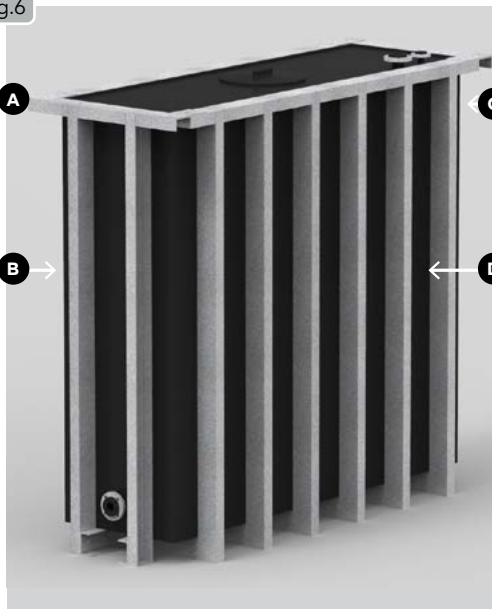
C Double Skin Wall

Designed and constructed to DVS 2205.



Above: A Fusion fabricated thermoplastic dual walled vessel.

fig.6



Rectangular Tank

A Steel Frame

Designed to DVS 2205 and AS4100 for steel structures.

B Traceability

A full traceability report for the steel structure is available upon request.

C Differential Thermal Expansion

Calculated and evaluated for each tank.

D Filling Fatigue Prevention

Designed and constructed to DVS2205. Deflection on the rectangular tank walls is limited to prevent filling fatigue.

Fig.6: A fabricated plastic rectangular vessel with galvanised steel frame (frames can also be manufactured from thermoplastic) designed to DVS2205 standards.

Material Density & Structure

The molecular arrangement in HDPE is in the form of long chains. The chains pack tightly together in a crystalline structure, giving HDPE its high density, strength, stiffness and chemical resistance.

Material Options

Fusion fabricated tanks can be made from a variety of other plastics including: Polypropylene (PP), polyvinyl-chloride (PVC) and polyvinylidene difluoride (PVDF). These can be chosen to match desired characteristics such as chemical resistance, operational temperatures and more. Designs can also include combinations of plastics to further optimise performance and obtain maximum longevity for your application.

Repairs & Maintenance

HDPE is used for the tank, joins and fittings, making an optimal environment with no variances in thermal expansion (not susceptible to cracking), chemical resistance and temperature rating.

Life Span

Initial costs for fabricated tanks are often more, however the return on investment is much greater when taking into account the lifetime of the tank, minimal maintenance costs and repairs. Subject to application, Fusion offers a **25 year design life** on tanks. This statement can be made as a result of consistently accurate materials and specifically engineered per-application designs.

Rotationally Moulded Tanks



Rotationally moulded tanks are manufactured in a process whereby a charge of thermoplastic powder is heated and spun in a hollow metal mould. The heating and spinning turns the plastic molten; coating the mould, which is then cooled to set and form the tank.

This process has the advantage of fast and inexpensive mass manufacturing repeatability,

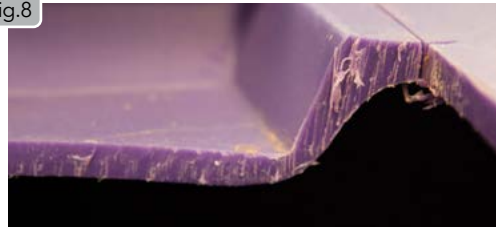
making the end-product-cost of roto-moulded tanks desirable to consumers.

However, when compared to fabricated tanks, and especially in instances of chemical storage, there are a few key points which make this manufacturing technique less reliable; especially for longevity and safety.

Wall Thickness Variances

Wall thickness variations can be problematic, requiring precise heating of the plastic powder (Fig. 8). Overheating can cause brittleness, while underheating may prevent proper adhesion, creating weak spots. Similarly, controlled cooling is essential to prevent warping.

fig.8



Material Incompatibilities

Roto-moulded tanks can face material compatibility issues due to the non-uniform structure of lower-density plastics. Inlets and outlets, typically made from PE100, are welded to the LDPE tank wall, but molecular differences can cause cracking and premature failure. Fig. 9 shows a leaking nozzle in the early stages of crack propagation.

fig.9



Rotationally Moulded Tanks

Material Density & Structure

Materials commonly used in rotationally moulded tanks are LDPE, LLDPE or MDPE (Low Density Polyethylene, Linear Low Density Polyethylene or Medium Density Polyethylene) with other grades used for certain chemical storage applications. Generally these are lower in density and weight compared to common fabricated tank materials and can affect overall strength and longevity.

Benefits

- + Low specific gravity
- + Chemical resistance
- + Impact strength

Limitations

- + Very low strength/stiffness
- + Poor heat resistance
- + High coefficient of thermal expansion

Repairs & Maintenance

Roto-moulded tanks often fail at weak points, especially around pipe fittings and fabricated components. If not addressed quickly, cracks can spread (Fig. 10) and lead to catastrophic failure, posing major OH&S risks.

Repairs are costly and often ineffective, as they involve welding virgin PE100 to weathered material (Fig. 11), leading to contamination and recurring cracks. For hazardous chemical storage, leaks are unacceptable, as they can endanger the environment, equipment, and personnel.

fig.10



fig.11



Conclusion

While roto-moulded tanks have their applications, manufacturing variability and material incompatibilities make them less reliable for chemical storage and process vessels. Fusion fabricated tanks offer precise specifications, consistent wall thickness, and no material compatibility issues, ensuring safety and durability. Choosing a Fusion fabricated tank at the design stage guarantees years of reliable operation.

For more information
about Fabricated Chemical
Storage Tanks visit

[fusionaus.com](https://www.fusionaus.com)

Complete Mechanical Plant Design



With FRP Top-Access Platform HDPE Tanks

Fusion provided a complete mechanical plant design for a milk plant in NSW, including three large plastic tanks with top-access safety platforms and above-ground pipelines designed for thermal expansion in Australia's climate. The plant meets EPA effluent treatment standards.

Fusion's scope included:

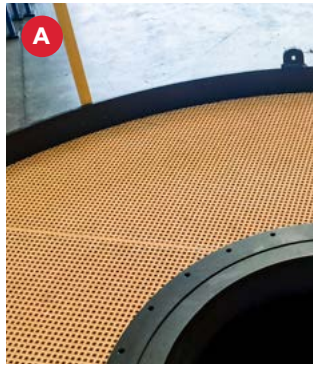
- + Design and manufacture of 2 × 52kL and 1 × 30kL PE100 HDPE tanks
- + FRP tank platforms to AS1657-2013
- + Hydraulic design and pipe sizing to AS2200-2006
- + Pipe support design to AS4130-2009
- + Supply and installation of thermoplastic pipelines, valves, and components.



Waste Water Processing Tanks with FRP Platforms

The plant neutralises milk waste using a hydrochloric acid, caustic, and water mixture, requiring mixing/reactor tanks. The client requested top access for easy aerator mixer installation and removal, achieved via an FRP platform, ladder, and balustrade designed to AS1657-2013.

- A** Close up of the FRP platform.
- B** The tanks with semi assembled balustrades
- C** Transferring one of the tanks to a truck
- D** Lifting into position.



Transport

Fusion's fabricated HDPE tanks are easy to transport and install as they're lightweight (for their size), tolerate

vehicular movement on roads and come with lifting lugs to crane into position.



Site Installation

At the plant, Fusion provided installation services that included commissioning the tanks, installing 1.25" Charlotte UPVC pipe lines, Asahi valves, UPVC dosing systems, filter skids and a range of PE fittings, as well as PE pipe in 90mm – 160mm sizes.



Fusion staff at site assisting with the installation of the wastewater tanks.



The FRP ladder affixed to the side of the PE tank.



UPVC Pipework installation at the Dairy Plant



The tank installation complete.



Outcome

This project marked a milestone for Fusion Queensland, showcasing its capability in complete mechanical plant design and plastic fabricated tank innovation. These tanks were among the first to feature top-access platforms and safety balustrades. Fusion was also selected for its expertise in pipeline and support design, with above-ground pipelines engineered for maintenance access and to withstand Australia's extreme thermal conditions.

With in-house engineers, fabrication, and installation teams, Fusion served as a single point of contact from concept to completion, ensuring seamless execution and rapid project delivery.



The Fusion PE tanks with FRP top access platforms successfully commissioned at site.



Supply Capabilities

The project incorporated Asahi ball valves and Charlotte UPVC Schedule 80 pipe and fittings. As the Australian distributor for these products, Fusion guarantees ongoing availability of valves, fittings, and pipe, along with comprehensive technical support, product selection, and installation services.

Find out more about our Asahi Valve range, our installation services and our fabrication services on our website at:

fusionaus.com

Insulated Dual Wall Tank For Sodium Hydroxide Storage

A Queensland educational facility required a redesign and upgrade of its failing sodium hydroxide storage facility, which posed safety and operational risks.

Fusion designed, manufactured, and installed a new sodium hydroxide plant with thermal protection to prevent freezing in cold conditions. The solution included two dual-walled, glass-wool insulated thermoplastic tanks, along with access platforms and heater elements for enhanced safety and efficiency.



The Existing Storage

The system comprised dual-laminate fibre-reinforced plastic (FRP) tanks. However, several safety concerns were identified:

- + The entry point (a sideways manhole) was positioned too close to the base, creating stress concentrations in the tank wall.
- + The welded sections of the UPVC inner liner had failed, leading to leakage into the FRP outer layer and the bund.
- + The heater elements were installed too close together, creating a hot zone on the tank wall, which damaged the interior of the vessel.



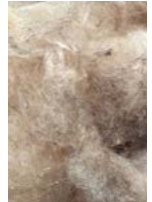
Fusion's Solution

Design two new, safer and stronger PE thermoplastic, dual walled, glass-wool fibre insulated tanks complete with; platforms, safe access/egress and heating elements to prevent sodium hydroxide from freezing in the cold environment.



Work Undertaken

- + Dismantle and removal of existing tanks, pipework and heater elements.
- + Manufacture and design two 7,500L, PE100 double skinned tanks with an glass-wool fibre insulation layer between the inner and outer skins. The roof sections have to be designed with extra strength to be able to support live loads and maintenance personnel.
- + All work carried out must comply to DVS, the German welding standards.
- + Install: 2 x PE100 tanks including all supporting pipework, heater elements and galvanised outer frame.



The project was commissioned successfully. Our client and team were extremely happy with the outcome.

Our team is in regular contact with the client to check on the plant's performance. At the six month mark there were no issues and the plant is in full operation.



Dual Wall Tanks For Safer Chemical Storage

Fusion designs and fabricates PE100 chemical storage tanks, offering dual-wall solutions for highly corrosive substances like sodium hypochlorite and sulphuric acid, where extra safety is essential.

Why Choose Fusion's Dual Wall Tanks?

- + **Intrinsic Safety** – If the inner tank fails, the outer tank contains leaks, preventing external exposure.
- + **Fully Enclosed Design** – Unlike open bunds, dual-wall tanks prevent contamination from rain, wildlife, and plant matter while containing potential spills.
- + **Turnkey Solution** – Designed for easy installation, these tanks operate like single-wall tanks and can be customized with flanges and pipe fittings.
- + **Environmental Protection** – Built to Australian Standards, Fusion's tanks can be designed to withstand wind, earthquakes, UV exposure, and can be designed with sloped or conical bottoms for full drainage.

Fusion's dual-wall PE100 tanks provide superior safety, durability, and ease of installation, ensuring secure chemical storage in any industrial setting.

To find out more about our chemical storage solutions visit:

fusionaus.com

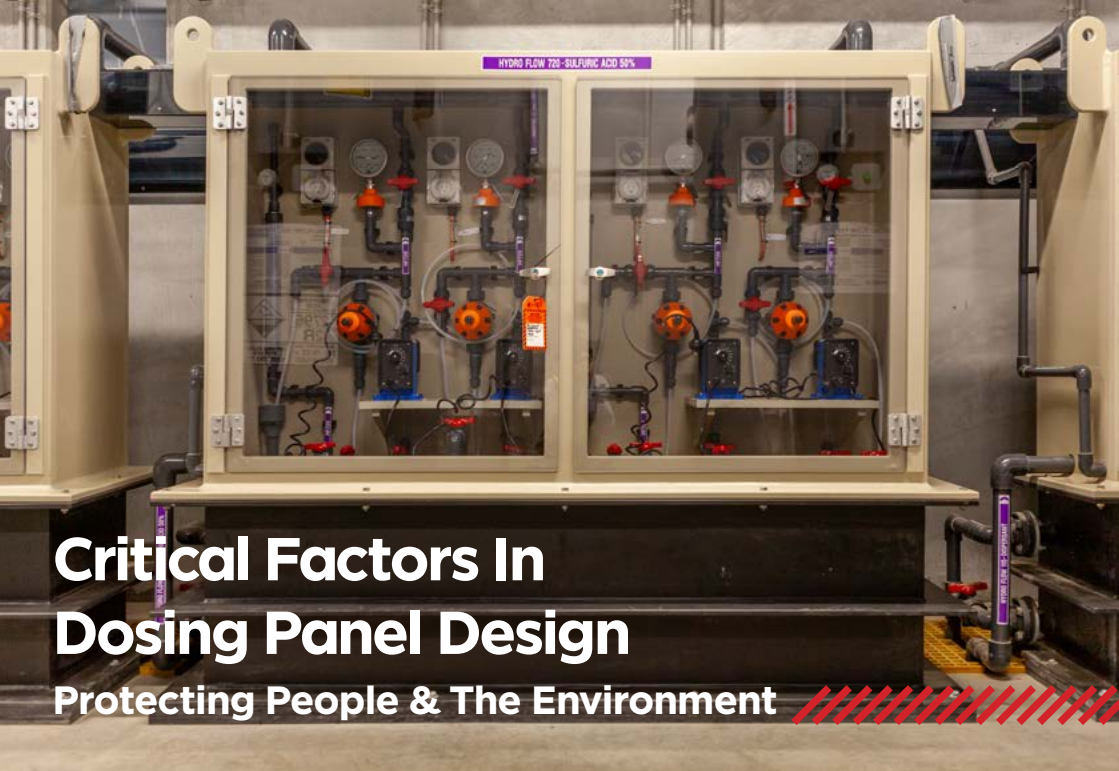




A *Lifting the outer PE wall over the inner wall.*

B *Shows the space between the inner and outer walls, before a cover is applied.*

C *Two complete dual skin tanks undertaking hydrotesting*



Critical Factors In Dosing Panel Design

Protecting People & The Environment

Ensuring people and environmental safety is paramount in industrial applications involving hazardous chemicals.

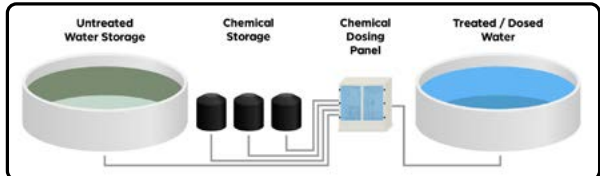
In collaboration with a leading design house and Water Corporation WA, Fusion developed a fully contained chemical dosing cabinet to prevent leaks and spills.

Used in permanent and transportable water treatment plants, chemical dosing panels regulate the safe and precise treatment of water across residential, commercial, and industrial sectors. These panels integrate piping, valves, pumps, and instrumentation to control chemical dosages effectively.

Handling hazardous substances such as sodium hydroxide, ammonia hydroxide, citric acid, sodium hypochlorite, and antiscalants, Fusion's panels incorporate advanced safety features and material choices to minimize the risk of leaks, ensuring operator and environmental protection.

Material of Choice

Fusion dosing panels are commonly fabricated from polypropylene (PP) sheet, a thermoplastic with high mechanical strength, great impact, corrosion, chemical and moisture resistance. Depending on the application, other materials can be selected for optimum longevity.



Design Features



Self Supporting

Fusion's dosing panels are fully self-supporting. The PP enclosure is the supporting structure and makes for a longer lasting, corrosion-free environment.



Rigid, Self-closing Doors

Door design is vital to provide easy access, but also to ensure a safe enclosure. Fusion's recommended design dosing panel doors use self-closing, variable tension hinges to ensure that when access isn't required, the doors close and passers-by are protected from the pipework.



Lock Open & Easy-Close Doors

While the auto-closing feature provides extra safety by ensuring the doors remain closed, it is necessary to have them stay open while important maintenance is undertaken. We install lockable sliders along the bottom of our doors. When the door is opened to its full extent, the slider engages and keeps the door open.



Lockable Doors

On top of the self-closing hinges, we can install strong twist handles to make opening and closing easy and most importantly, they can lock the door shut when panel access isn't required.

Entire System Design

Fusion's work developing, fabricating and installing the safest chemical dosing panels, in consultation with a leading design house and state utility provider, is a testament to our view of always evolving and improving our designs and our dedication to producing the highest quality plastic fabricated products for industrial use, in Australia.

Our team of experienced project managers, mechanical engineers, fabricators and installers, and over 17 years of fabrication and design experience in this field, has also contributed in making Fusion a world-class, trusted partner on major water treatment, desalination and utilities projects Australia-wide.

Power Station RO System

UPVC Pipework

A utilities client who operates a power plant in rural WA required an upgrade to their existing Clean-In-Place (CIP) area.

Fusion's experienced engineers and on-site technicians assisted with the design, supply and installation of a UPVC piping system with supports in two locations within the facility. The pipework

conveys chemicals to clean the membranes inside reverse osmosis cartridges (also called Headers) and ensure efficient water filtration.

Materials used in the Clean-In-Place system are Charlotte Schedule 80 UPVC and Asahi Type 21 UPVC Ball Valves.

The UPVC Piping System

Fusion installed Charlotte UPVC pipe and fittings and Asahi Type 21 ball valves to connect the chemical storage tanks to the rest of the Clean-In-Place system and the headers.



Fusion installed UPVC Pipework in front of the reverse osmosis headers.



UPVC pipework and Asahi valves exiting the cable tray above and heading to different ends of the reverse osmosis cartridges.



Pipework coming down from the overhead cable trays.

Other Fusion Products on Site



Top: A PE IBC bund fabricated by Fusion.



Right: A fabricated, sheet PE storage tank built by Fusion.

Retrofitted Safety Cabinetry

Benefits

- + Corrosion Resistant.
- + Chemical Resistant.
- + Light weight.
- + Maintains pipework visibility.
- + Provides added safety by reducing the pipe-to-person exposure time.



A This existing panel required screening but with the option to isolate the pumps separately and still be able to safely maintain the system.



B Fusion designed a cabinet to house the panel and sectioned each system via an internal partition.

Remote WWTP UPVC Supply



Fusion supplied Schedule 80 UPVC piping for a wastewater treatment plant (WWTP) in remote Australia. Chosen for its superior corrosion resistance, strength and reliability, UPVC outperformed ABS in chemical resistance and offered faster installation than PE. Given the site's critical role in supporting 2,500 construction beds, failure was not an option. UPVC's strong solvent welds ensure durability, making it the preferred choice for internal, external, and underground applications throughout the plant.

- A** The Pump Container: Houses the permeate pump skid, chemical dosing tanks and dosing pumps. Ferric chloride and sodium hypochlorite are being dosed for the site and batching sodium hypochlorite and citric acid for membrane cleaning cycles.
- B** The Permeate Pump Skid: The pumps draw permeate from membranes and pumps them to a treated effluent storage tank. Chlorine and turbidity are both monitored and three way valves will send any non-compliant effluent back to the process.



LINKS & DETAILS

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