

# Derakane™ epoxy vinyl ester resins for chemical processing

Derakane™ resins outperform most commonly used metals in corrosive environments, and in some applications, performing admirably throughout the life of the plant.

## **Premium high-performance thermoset resins for fiberglass reinforced plastic (FRP):**

- Corrosion Resistant
- Excellent resiliency and toughness
- Temperature Resistant and Flame Retardant
- High Strength-to-Weight Ratios
- Low Cost Compared to Metal Alloys
- Good Thermal and Electrical Insulation Properties
- Practically Maintenance Free

The material handling environment found in the chemical processing industry can be extremely corrosive. Traditional materials of construction, such as carbon steel, stainless steel and masonry often break down shortly after being placed in service. Today, more and more design engineers and material specifiers are calling for FRP in both new and replacement equipment used in chemical processing operations.

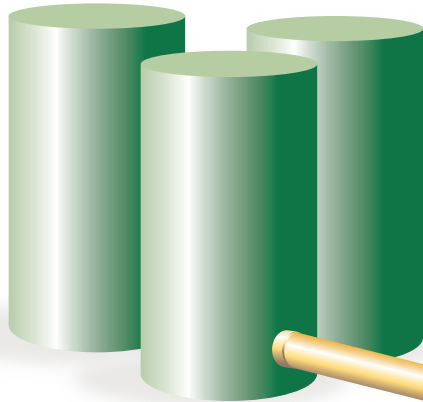
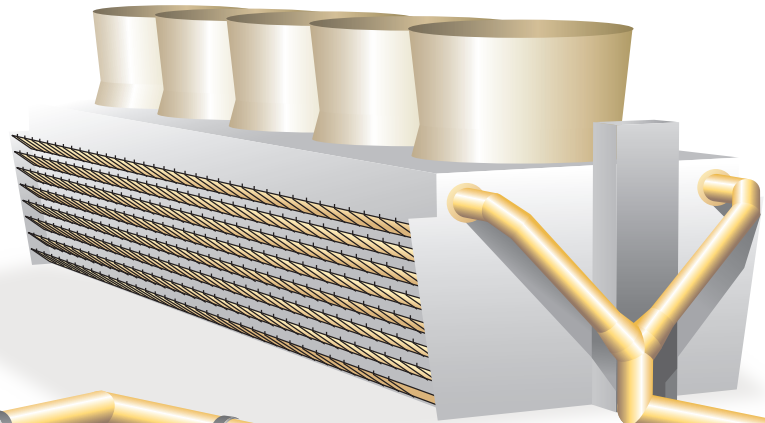
Ashland corrosion resistant resins have been specified for more than 60 years for FRP process equipment used throughout the chemical industry. We strongly believe in this technology and use it in our own facilities around the globe.

## **SOME APPLICATIONS INCLUDE:**

- Chemical Storage Tanks
- Process Vessels
- Intermediate Storage Tanks
- Process Piping and Headers
- Scrubbers and Stacks
- Ducting and Fans
- Pumps and Valves
- Chlor Alkali Cells and Hoods
- Dual Laminates and Linings
- Cooling Towers
- Stairs, Grating and Ladders
- Cladding, Siding and Roofing

## Cooling Towers

FRP Structural members, cladding and louvers provide outstanding resistance to corrosion in cooling tower environments and will not rot like wood. FRP piping, stacks and fans are considerably more durable than carbon steel when exposed to cooling water chemicals and process water.

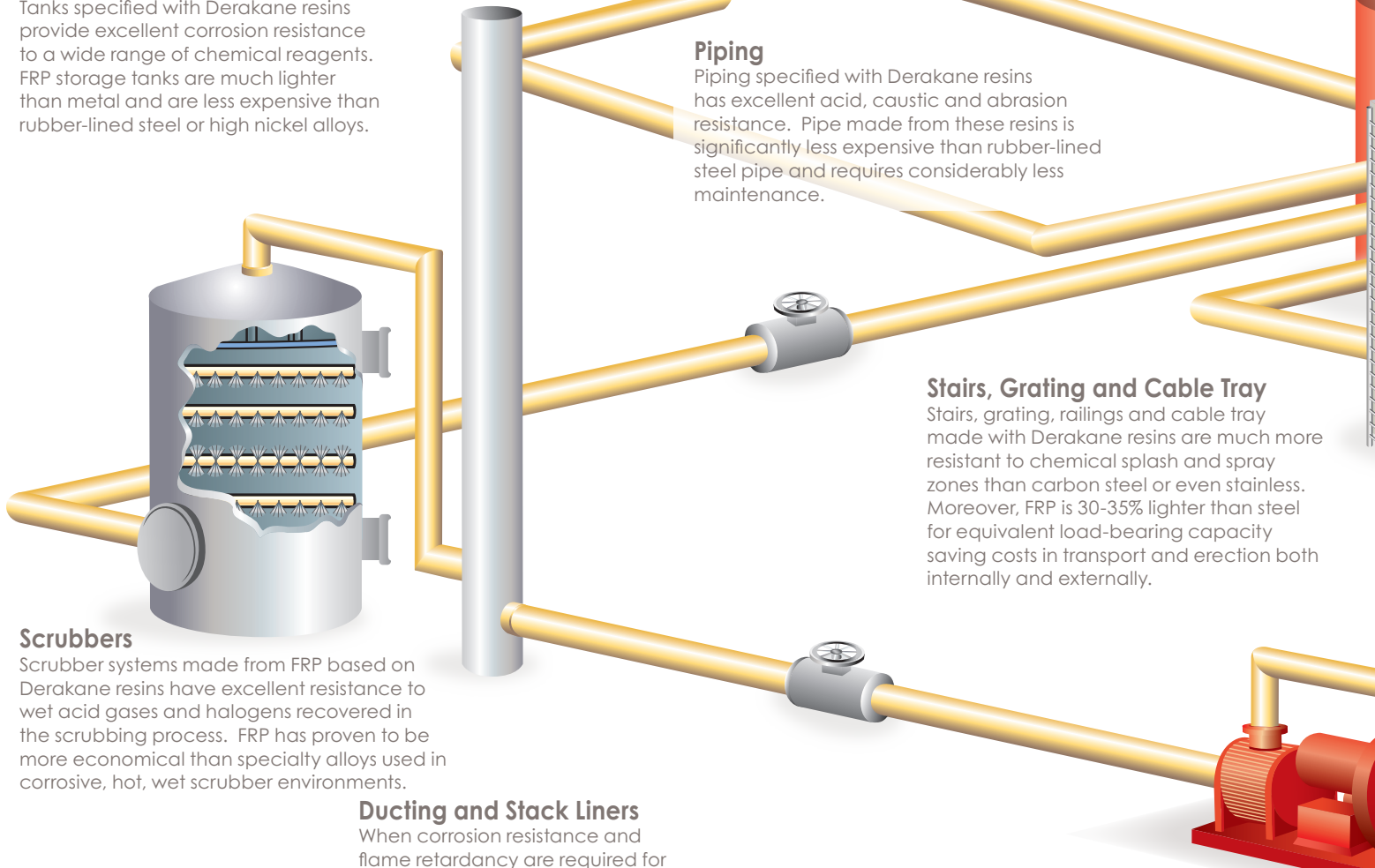


## Reagent Storage Tanks

Tanks specified with Derakane resins provide excellent corrosion resistance to a wide range of chemical reagents. FRP storage tanks are much lighter than metal and are less expensive than rubber-lined steel or high nickel alloys.

## Piping

Piping specified with Derakane resins has excellent acid, caustic and abrasion resistance. Pipe made from these resins is significantly less expensive than rubber-lined steel pipe and requires considerably less maintenance.



## Stairs, Grating and Cable Tray

Stairs, grating, railings and cable tray made with Derakane resins are much more resistant to chemical splash and spray zones than carbon steel or even stainless. Moreover, FRP is 30-35% lighter than steel for equivalent load-bearing capacity saving costs in transport and erection both internally and externally.

## Scrubbers

Scrubber systems made from FRP based on Derakane resins have excellent resistance to wet acid gases and halogens recovered in the scrubbing process. FRP has proven to be more economical than specialty alloys used in corrosive, hot, wet scrubber environments.

## Ducting and Stack Liners

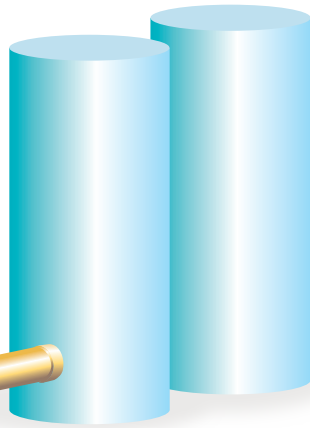
When corrosion resistance and flame retardancy are required for ducts, stack liners or fume-handling equipment, Derakane 510A and Derakane 510B resins are often recommended. Properly fabricated laminates with these resins have met Class I E-84 requirements.

## Pumps and Valves

Pumps and valves specified with Derakane resins deliver considerably longer life in corrosive environments. FRP's lighter weight makes it easier to transport and install. FRP's superior abrasion resistance makes it more durable than rubber lined alternatives.

## Finished Product Storage Tanks

Tanks specified with Derakane resins provide excellent corrosion resistance to a wide range of finished chemicals. FRP made from select Derakane resins has also met food contact rules.



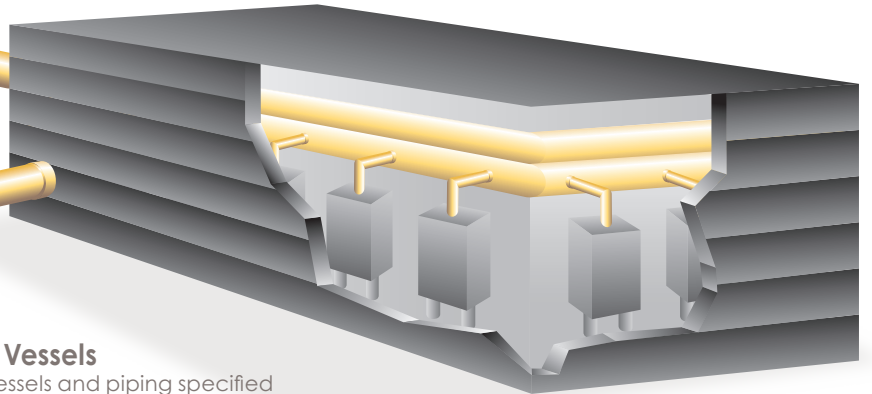
## Bulk Tank Trucks

Bulk tank trailers fabricated with Derakane resins provide excellent corrosion resistance to a wide range of chemical reagents. FRP bulk tank trailers are much lighter than steel and less expensive than rubber-lined steel or high nickel alloys.



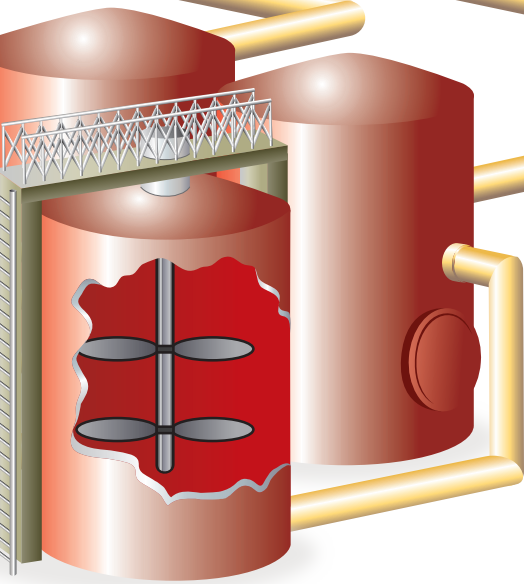
## Cladding, Roofing and Siding

Cladding, roofing and siding made with Ashland resins are much more resistant to incidental chemical exposure and spray zones than carbon steel or even stainless. Chemically-resistant skylighting panels can also be made from FRP. Moreover, FRP is 30-35% lighter than steel for equivalent load-bearing capacity saving costs in transport and erection.



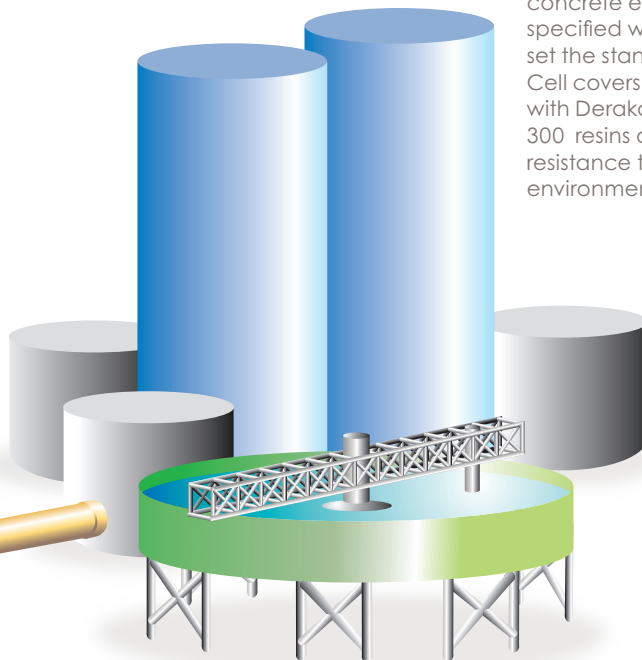
## Process Vessels

Process vessels and piping specified with Derakane resins deliver exceptional resistance to a wide variety of chemical intermediates and mixtures. Where acids, caustic or halogens are found, FRP is often your best bet.



## Chlor Alkali Processes

Brine piping specified with Derakane resins provides outstanding service life in Chlor alkali processes. Polymer concrete electrolytic cells specified with Derakane resins set the standard for the industry. Cell covers and headers made with Derakane Momentum 470-300 resins deliver outstanding resistance to hot, wet chlorine environments.



## Wastewater Treatment

Process water tanks and piping made from Derakane Momentum 411-350 resins are very economical and can accommodate process water up to 80°C.



## Tanks

Storage tanks for reagents, chemical intermediates or finished goods specified with Derakane epoxy vinyl ester resins demonstrate:

- The ability to handle a wide range of corrosive chemicals
- Outstanding resistance to caustics and acids
- No corrosion under insulation (CUI) issues
- Excellent resiliency and toughness
- Chemically resistant interiors and exteriors
- Good abrasion resistance
- Easy installation — lightweight
- Low maintenance costs

## Piping

Piping specified with Derakane epoxy vinyl ester resins deliver:

- Resistance to a wide range of corrosive chemicals
- Excellent resiliency and toughness
- Superior abrasion resistance
- Excellent for filament-wound or hand lay-up piping

Derakane 411 series resins have been specified for both subsurface and above-ground process piping. These resins offer excellent resistance to both acid and caustic environments. These resins also can be specified for fittings, valves, pumps, and pump bases.

## Chlor Alkali Processes

Headers, cell covers, piping and storage tanks in Chlor alkali processes specified with Derakane resins demonstrate:

- Excellent resistance to hot, wet chlorine, caustic, sodium hypochlorite, hydrochloric acid and brine
- Outstanding compatibility with dual laminate designs

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## Scrubbers, ducting and fume-handling equipment

Equipment specified with Derakane 470 epoxy vinyl ester resin provides:

- Excellent corrosion resistance
- Excellent heat resistance – properly fabricated laminates can be used in ducting and stacks up to 350 F (117°C) with occasional upsets up to 600 F (315°C).
- Excellent resistance to oxidizing acid environments

When corrosion resistance and flame retardancy are required for ducts, scrubbers, or fume-handling equipment, Derakane 510A, Derakane 510B, Derakane 510C and Derakane 510N resins are recommended.

## Process equipment, covers, building panels and grating

Equipment specified with Derakane resins demonstrates:

- Excellent weathering properties
- High strength-to-weight ratios
- Outstanding corrosion resistance
- Very good flame retardance
- Easy installation and low maintenance

## Worldwide Technical Service

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