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Who Is Poly Processing?

Poly Processing Company manufactures polyethylene storage systems and custom parts. The company helped pioneer the process of rotational molding, beginning in 1971. We continue to engage in new product development and innovation.

The PPC product offering of consistency includes:

1. Robust corrosion resistance
2. Broad chemical compatibility
3. Minimal field maintenance
4. Long useful life

The company’s ease of business offering to the customer begins with design and engineering support and extends into the marketplace with responsive field service capacity.

Roto-molding of crosslinked polyethylene produces a seamless part that is a sound, economic alternative to fiberglass and stainless steel where storage applications are non-pressure and below 150°F.

Markets served include:

1. Municipal water treatment
2. Industrial chemical storage and distribution
3. Oil and gas
4. Pulp and paper
5. Textile
6. Pharmaceutical
7. Agriculture

PPC, a division of the Abell, LLC, is independently owned and operated. Headquartered in Monroe, Louisiana, the company manufactures additionally in French Camp, California, and Winchester, Virginia.

Poly Processing Company is all about the customer.

Customer service is at the heart of all we do. Our business dialogue and support systems are people-oriented and engineering-friendly. Phone inquiries are answered with the personal touch of a company associate eager to serve customer needs, demands, and expectations.
Innovations Based on Your Processing Needs

This is our goal at Poly Processing – to bring you safer, smarter tanks and fittings that make chemical storage easy for you.

We do this by basing our systems on your processing needs. At Poly, each storage system is designed specifically for the chemical it will contain. So issues like fuming, temperature sensitivity, weight and chemical reaction are all used to create the ideal storage situation, at drawing-board level.

PPC History of Firsts:

- Integrally Molded Flanged Outlet (IMFO®)
- SAFE-Tank® Product Line
- OR-1000™ System
- Large Capacity Poly Tanks, up to 15,000 Gallons
- Lined Steel Vessels for Transportation of Corrosives
- Bolted Flanged Fittings
- The B.O.S.S.® Fitting
- Universal Ball and Socket Fitting for Field Alignment
- Integrally Molded Side Manway
- NSF Certification for Chemical Storage
- UL Listing for Chemical Storage
WHY POLY PROCESSING
About XLPE

High-density crosslinked polyethylene, or XLPE, is a thermoset resin that is specifically designed for critical applications like chemical storage. During the XLPE manufacturing process, a catalyst (peroxide) is built into the resin, which creates a free radical. The free radical generates the crosslinking of the polymer chain, so the tank essentially becomes one giant molecule. The result is a resin that is specifically designed for critical chemical applications.

**XLPE versus Linear Polyethylene**
- XLPE has 20 times the environmental stress crack resistance of HDPE
- It has 10 times the molecular weight of HDPE
- It has 5 times the impact and tensile strength of HDPE

**XLPE versus Fiberglass-Reinforced Plastic (FRP)**
- XLPE offers seamless construction for greater strength
- With FRP, chemicals can wick into the fiber, compromising tank life
- XLPE can have a lower cost of ownership, due to the low amount of required maintenance compared to FRP
- FRP often requires special handling to avoid cracking

**XLPE versus Carbon and Stainless Steel**
- XLPE has seamless one-piece construction, which eliminates the potential for chemical attack points and bad welds
- Unlike carbon and stainless steel, XLPE has very broad chemical resistance capabilities without the need for high-cost coatings
- XLPE requires minimal ongoing maintenance and inspection
- XLPE is a cost-effective solution to high-priced alloys
At Poly Processing, we’re the only chemical storage tank manufacturer to certify not only the polyethylene tank to NSF/ANSI 61 standards, but all fittings and parts within the chemical storage tank system as well. This brings peace of mind to water treatment facilities, since they know the entire system meets the highest standards for public safety.

**Poly Processing offers three levels of NSF 61 certification:**

1. Medium-density polyethylene, used in the inner surface of the OR-1000™ chemical storage system for highly oxidizing chemicals such as sulfuric acid and sodium hypochlorite.
2. High-density polyethylene, which is NSF 61 certified for holding potable water only.
3. High-density crosslinked polyethylene (XLPE).

**The tank and all fittings are NSF 61 certified for all chemicals listed here:**

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Concentration</th>
</tr>
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<tbody>
<tr>
<td>Acetic Acid</td>
<td>80%</td>
</tr>
<tr>
<td>Aluminum Chlorohydrate</td>
<td>100%</td>
</tr>
<tr>
<td>Aluminum Sulfate</td>
<td>50% (Alum)</td>
</tr>
<tr>
<td>Calcium Carbonate</td>
<td>60-100%</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>30%</td>
</tr>
<tr>
<td>Chlorine Dioxide</td>
<td>38%</td>
</tr>
<tr>
<td>Citric Acid</td>
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</tr>
<tr>
<td>Copper Sulfate</td>
<td>25%</td>
</tr>
<tr>
<td>Deionized Water</td>
<td></td>
</tr>
<tr>
<td>Ferric Chloride</td>
<td>50%</td>
</tr>
<tr>
<td>Ferric Sulfate</td>
<td>60%</td>
</tr>
<tr>
<td>Ferrous Chloride</td>
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</tr>
<tr>
<td>Ferrous Sulfate</td>
<td>30%</td>
</tr>
<tr>
<td>Hydrochloric Acid</td>
<td>37%</td>
</tr>
<tr>
<td>Hydrofluoric Acid</td>
<td>52%</td>
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<tr>
<td>Hydrofluosilic Acid</td>
<td>30%</td>
</tr>
<tr>
<td>Hydrogen Peroxide</td>
<td>10%</td>
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<tr>
<td>Liquid Ammonium Sulfate</td>
<td>35-45%</td>
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<tr>
<td>Magnesium Chloride</td>
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<tr>
<td>Peracetic Acid</td>
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<tr>
<td>Phosphoric Acid</td>
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<tr>
<td>Poly Aluminum Chloride</td>
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<tr>
<td>Polyorthophosphate</td>
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<td>Potable Water</td>
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<td>Potassium Hydroxide</td>
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<td>Sodium Aluminate</td>
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<td>Sodium Bisulfite</td>
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<td>Sodium Carbonate</td>
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<tr>
<td>Sodium Chlorite</td>
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<td>Sodium Hydroxide</td>
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<td>Sodium Hypochlorite</td>
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<td>Sodium Hypochlorite</td>
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<tr>
<td>Sodium Permanganate</td>
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<tr>
<td>Sodium Silicate</td>
<td>100%</td>
</tr>
<tr>
<td>Sulfuric Acid</td>
<td>98%</td>
</tr>
<tr>
<td>Zinc Orthophosphate</td>
<td>100%</td>
</tr>
</tbody>
</table>

Talk to your Poly Processing representative to find out more – or visit our website, [www.polyprocessing.com](http://www.polyprocessing.com), to review our NSF white paper.
ASTM D 1998 or Your Tank Manufacturer
Who has tougher standards?

On the surface, polyethylene storage tanks can look pretty similar. It’s tough to tell a more expensive, well-designed and constructed tank from a cheap, inferior one. Many customers are unaware that there is a standard for tank construction based on resin properties and testing – or they simply assume all tank manufacturers follow ASTM D 1998 standards.

It’s important that you don’t depend upon the manufacturer to certify the standard of safety for the polyethylene chemical storage tank you choose for your operations. Instead, verify that your storage tank has been manufactured according to ASTM D 1998 standards.

For example, polyethylene producers generate the mechanical property data for their resin by using samples of poly that has been compression molded. But this process doesn’t take rotational molding into account – and rotational molding can lead to a much stronger tank.

To provide the proper factor of safety, ASTM has adjusted allowable usable ratings provided by resin producers. This provides you with a margin of safety – and the peace of mind knowing that your storage tank is designed and manufactured to withstand potential tank impacts, weight of the chemical stored and pressures from storage of the chemical.
OR-1000™
An inner-surface technology for four times the antioxidant power.

Poly Processing’s exclusive OR-1000™ system was specifically designed to address the aggressive oxidation effects of sodium hypochlorite, sulfuric acid and hydrochloric acid by adding an additional chemical barrier between XLPE and the chemical. OR-1000™’s engineered inner surface is made of medium-density polyethylene, specifically formulated to resist oxidation. Its outer surface is made of XLPE for superior strength. The two surfaces are molecularly bound together during the rotomolding process, creating a truly seamless bond between the XLPE and the inner surface.

The advantages of OR-1000™:
• The result gives you four times the antioxidant strength of any polyethylene on the market today!
• All wetted surfaces are covered by OR-1000™, eliminating the opportunity for a chemical attack on the structural portion of the tank
• OR-1000™ can be used on any of our tanks, including SAFE-Tank® and IMFO® tank systems
IMFO®
Integrally molded for major hazard control.

Traditional tank maintenance can be a challenge with many chemicals – so Poly has developed a unique system that helps minimize the hazards associated with traditional vertical tank maintenance. With Poly’s Integrally Molded Flanged Outlet, or IMFO® system, the flange is molded while the tank is processing, making it a stress-free part of the tank. The flange is created from the same material as the tank - it’s not an insert introduced during or at post-production.

The IMFO’s advantages are many:

- Since the flange is at the bottom of the tank, full drainage is achieved below the tank knuckle radius, which can eliminate the need to enter the tank for cleaning
- One-piece construction enhances long-term performance of the tank, since it doesn’t compromise the tank hoop’s integrity or structural design
- In aggressive applications, the complete flange face is protected by the antioxidant OR-1000™ system
- The IMFO’s design brings you the highest amount of static head pressure, which contributes to the highest net positive suction head (NPSH) of any vertical non-coned tank
SAFE-Tank®
A complete system for secondary containment.

Poly Processing’s SAFE-Tank® is a tank-within-a-tank system that keeps contaminants from entering the interstitial area. These tanks provide secondary containment to avoid the damaging of equipment or property, loss of chemical, or injury to employees in the event of a spill.

The SAFE-Tank®:
- Provides 110% secondary containment
- Will equalize the liquid and allow the chemical to be continually used until it is convenient to repair the tank
- Is ideal for chemicals like sulfuric acid that can have dangerous exothermic reactions to water
- Eliminates the expense, cost and maintenance of secondary concrete containment
- Minimizes the system’s footprint by providing secondary containment in a more compact way
- Adding a bellows transition fitting will maximize your SAFE-Tank® system’s performance

SAFE-Tank® systems (see page 53 for details) are also available with OR-1000™ for superior antioxidant resistance.
Poly Processing offers an array of brackets for small to large tank mixing solutions – and we can also custom design a mixing system to meet your specific needs. Our application engineers are ready to work with you to determine which solution is best for your installation. Just give them all the key details you can on weight, torque and RPM, and they’ll help you configure the ideal system for your storage situation.

Tank Mixing Systems
The ideal blend of quality machinery and movement.
OUR INNOVATIONS

Large vertical or open tank freestanding mixer bridge.

Small vertical tank clamp on style mixer attachment.
Like mixer brackets, baffles play a key role in effective mixing. Poly Processing has developed an innovative approach to address this need for mixing within polyethylene tanks.

Our tank mixing system includes molded fiberglass reinforced (FRP) components. Utilizing FRP components allows for a modular system that can be adapted to fit multiple applications and a variety of vessel sizes.
The PolyScrub™ is an ideal solution for customers in search of a cost-effective fume scrubber. The PolyScrub™ was designed to address discharging vapor from chemical tanks during operation and filling. Its clever design uses water to scrub harmful fumes before they evacuate the system. Each PolyScrub™ is designed by our application engineers to accommodate proper ACFM for a given system.
Poly’s Seismic Systems
How to prevent catastrophic storage tank failure in an earthquake.

One natural event that could potentially lead to catastrophic risk, resulting in a complete failure of a chemical storage tank system, is an earthquake. Earthquakes can happen in areas not even considered an earthquake zone. Just think of the August 2011 5.8 magnitude tremor that rocked Virginia.

Considering the impact of an earthquake on a chemical storage tank, a proper restraint system is essential. Let’s explore steps to take to protect your chemical storage tank in the event of an earthquake.

Evaluate the Earthquake Risk

It’s vital to determine the possibility of a seismic event at the specific location of the polyethylene chemical storage tank. Poly Processing uses the latest International Building Code to design restraint systems for polyethylene plastic storage tanks. The actual location and seismic activity are evaluated to help ensure safety.

During the 1989 Loma Prieta earthquake in California, more than 100 Poly Processing polyethylene storage tanks were located in the earthquake zone. None of the tanks failed. However, while the tanks and seismic restraints held up to the quake, pipes fitted to the tanks cracked and were damaged due to the effect of tank movement on inflexible fittings. To help avoid this situation, consider flexible tank fittings, which can lead to reduced risk of failure in the complete chemical storage system.
**SAFE-Surge® MANWAY COVERS**

Poly's SAFE-Surge® manway covers ensure that your tank maintains the proper ACFM at all times - even in the event of air surges that can't be handled by primary venting. This system was designed specifically for pneumatic-filled tanks.

**SAFE-Surge®:**
- Is never to be considered part of your primary venting
- Releases at a 6-inch water column to prevent over-pressurization
- Features an easy inspection port
- Is available for 19- and 24-inch manways

This cover is **required** in pneumatic filling operations excluding scrubbers. For detailed venting requirements, please refer to the chart on page 79.

**F.S. 2650® MANWAY COVER**

For plastic chemical storage tanks located outdoors where fumes are not a concern, the F.S. 2650® manway cover is a less expensive option for safely handling any air pressure surges.

The F.S. 2650® combines a vent and manway cover into one engineered lid system that can evacuate air volumes up to 2650 ACFM, which is well within the calculated maximum potential pressure surges resulting from the use of both 2- and 3-inch fill lines (maximum ACFM from a 2-inch standard line is 910, and 1150 from a 3-inch line).
**Enhanced Bellows Transition Fittings**
A secure yet flexible fully contained SAFE-Tank® bottom discharge.

By adding an expansion joint into the plumbing, the tank expands freely during loading and unloading, and it also virtually eliminates damage from piping vibrations caused by pumps. With this performance-maximizing fitting:

- Containment of the expansion joint eliminates the threat of uncontained chemical leaks and dangerous “spurts”
- Piping layouts can be fully contained by connecting a dual-wall piping system onto the fitting. This can mean a safer workplace and less threat to the environment.
- Unsurpassed containment of discharge is allowed on a SAFE-Tank®

The pressure-tested internal components of the fitting come to you pre-assembled and ready to install.
The B.O.S.S.®
A simple design for better leak protection.

With its streamlined one-piece design, the B.O.S.S.® (bolted one-piece sure seal) reduces the seal point to a single gasket to greatly reduce chances for leakage.

The B.O.S.S.® is available in three alloy options: 316 stainless steel, titanium and C-276. It comes fully assembled and pressure tested and can be installed through the tank wall as with any other standard bulkhead fitting. See page 62 to find out more.

This unique fitting:

• Is constructed of polyethylene for chemical compatibility with your tank
• Has an innovative backing ring design to reduce stress on the fitting and make it three times stronger than plastic fittings
• Is easy to maintain and troubleshoot since the pipe connection is extended beyond the sidewall of the tank
• Is available in 1-, 2-, 3- and 4-inch I.D. with PVC or CPVC socket connection
Poly Processing understands the very specific storage requirements for every chemical – so we have developed systems that meet the unique requirements of each product. The following systems have been designed to optimize your system’s safety, longevity and compatibility, based on the properties of the stored chemical. Please note that each of these systems can be adapted to suit your particular needs.
Sodium Hypochlorite.
An aggressive oxidizer that presents a major storage challenge.

Commonly known as bleach, sodium hypochlorite is used in a variety of applications, particularly for the disinfection of drinking water and wastewater. When it comes to storage of this chemical, three factors must be considered:

• UV can degrade sodium hypochlorite, so special precautions must be taken to reduce this effect

• Sodium hypochlorite typically contains transition metals such as nickel, iron and copper, which can build up in a storage tank, creating off-gassing

• “Hypo” is a potent oxidizer, so all materials in the chemical’s storage tank must be up to the task

By addressing all three of the issues stated above, this caustic chemical can be contained in a more secure and effective manner, with a tank system that meets NSF/ANSI Standard 61 for chemical storage.
Poly Processing’s sodium hypochlorite storage systems are specifically designed for containment of this challenging chemical. By using carbon black, white or gray compound XLPE resin, UV degradation of the chemical can be dramatically reduced. Mastic coatings and insulation are other ways to reduce UV’s effect on the chemical.

To prevent the potential buildup of transition metals in the tank, Poly has developed the IMFO® system. This special design allows for full drainage of the tank, which can greatly increase the half-life of the chemical.¹

¹Natural tanks are available for indoor use.

The Poly Processing Hypo System

Poly’s OR-1000™ system is another key component of the hypo system. OR-1000™ is the result of our exclusive rotomolding process, which creates a seamless bond between an inner surface of medium-density polyethylene and an outer surface of high-density crosslinked polyethylene. OR-1000™ allows four times the antioxidant strength of a normal polyethylene. In any application where OR-1000™ is used, all wetted surfaces – including the face of the IMFO® drain – are completely covered by the material, eliminating any opportunity for a chemical attack on the structural portion of the tank.

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>RESIN TYPE</th>
<th>SPECIFIC GRAVITY RATING</th>
<th>FITTING MATERIAL</th>
<th>GASKET MATERIAL</th>
<th>BOLT MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hypochlorite 9%–15%</td>
<td>XLPE with OR-1000™</td>
<td>1.9</td>
<td>PVC</td>
<td>EPDM/Viton®</td>
<td>Titanium</td>
</tr>
</tbody>
</table>

*See our website for a complete Chemical Resistance Chart.

**NOTE:** To meet NSF-61 certification, use EPDM or Viton® GF. On-site generation (0.8%) max size: 4,000 gallons without engineering review.
### Tank Specifications

- **High-density crosslinked polyethylene (XLPE)** outer surface ensures maximum corrosion protection through molecular bonding.

- **OR-1000™** molecularly bonds XLPE with an antioxidant inner surface that resists the heavily oxidizing nature of sodium hypochlorite.

- **Integrally Molded Flanged Outlet (IMFO®)** constructed as part of tank ensures complete drainage. Non-IMFO® options also available.

- **UV protection** for the chemical is achieved by using compounded black, white or gray resin or insulation coating to help maximize the half-life of the chemical for outdoor applications.

### Recommended System Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Secondary containment:</strong></td>
<td>Recommended. Alternative: PPC secondary containment basin of XLPE, or SAFE-Tank® if concrete containment is not available.</td>
</tr>
<tr>
<td><strong>Fittings:</strong></td>
<td>IMFO® to prevent transition metal buildup.</td>
</tr>
<tr>
<td><strong>Plumbing:</strong></td>
<td>Requires flexible, Hypo-resistant connections [see page 71] to allow for lateral and vertical tank contraction and expansion, and to reduce vibration stress.</td>
</tr>
<tr>
<td><strong>Venting:</strong></td>
<td>SAFE-Surge® manway cover is recommended on pneumatically loaded systems to support tank longevity.</td>
</tr>
</tbody>
</table>

The above components are just a few of the many options offered by Poly Processing. See pages 50-79 for additional information and products, or talk to your Poly Processing representative.
TECHNICAL OVERVIEW:
Sodium Hypochlorite Storage Tanks

TANK
IMFO® Vertical Flat Bottom of XLPE with OR-1000™:
- 1,000–13,650 gallons
- 1.9 spg rating
NOTE: 230–1,000 gallons do not require OR-1000™.
Non-IMFO® alternative*:
Standard Vertical Flat Bottom XLPE with OR-1000™:
- 1,000–13,650 gallons
- 1.9 spg rating
NOTE: 30–1,000 gallons do not require OR-1000™.
*Three-year warranty offered on Non-IMFO® alternatives.
SAFE-Tank® XLPE:
- 1,500–8,700 gallons
- 1.9 spg rating for primary tank with OR-1000™
- Spg ratings for secondary tanks ≥ 3,000 gallons may be equal to or 1 less spg than primary tank
- All other tank sizes must equal primary tank spg rating
NOTE: 55–1,000 gallons do not require OR-1000™.

Black, white or gray color or insulation with mastic coating required in outdoor applications to minimize bleach degradation and maximize chemical half-life.

SECONDARY CONTAINMENT
Recommend SAFE-Tank® secondary XLPE as shown above.
Non-SAFE-Tank® Alternatives:
- PPC secondary containment basin
- Other secondary containment suitable for sodium hypochlorite, of adequate size for use

FITTINGS
Sidewall: Recommend 3” maximum B.O.S.S.® fitting
Dome: No restrictions

PLUMBING TO THE TANK
- Required use of flexible connections with fittings on lower third of sidewall
  » Allows for lateral and vertical expansion and contraction of the tank
  » Reduces pump and piping vibration stress on the tank
- Expansion joints must meet the following minimum requirements:
  » Axial Compression ≥ 0.67”
  » Axial Extension ≥ 0.67”
  » Lateral Deflection ≥ 0.51”
  » Angular Deflection ≥ 14°
  » Torsional Rotation ≥ 4°

VENTING
See chart on page 79.

FOUNDATION AND RESTRAINTS
- PPC IMFO® tank pad or smooth concrete, asphalt or steel foundation designed to accommodate IMFO®, SAFE-Tank® or vertical tank
- No restraint or ladder attachment bands circumscribing the tank are allowed. Cable restraint systems must pass cables over the top of the tank.

TEMPERATURE
Product should not exceed 100°F at delivery or during storage to reduce the decomposition of the chemical and maintain ASTM D 1998 design parameters.

LID
SAFE-Surge® manway cover for pneumatically loaded tanks; bolted manway cover for all other applications.

OPTIONS
RestRAINT systems for wind and seismic, level gauges, ladders, heating pads, insulation, fume-tight manway cover, NSF-61 certification and engineering stamp.

ADDITIONAL SPECIAL REQUIREMENTS
On-site generation (0.8%) max size: 4,000 gallons without engineering review. 0.8% may require OR-1000™ system, depending on the installation parameters.
Sulfuric acid is used in a huge array of industrial applications, for everything from water and wastewater treatment to the manufacture of chemicals, fertilizer and car batteries. But this highly exothermic acid presents serious storage challenges, for a number of reasons.

• Sulfuric acid is an extremely heavy chemical that will test the mechanical integrity of any material

• The addition of water to concentrated sulfuric acid leads to the dispersal of a sulfuric acid aerosol – or worse yet, an explosion

• If sulfuric acid is spilled on metals, it can create highly flammable hydrogen gas

• Skin and other bodily burns from sulfuric acid are potentially more serious than burns from other strong acids. Sulfuric acid dehydrates whatever it touches, and the heat caused by that reaction with water can create secondary thermal damage.

Poly Processing’s tanks and fittings can be combined specifically to contain sulfuric acid, reducing the risks presented by this highly acidic chemical.
The Poly Processing Sulfuric Acid System

Through a combination of innovative features, Poly Processing creates the ideal system for sulfuric acid storage. With their robust load tolerance, crosslinked polyethylene tanks can more than handle the chemical’s heavy weight. The molecular bonding of XLPE and tank wall thickness is particularly important in the bottom third of the tank, where high levels of load are concentrated.

If secondary containment is not present, the Poly Processing SAFE-Tank® is a smart choice. Along with containing the chemical from its surrounding environment, this double-walled tank greatly lowers the risk for hazardous contact of sulfuric acid with water. SAFE-Tank® systems are designed with OR-1000™.

If secondary containment* is present, the IMFO® tank is recommended. With the use of an IMFO® system instead of mechanical fittings, the tank’s structural integrity is maximized. Combine this tank design with the OR-1000™ system, and oxidation is reduced dramatically.

All of these features lead to a safer tank - designed to reduce safety risks and improve the longevity of the system.

*Containment tank is required with this chemical in all applications.

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>RESIN TYPE</th>
<th>SPECIFIC GRAVITY RATING</th>
<th>FITTING MATERIAL</th>
<th>GASKET MATERIAL</th>
<th>BOLT MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric Acid ≥ 93%</td>
<td>XLPE with OR-1000™</td>
<td>2.2</td>
<td>PVC</td>
<td>Viton®</td>
<td>316SS</td>
</tr>
<tr>
<td>Sulfuric Acid 80%–92%</td>
<td>XLPE with OR-1000™</td>
<td>2.2</td>
<td>PVC</td>
<td>Viton®</td>
<td>C-276</td>
</tr>
<tr>
<td>Sulfuric Acid &lt; 80%</td>
<td>XLPE</td>
<td>1.9</td>
<td>PVC</td>
<td>Viton®</td>
<td>C-276</td>
</tr>
</tbody>
</table>

** See our website for a complete Chemical Resistance Chart.

NOTE: To meet NSF-61 certification, use Viton® GF.
Tank Specifications

• **High-density crosslinked polyethylene (XLPE)** accommodates the heavy weight of sulfuric acid

• **OR-1000™** bonds the XLPE with an antioxidant inner surface, minimizing oxidation, reducing the potential for fault and maximizing life span

• **SAFE-Tank® design** creates a tank-within-a-tank, ensuring that water will not enter the containment area. (Recommended where secondary containment is not available.)

• **IMFO® tank** is molded as a single unit. This maintains hoop stress rating, adding to the strength of the tank. (Recommended for situations with existing secondary containment.)

• **B.O.S.S.® fitting** provides bolted one-piece sure-seal design, limiting the seal point to a single gasket for major leak prevention

Recommended System Components

**Venting:**
SAFE-Surge® manway cover is recommended on pneumatically loaded systems to support tank longevity

**Fittings:**
Recommend bellows transition fitting for bottom sidewall discharge

**Fittings:**
B.O.S.S.® fitting also recommended to prevent leaks

**NOTE:** For concentrations less than 93%, DO NOT use stainless steel

**Plumbing:**
Reverse float gauge recommended to ensure proper tank leveling. See page 68.

The above components are just a few of the many options offered by Poly Processing. See pages 50-79 for additional information and products, or talk to your Poly Processing representative.
**TECHNICAL OVERVIEW:**
Sulfuric Acid Storage Tanks

**TANK**

**SAFE-Tank® of XLPE with OR-1000™:**
- 3,150–8,700 gallons
  - 2.2 spg rating with OR-1000™ for primary tank
  - 1.9 spg rating for secondary tank
- 1,550–2,500 gallons
  - 2.2 spg rating with OR-1000™ for primary tank
  - 2.2 spg rating for secondary tank
- 55–1,000 gallons
  - 1.9 spg primary and secondary tanks

**Non-SAFE-Tank® alternatives:**

**IMFO® Vertical Flat Bottom of XLPE with OR-1000™:**
- 1,150–6,600 gallons
- 2.2 spg rating

**IMFO® Vertical Flat Bottom of XLPE:**
- 230–905 gallons
- 1.9 spg rating

**Standard Vertical Flat Bottom of XLPE with OR-1000™:**
- 1,050–6,600 gallons
- 2.2 spg rating

**Standard Vertical Flat Bottom of XLPE:**
- 30–1,000 gallons
- 1.9 spg rating

**NOTE:** 55–1,000 gallons do not require OR-1000™. * ≥ 94% concentration max tank size: 4,000 gallons without engineering review.

**OPTIONS**

Restraint systems for wind and seismic, level gauges, ladders, heating pads, insulation, fume-tight manway cover, NSF-61 certification and engineering stamp.

**SECONDARY CONTAINMENT**

**Non-SAFE-Tank® alternatives:**
- PPC secondary containment basin
- Other secondary containment suitable for sulfuric acid, of adequate size for use

**FITTINGS**

**Sidewall:** Recommend 3” maximum B.O.S.S.® fitting
**Dome:** No restrictions

**PLUMBING TO THE TANK**

- Required use of **flexible connections** with fittings on lower third of sidewall
  - Allows for lateral and vertical expansion and contraction of the tank
  - Reduces pump and piping vibration stress on the tank
- Expansion joints must meet the following minimum requirements:
  - Axial Compression ≥ 0.67”
  - Axial Extension ≥ 0.67”
  - Lateral Deflection ≥ 0.51”
  - Angular Deflection ≥ 14°
  - Torsional Rotation ≥ 4°

**VENTING**

See chart on page 79.

**FOUNDATION AND RESTRAINTS**

- Smooth concrete, asphalt or steel foundation designed to accommodate IMFO®, SAFE-Tank® or vertical tank
- No restraint or ladder attachment bands circumscribing the tank are allowed. Cable restraint systems must pass cables over the top of the tank.

**TEMPERATURE**

Product should not exceed 100°F at delivery or during storage to maintain ASTM D 1998 design parameters.

**LID**

SAFE-Surge® manway cover for pneumatically loaded tanks; bolted manway cover for all other applications.

**NOTE:** ≥ 94% concentration max tank size: 4,000 gallons without engineering review.
Hydrochloric Acid.
Controlling a chemical – and its fumes.

Also known as muriatic acid, hydrochloric acid is used to acidize petroleum wells, remove scales from boilers, aid in ore reduction and serve as a chemical intermediate, among other applications. This pungent liquid is a strong, highly corrosive acid, and it presents serious storage challenges.

- Hydrochloric acid has an extremely low pH, making it highly corrosive
- The chemical creates toxic fumes that can deteriorate equipment – and these fumes can be fatal to employees. To control the chemical’s fumes, the tank’s venting system must be exact.
- Tank maintenance can also be an issue because of fuming. Entering the tank must be avoided at all costs, and part replacement must be minimized.

By creating a strong, corrosion-resistant tank system that ties into a scrubber system, all of these issues can be addressed.
Poly Processing’s OR-1000™ surface is ideal for HCl storage. OR-1000™ has proven so effective in containing HCl that systems using it have a 5-year warranty. These tanks bring you the strength of high-density crosslinked polyethylene with an antioxidant surface.

Poly also incorporates airtight lids and customized scrubbers to accommodate the fuming of HCl.

### The Poly Processing Hydrochloric Acid System

Storing a chemical as corrosive and fuming as HCl takes a truly specialized system. Poly Processing resolves these issues with its tank, venting and fittings solutions. An Integrally Molded Flanged Outlet, or IMFO®, allows for complete drainage of the tank, which eliminates the need to enter the tank for cleaning. This is imperative when dealing with such a strongly fuming chemical. The IMFO® design also reduces chances of having to replace parts, as the drainage system is part of the tank’s mold.

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>RESIN TYPE</th>
<th>SPECIFIC GRAVITY</th>
<th>FITTING MATERIAL</th>
<th>GASKET MATERIAL</th>
<th>BOLT MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochloric Acid ≤ 37%</td>
<td>XLPE with OR-1000™</td>
<td>1.9</td>
<td>PVC</td>
<td>EPDM</td>
<td>C-276</td>
</tr>
</tbody>
</table>

**See our website for a complete Chemical Resistance Chart.**
• **OR-1000™** binds the XLPE with an antioxidant inner surface, which is vital when storing such a corrosive chemical

• **IMFO® construction** eliminates the need to enter the tank for cleaning, helping employees avoid HCl's toxic fumes

• **High-density crosslinked polyethylene (XLPE)** ensures the strength of the tank

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**Recommended System Components**

- **Secondary containment:** SAFE-Tank® is recommended where secondary containment is not available

- **Fittings:** IMFO® system is recommended

- **Fittings:** B.O.S.S.® fitting is also recommended to prevent leaks

- **Plumbing:** Requires flexible connections with fittings on lower third of sidewall to accommodate expansion and contraction and reduce vibration stress on the tank

- **Fume-tight manway cover:** 17”, 19” or 24” with EPDM gaskets

- **Scrubbers:** Individually designed to support the reduction of dangerous fumes into the environment

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The above components are just a few of the many options offered by Poly Processing. See pages 50–79 for additional information and products, or talk to your Poly Processing representative.
PLUMBING TO THE TANK
- Required use of flexible connections with fittings on lower third of sidewall
  » Allows for lateral and vertical expansion and contraction of the tank
  » Reduces pump and piping vibration stress on the tank
- Expansion joints must meet the following minimum requirements:
  » Axial Compression $\geq 0.67"$
  » Axial Extension $\geq 0.67"$
  » Lateral Deflection $\geq 0.51"$
  » Angular Deflection $\geq 14°$
  » Torsional Rotation $\geq 4°$

VENTING
See chart on page 79.

FOUNDATION AND RESTRAINTS
- PPC IMFO® tank pad or smooth concrete, asphalt or steel foundation designed to accommodate IMFO®, SAFE-Tank® or vertical tank
- No restraint or ladder attachment bands circumscribing the tank are allowed. Cable restraint systems must pass cables over the top of the tank.

TEMPERATURE
Product should not exceed 100°F at delivery or during storage to maintain ASTM D 1998 design parameters.

LID
Fume-tight manway cover to manage release of chemical gases.

OPTIONS
Restraint systems for wind and seismic, level gauges, ladders, heating pads, insulation and engineering stamp.
Additional Solutions
Effective options for storing other chemicals and materials.

Each product has its own specific properties, so Poly Processing makes it easy to adapt our tanks with the type of gaskets, venting, fittings and other features necessary for that chemical or material. The following are just a few of the many products that can be stored safely with a Poly Processing tank system. For details on those items not listed here, talk to your Poly Processing representative.
The Poly Processing

System Recommendation.

Tank Specifications

Recommended System Components

Secondary containment:
SAFE-Tank® if concrete containment is not available
Alternative: PPC secondary containment basin or other secondary containment suitable for chemical, of adequate size for use

Fittings:
IMFO® eliminates the need for confined space entry

Plumbing:
Requires flexible connections [see page 71] to allow for lateral and vertical tank contraction and expansion and to reduce vibration stress

Venting:
SAFE-Surge® manway cover is recommended on pneumatically loaded systems to support tank longevity

The above components are just a few of the many options offered by Poly Processing. See pages 50–79 for additional information and products, or talk to your Poly Processing representative.

Tank options include:

- High-density crosslinked polyethylene (XLPE) construction for maximum strength
- OR-1000™ antioxidant inner surface
- Integrally Molded Flanged Outlet (IMFO®) for complete drainage
- SAFE-Tank® design for tank-within-a-tank protection

[Images and diagrams of tank options and system components]
SODIUM HYDROXIDE.
Defying a chemical that “finds” leaks.

Also known as caustic soda or liquid lye, sodium hydroxide is used to adjust pH in water and wastewater treatment and in the manufacture of chemicals, rayon, cellophane, pulp and paper, aluminum, detergents, soaps and a wide range of other products. As for storage:

• Sodium hydroxide is a “slippery” chemical that tries to find leak paths

• This chemical is extremely corrosive to tissue. It is also highly toxic if ingested.

• If sodium hydroxide is not kept at a specific temperature, it will crystallize and go solid

A tank system and proper fittings from Poly Processing can reduce your risk with this hazardous chemical.
The Poly Processing

**Sodium Hydroxide System.**

The key to storing sodium hydroxide properly is strong, safe containment. Since the chemical is so corrosive, secondary containment is an absolute.

If secondary containment is already available, the IMFO® tank is recommended. IMFO® systems are ideal for sodium hydroxide systems, since their flange is actually a molded part of the tank, not an insert that could leak or fail. The IMFO® also ensures long-term performance of the overall system, since it eliminates the need to drill into the sidewall of the tank and install a mechanical fitting, which can create a maintenance issue with this chemical.

When secondary containment is not available, a SAFE-Tank® can meet this requirement. This tank-within-a-tank extends the margin of safety by providing a system with **110% secondary containment**.

The tank’s high-density crosslinked polyethylene construction means greater strength. It is so strong, in fact, that Poly offers a **warranty of five full years** on all tanks.

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>RESIN TYPE</th>
<th>SPECIFIC GRAVITY RATING</th>
<th>FITTING MATERIAL</th>
<th>GASKET MATERIAL</th>
<th>BOLT MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide 50%</td>
<td>XLPE</td>
<td>1.65</td>
<td>PVC</td>
<td>EPDM</td>
<td>316SS</td>
</tr>
</tbody>
</table>

**NOTE:** To meet NSF-61 certification, use EPDM or Viton® GF.

**Alternative secondary containment:** PPC secondary containment basin or other secondary containment suitable for sodium hydroxide, of adequate size for use.

**Plumbing:** Requires use of flexible connections with fittings on lower third of sidewall. See page 70 for flexible connections options.

**Venting:** See chart on page 79.

**Foundation:** PPC IMFO® tank pad or smooth concrete, asphalt or steel foundation designed to accommodate IMFO®, SAFE-Tank® or vertical tank.

**Temperature:** Product should not exceed 100°F at delivery or during storage or drop below 50°F to prevent damage to the chemical. Contact Customer Support if chemical is to exceed 100°F.

**Lid:** SAFE-Surge® manway cover for pneumatically loaded tanks; bolted manway cover for all other applications.

**Options:** Restraint systems for wind and seismic, level gauges, ladders, heating pads, insulation, mixer mounts and engineering stamp.

**NOTE:** Heating pad and insulation are highly recommended to prevent crystallization of the chemical.
**Hydrofluoric Acid.**
Reducing the risk of human exposure.

Used in the production of aluminum, fluorocarbons and gasoline and for applications like glass etching and uranium processing, hydrofluoric acid is an extremely dangerous chemical that must be handled with the utmost care.

- This corrosive liquid penetrates tissue more quickly than typical acids. Toxicity can occur through dermal, ocular, inhalation and oral routes.

- Since HF alters nerve function, accidental exposure can go unnoticed by the victim, delaying treatment and increasing the extent of injury.

- It can also be absorbed by the blood through the skin, reacting with blood calcium and potentially causing a heart attack.

The extreme nature of this chemical calls for superior structural integrity – the level of integrity Poly Processing is known for.
When people's lives are at risk, you can take no chances. You need a system that goes above and beyond to prevent contact with this corrosive acid. That system starts with a crosslinked polyethylene tank. XLPE is a thermoset resin that gives customers 20 times the environmental stress-crack resistance, 10 times the molecular weight and 5 times the impact and tensile strength of HDPE. This system carries a warranty for a full five years.

A SAFE-Tank® can help reduce health and environmental concerns due to closed containment of hydrofluoric acid. If a SAFE-Tank® is not a possibility, an IMFO® flange can be used to reduce hands-on maintenance, thereby reducing the risk to your employees.

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>RESIN TYPE</th>
<th>SPECIFIC GRAVITY RATING</th>
<th>FITTING MATERIAL</th>
<th>GASKET MATERIAL</th>
<th>BOLT MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrofluoric Acid</td>
<td>XLPE</td>
<td>1.9</td>
<td>PP</td>
<td>Viton*</td>
<td>C-276</td>
</tr>
</tbody>
</table>

** See our website for a complete Chemical Resistance Chart.

Tank Specifications & Technical Overview

**IMFO® VERTICAL FLAT BOTTOM OF XLPE:**
- 230–13,650 gallons
- 1.9 spg rating

**NON-IMFO® ALTERNATIVES:**

**SAFE-Tank® XLPE:**
- 55–8,700 gallons
- 1.9 spg rating for primary tank
- Spg ratings for secondary tanks ≥ 3,000 gallons may be equal to or 1 less spg than primary tank
- All other tank sizes must equal primary tank spg rating

**Standard Vertical Flat Bottom XLPE:**
- 30–13,650 gallons
- 1.9 spg rating

**Alternative secondary containment:** PPC secondary containment basin or other secondary containment suitable for hydrofluoric acid, of adequate size for use.

**Plumbing:** Requires use of flexible connections with fittings on lower third of sidewall. See page 71 for flexible connections options.

**Venting:** See chart on page 79.

**Foundation:** PPC IMFO® tank pad or smooth concrete, asphalt or steel foundation designed to accommodate IMFO®, SAFE-Tank® or vertical tank.

**Temperature:** Product should not exceed 100°F at delivery or during storage to maintain ASTM D 1998 design parameters.

**Lid:** Fume-tight manway cover to manage release of chemical gases.

**Options:** Restraint systems for wind and seismic, level gauges, ladders, heating pads, insulation, mixer mounts and engineering stamp.

The above components are just a few of the many options offered by Poly Processing. See pages 50-79 for additional information and products, or talk to your Poly Processing representative.
**Hydrofluosilicic Acid.**
Controlling heat to avoid hazardous reactions.

Hydrofluosilicic acid is used in water fluoridation, ceramic production, electroplating, bottle sterilizing, brewing and many other applications. This colorless, fuming liquid presents a host of challenges in storage:

- It decomposes in heat, giving off toxic fluoride compounds, which may react violently with alkaline materials
- Hydrofluosilicic acid is corrosive to most metals - and it attacks glass and stoneware
- Like lye and sodium hypo, hydrofluosilicic acid has a tendency to find leak paths
- The chemical is incompatible with strong alkalis and strong concentrated acids. It reacts with oxidizing agents, combustible solids and organic peroxides.
- Its reaction with metals produces flammable hydrogen gas

A complete system equipped with specialized features can reduce the risks associated with this toxic chemical.
The Poly Processing
**Hydrofluosilicic Acid System.**

Hydrofluosilicic acid is an extremely dangerous chemical. Human contact with it can result in severe injury or fatality. But when the chemical is controlled in a stable environment, risk can be dramatically reduced. XLPE tanks are ideal in this situation. The thermosetting of XLPE’s polymer chains acts as a netting to prevent permeation, leakage or seepage.

With its full drain design, a built-in IMFO® flange can help eliminate any buildup of sediment, lessening the potential for lead and arsenic deposits over time. The IMFO® system’s design also keeps the tank intact, which is important for chemicals that try to find leak paths. If an IMFO® isn’t an option, wetted fittings should be kept to an absolute minimum to avoid failure.

If secondary containment is not available, a SAFE-Tank® is recommended instead of an IMFO® tank. This tank-within-a-tank greatly reduces the chance for leaks.

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>RESIN TYPE</th>
<th>SPECIFIC GRAVITY RATING</th>
<th>FITTING MATERIAL</th>
<th>GASKET MATERIAL</th>
<th>BOLT MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrofluosilicic Acid</td>
<td>XLPE</td>
<td>1.9</td>
<td>PVC</td>
<td>EPDM</td>
<td>C-276</td>
</tr>
</tbody>
</table>

**NOTE:** We recommend always venting this chemical outside a confined environment due to health risks from the fumes and to the damage it will cause to glass and metals.

**Tank Specifications & Technical Overview**

**IMFO® VERTICAL FLAT BOTTOM OF XLPE:**
- 230–13,650 gallons
- 1.9 spg rating

**NON-IMFO® ALTERNATIVES:**

**SAFE-Tank® XLPE:**
- 55–8,700 gallons
- 1.9 spg rating for primary tank
- Spg ratings for secondary tanks ≥ 3,000 gallons may be equal to or 1 less spg than primary tank
- All other tank sizes must equal primary tank spg rating

**Standard Vertical Flat Bottom XLPE:**
- 30–13,650 gallons
- 1.9 spg rating

**NOTE:** To meet NSF-61 certification, use EPDM or Viton® GF.

**Alternative secondary containment:** PPC secondary containment basin or other secondary containment suitable for hydrofluosilicic acid, of adequate size for use.

**Plumbing:** Requires use of flexible connections with fittings on lower third of sidewall. See page 71 for flexible connections options.

**Venting:** See chart on page 79.

**Foundation:** PPC IMFO® tank pad or smooth concrete, asphalt or steel foundation designed to accommodate IMFO®, SAFE-Tank® or vertical tank.

**Temperature:** Product should not exceed 100°F at delivery or during storage to maintain ASTM D 1998 design parameters.

**Lid:** Fume-tight manway cover to manage release of chemical gases.

**Options:** Restraint systems for wind and seismic, level gauges, ladders, heating pads, insulation, mixer mounts and engineering stamp.

The above components are just a few of the many options offered by Poly Processing. See pages 50–79 for additional information and products, or talk to your Poly Processing representative.
FERRICS, ALUMS AND POLYMERS.
Containing chemicals that react to their environment.

Ferrics, alums and polymers are commonly used to treat water and wastewater. There are several reasons why these substances require specialized storage:

• Separation, settling and coagulation are major issues with these chemicals – and those conditions can be compounded by temperature variations

• Settling and separation issues can lead to difficulty in pumping the chemicals

• The chemicals are often delivered at elevated temperatures, testing the expansion and contraction capabilities of a tank

• Ferrics create fumes that can defoliate surrounding trees and plants

• Polymers can act as an environmental stress-cracking agent

By providing the right kind of storage for these chemicals, safety can be maintained – and the integrity of the product can be preserved.
Several of Poly Processing’s features can make your storage system work for handling ferrics, alums and polymers. An IMFO® system is ideal for sludge control and ease of cleaning, since the tank drains at its true bottom. Heat pads and insulation can help keep the chemicals at the optimal temperature, greatly reducing the chance of separation and settling.

A mixing system can also be installed to keep the chemicals from separating - and a scrubber can help reduce the effects on foliage if you’re venting outdoors. As for handling elevated temperatures – this is where the strength of the XLPE tank comes in. The crosslinked construction of these tanks allows for greater expansion and contraction, while maintaining structural integrity, lessening your risk for tank failure.

### CHEMICAL RESIN TYPE SPECIFIC GRAVITY RATING FITTING MATERIAL GASKET MATERIAL BOLT MATERIAL

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>RESIN TYPE</th>
<th>SPECIFIC GRAVITY RATING</th>
<th>FITTING MATERIAL</th>
<th>GASKET MATERIAL</th>
<th>BOLT MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Sulfate</td>
<td>XLPE</td>
<td>1.65</td>
<td>PVC</td>
<td>EPDM</td>
<td>316SS</td>
</tr>
<tr>
<td>Ferric Chloride</td>
<td>XLPE</td>
<td>1.65</td>
<td>PVC</td>
<td>EPDM</td>
<td>Titanium</td>
</tr>
<tr>
<td>Ferric Sulfate</td>
<td>XLPE</td>
<td>1.65</td>
<td>PVC</td>
<td>EPDM</td>
<td>Titanium</td>
</tr>
<tr>
<td>Ferrous Chloride</td>
<td>XLPE</td>
<td>1.9</td>
<td>PVC</td>
<td>EPDM</td>
<td>Titanium</td>
</tr>
<tr>
<td>Ferrous Sulfate</td>
<td>XLPE</td>
<td>1.65</td>
<td>PVC</td>
<td>EPDM</td>
<td>Titanium</td>
</tr>
<tr>
<td>Polymers</td>
<td>XLPE</td>
<td>1.35–1.9*</td>
<td>PVC</td>
<td>EPDM</td>
<td>316SS</td>
</tr>
</tbody>
</table>

*Based on type of polymer, amount of solids, etc., specific gravities can vary. Consult the specific MSDS for correct weight.

**NOTE:** To meet NSF-61 certification, use EPDM or Viton® GF.

### Tank Specifications & Technical Overview

**IMFO® VERTICAL FLAT BOTTOM OF XLPE:**
- 230–13,650 gallons
- Appropriate spg rating for chemical as shown in Chemical Resistance Chart

**NON-IMFO® ALTERNATIVES:**

**Standard Vertical Flat Bottom XLPE:**
- 30–13,650 gallons
- Appropriate spg rating for chemical as shown in Chemical Resistance Chart

**SAFE-Tank® XLPE:**
- 55–8,700 gallons
- Appropriate spg rating for chemical as shown in Chemical Resistance Chart
- Spg ratings for secondary tanks ≥ 3,000 gallons may be equal to or 1 less spg than primary tank
- All other tank sizes must equal primary tank spg rating

**Alternative secondary containment:** PPC secondary containment basin or other secondary containment suitable for ferrics, alums and polymers, of adequate size for use.

**Plumbing:** Requires use of flexible connections with fittings on lower third of sidewall. See page 71 for flexible connections options.

**Venting:** See chart on page 79.

**Foundation:** PPC IMFO® tank pad or smooth concrete, asphalt or solid steel foundation designed to accommodate IMFO®, SAFE-Tank® or vertical tank.

**Temperature:** Product should not exceed 100°F at delivery or during storage to maintain ASTM D 1998 design parameters. Contact Customer Support if chemical is to exceed 100°F.

**Lid:** SAFE-Surge® manway cover for pneumatically loaded tanks; bolted manway cover for all other applications.

**Options:** Restraint systems for wind and seismic, level gauges, ladders, heating pads, insulation, fume-tight manway cover, mixer mount and engineering stamp.

The above components are just a few of the many options offered by Poly Processing. See pages 50–79 for additional information and products, or talk to your Poly Processing representative.
Hydrogen Peroxide.
Accommodating a potentially explosive chemical.

Available in a variety of concentrations, hydrogen peroxide is used as an oxidizing agent in textile, paper and fur processing. It is also used as a plasticizer, a polymerization catalyst and a water and sewage treatment chemical. It poses a number of challenges when it comes to storage:

• Concentrated solutions are highly toxic and are strong irritants

• Hydrogen peroxide is relatively unstable and decomposes into water and oxygen when exposed to the environment. The primary danger of this composition is fire and/or explosion.

For concentrations of hydrogen peroxide that are below 50%, high-density crosslinked polyethylene is a smart option.
The Poly Processing Hydrogen Peroxide System.

If there is a chance that hydrogen peroxide has escaped from its storage system, evacuation is mandatory, since explosion could occur. Therefore, it’s imperative that an environment be made as leak-free as possible. Poly Processing’s crosslinked polyethylene helps ensure that, by providing a high-strength storage option for hydrogen peroxide. The SAFE-Tank® system offers tank-within-a-tank protection for secondary containment. And if secondary containment is already provided for the tank, Poly Processing recommends the IMFO® tank system to provide complete drainage without entering the vessel shell, helping personnel avoid contact with this strong irritant.

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>RESIN TYPE</th>
<th>SPECIFIC GRAVITY</th>
<th>FITTING MATERIAL</th>
<th>GASKET MATERIAL</th>
<th>BOLT MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen Peroxide</td>
<td>XLPE</td>
<td>1.9</td>
<td>PVC/CPVC</td>
<td>Viton®</td>
<td>316SS</td>
</tr>
</tbody>
</table>

**NOTE:** Use only flanged connections with hydrogen peroxide. Threaded fittings should be avoided!

**Tank Specifications & Technical Overview**

**IMFO® VERTICAL FLAT BOTTOM OF XLPE:**
- 230–13,650 gallons
- 1.9 spg rating

**NON-IMFO® ALTERNATIVES:**
**SAFE-Tank® XLPE:**
- 55–8,700 gallons
- 1.9 spg rating for primary tank
- Spg ratings for secondary tanks ≥ 3,000 gallons may be equal to or 1 less spg than primary tank
- All other tank sizes must equal primary tank spg rating

**Standard Vertical Flat Bottom XLPE:**
- 30–13,650 gallons
- 1.9 spg rating

**Alternative secondary containment:** PPC secondary containment basin or other secondary containment suitable for hydrogen peroxide, of adequate size for use.

**Plumbing:** Requires use of flexible connections with fittings on lower third of sidewall. See page 71 for flexible connections options.

**Venting:** See chart on page 79.

**Foundation:** PPC IMFO® tank pad or smooth concrete, asphalt or steel foundation designed to accommodate IMFO®, SAFE-Tank® or vertical tank.

**Temperature:** Product should not exceed 100°F at delivery or during storage to maintain ASTM D 1998 design parameters.

**Lid:** A hinged, weighted manway to prevent over-pressurization due to rapid decomposition.

**Options:** Restraint systems for wind and seismic, level gauges, ladders, heating pads, insulation, mixer mounts, OR-1000™ and engineering stamp.

**See our website for complete Chemical Resistance Chart.**
Fat, Oil and Grease (FOG). Eliminating treatment challenges through engineered systems.

Fat, oil and grease (FOG) management is an ever-growing concern for both solid waste facilities and wastewater treatment plant operators. The handling of these materials presents a number of challenges.

• When not disposed of properly, FOG builds up in the sewer system and constricts flow, which can cause sewer backups into homes and overflow discharges onto streets.

• Sewer backups into homes create a health hazard – as well as an unpleasant mess that can cost thousands of dollars to mitigate.

• In certain cities, FOG can enter storm drains that flow directly into water bodies and onto beaches, creating serious environmental and health conditions.

An engineered tank system with the proper fittings and ancillary equipment from Poly Processing can greatly simplify working with FOG.
**Technical Overview:**
Fat, Oil and Grease (FOG) Storage Tanks

**Tank**
IMFO® Vertical Flat Bottom of XLPE:
• 230–13,650 gallons
• 1.35 spg rating

Non-IMFO® alternatives:
SAFE-Tank® XLPE:
• 55–8,700 gallons
• 1.35 spg rating for primary tank
• Spgr ratings for secondary tanks must be equal to primary tank
• All other tank sizes must equal primary tank spg rating

Standard Vertical Flat Bottom XLPE:
• 30–13,650 gallons
• 1.35 spg rating

**Secondary Containment**
Recommend SAFE-Tank® secondary XLPE as shown above.
Non-SAFE-Tank® alternatives:
• PPC secondary containment basin
• Other secondary containment suitable for FOG of adequate size for use

**Plumbing to the Tank**
• Required use of flexible connections with fittings on lower third of sidewall
  » Allows for lateral and vertical expansion and contraction of the tank
  » Reduces pump and piping vibration stress on the tank
• Expansion joints must meet the following minimum requirements:
  » Axial Compression ≥ 0.67"
  » Axial Extension ≥ 0.67"
  » Lateral Deflection ≥ 0.51"
  » Angular Deflection ≥ 14°
  » Torsional Rotation ≥ 4°

**Venting**
See chart on page 79.

**Foundation and Restraints**
• PPC IMFO® tank pad or smooth concrete, asphalt or steel foundation designed to accommodate IMFO®, SAFE-Tank® or vertical tank
• No restraint or ladder attachment bands circumscribing the tank are allowed. Cable restraint systems must pass cables over the top of the tank.

**Temperature**
Product should not exceed 100°F at delivery to prevent damage to tank.

**Options**
Side manways for easy cleaning (as shown), restraint systems for wind and seismic, level gauges, ladders, heating pads, insulation, mixer mounts and engineering stamp.

*The above components are just a few of the many options offered by Poly Processing. See pages 50–79 for additional information and products, or talk to your Poly Processing representative.*
Leachate and condensate from landfills can contain hazardous constituents, either as a direct result of the waste disposed in the facility (e.g., household hazardous wastes) or from the breakdown of chemical compounds found in waste (e.g., leachate-derived constituents). Poly Processing’s crosslinked polyethylene (XLPE) tanks will perform under almost any circumstance, protecting landfills from risk.

- Our tanks are chemically compatible with almost every dissolved and solid material found in landfill leachate and condensate, including acids, aldehydes, ammonia, pathogens and metals.

- Poly Processing’s XLPE offers 20 times the environmental stress crack resistance of high-density linear polyethylene tanks.

- The seamless construction of our tanks eliminates the potential for the development of chemical attack points, such as the bad welds and joints found in steel and fiberglass tanks.

- XLPE tanks are not affected by the unpredictable composition of leachate and condensate and never need maintenance. By comparison, leachate and condensate will severely damage epoxy, concrete and powder-coated tanks, leading to costly maintenance.

Poly Processing has installed tank systems in typical landfills as well as hazardous waste landfills for more than 25 years with no issues. That’s a track record you can trust.
**Technical Overview:**
Leachate & Condensate Collection and Treatment Tanks

**TANK**

**IMFO® Vertical Flat Bottom of XLPE:**
- 230–13,650 gallons
- 1.35–1.9 spg rating

**Non-IMFO® alternatives:**

**SAFE-Tank® XLPE:**
- 55–8,700 gallons
- 1.35–1.9 spg rating for primary tank
- Spg ratings for secondary tanks must be equal to primary tank
- All other tank sizes must equal primary tank spg rating

**Standard Vertical Flat Bottom XLPE:**
- 30–13,650 gallons
- 1.35–1.9 spg rating

**SECONDARY CONTAINMENT**
Recommend **SAFE-Tank®** secondary XLPE as shown above.

**Non-SAFE-Tank® Alternatives:**
- PPC secondary containment basin
- Other secondary containment suitable for leachate or condensate of adequate size for use

**PLUMBING TO THE TANK**
- Required use of **flexible connections** with fittings on lower third of sidewall
  - Allows for lateral and vertical expansion and contraction of the tank
  - Reduces pump and piping vibration stress on the tank
- Expansion joints must meet the following minimum requirements:
  - Axial Compression ≥ 0.67”
  - Axial Extension ≥ 0.67”
  - Lateral Deflection ≥ 0.51”
  - Angular Deflection ≥ 14°
  - Torsional Rotation ≥ 4°

**VENTING**
See chart on page 79.

**FOUNDATION AND RESTRAINTS**
- PPC IMFO® tank pad or smooth concrete, asphalt or steel foundation designed to accommodate IMFO®, SAFE-Tank® or vertical tank
- No restraint or ladder attachment bands circumscribing the tank are allowed. Cable restraint systems must pass cables over the top of the tank.

**TEMPERATURE**
Product should not exceed 100°F at delivery to prevent damage to tank.

**OPTIONS**
Side manways for easy cleaning (as shown), restraint systems for wind and seismic, level gauges, ladders, heating pads, insulation, mixer mounts and engineering stamp.

The above components are just a few of the many options offered by Poly Processing. See pages 50–79 for additional information and products, or talk to your Poly Processing representative.
Pre-Purchase Guide

Operating Parameters

TEMPERATURE
- Tank specific gravity ratings are based on a product temperature of 100°F
- For tank designs for temperatures up to 150°F, contact Customer Service

PRESSURE
Atmospheric pressure must be maintained in the tank at all times; vacuum must equal zero.

VENTING
See chart on page 79.

PLUMBING
Requires use of flexible connections with fittings on lower third of sidewall.

HEAT MAINTENANCE CONTROLS
Two thermostats are furnished, one for control and one for redundancy; heating requirements vary depending on maintenance temperature, ambient temperature and wind conditions.

POLYURETHANE INSULATION WITH MASTIC COATING
- 2" nominal thickness
- R-value = 6.5/inch
- Density = 2 lbs./cubic foot
- Mastic coating is white acrylic vinyl

TANK COLOR
- High-density crosslinked polyethylene (XLPE) – natural, black, white, gray
- Linear polyethylene (HDPE) – natural, black

NOTE: For additional colors, contact Customer Service.

TANK DOME LOAD RATING
DO NOT stand or work on tank domes. The surface is flexible and slippery. There is no weight or load rating for the dome.

GENERAL INFORMATION
- Nominal capacity - Calculated tank capacity to top of straight sidewall
- All vertical, IMFO® and SAFE-Tank® systems greater than 500 gallons are manufactured in accordance with ASTM D 1998 standards
- Gallonage markers are approximate; not for precise measuring or metering

LOGISTICS
Delivery and shipping information is provided on page 80.

Before Ordering:
1. Determine capacity and location restrictions: gallons, maximum height and diameter, and indoor or outdoor installation.
2. Conduct a chemical review: name, concentration, specific gravity and temperature.
3. See the Chemical Resistance Guide (page 48) for tank and fittings materials, specific gravity rating, pneumatic or mechanical fill, and full-drain and secondary containment requirements.
4. Use the complete 8-digit stock number when placing orders. Note: the first digit of each stock number indicates the manufacturing location: 4 = Monroe, LA; 7 = Winchester, VA; 1 = French Camp, CA.
5. Download a tank schematic from www.polyprocessing.com and use this drawing to specify the fitting locations.
6. Contact a Poly Processing distributor for details.
**Chemical Resistance Guide**

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>RESIN TYPE</th>
<th>SPECIFIC GRAVITY</th>
<th>FITTING MATERIAL</th>
<th>GASKET MATERIAL</th>
<th>BOLT MATERIAL</th>
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<tbody>
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<td>Acetic Acid ≤ 80%</td>
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<td>EPDM</td>
<td>Titanium</td>
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<td>EPDM</td>
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<tr>
<td>Phosphoric Acid ≤ 50%</td>
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<td>Potassium Hydroxide</td>
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<td>Sodium Carbonate</td>
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<td>Titanium</td>
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<td>Sodium Chlorite</td>
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<td>PVC/CPVC</td>
<td>Viton®, GF</td>
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<tr>
<td>Sodium Hydroxide 50%</td>
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<td>Sodium Hypochlorite 9%–15%</td>
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<td>Sulfuric Acid ≤ 93%</td>
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<tr>
<td>Sulfuric Acid 80%–92%</td>
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<tr>
<td>Sulfuric Acid &lt; 80%</td>
<td>XLPE</td>
<td>1.9</td>
<td>PVC/CPVC</td>
<td>Viton®</td>
<td>C-276</td>
</tr>
</tbody>
</table>

For more resistance information, including details on other chemicals, visit www.polyprocessing.com and access our Chemical Resistance Online Guide.

**Temperature:** Product temperature is limited to 100°F. For temperatures from 100 to 150°F, contact Customer Service.

**Material Descriptions**

**Fitting Materials:**
- PP (polypropylene) – light, durable pipe or fitting material with outstanding chemical resistance
- PVC (polyvinyl chloride) – stronger, more rigid pipe or fitting material with excellent chemical resistance
- CPVC (chlorinated polyvinyl chloride) – stronger, more rigid pipe or fitting material with higher temperature rating

**Gasket Materials:**
- EPDM (ethylene propylene diene monomer) – good abrasion and tear resistance with excellent chemical resistance
- Viton® (fluorocarbon) – broader temperature and chemical resistance
- Viton® GF/GORE-TEX® - highest temperature resistance

**Bolt Materials:**
- 316SS (stainless steel type 316) – common alloy used in many storage applications
- Titanium – strong as steel, but half the weight
- C-276 (Alloy C-276) – broader chemical resistance for more difficult storage applications
**Limited Warranty**

**Poly Processing Company Product** | **Warranty Period**
--- | ---
**Crosslinked Polyethylene Tanks** for all suitable applications except those listed below<br>Max tank size for on-site generation of low concentration sodium hypochlorite (.08%) is 4,000 gallons unless larger size approved for specific application | 5 yrs.
**IMFO® tanks storing Sodium Hypochlorite 9–15 wt%** (refer to PPC Position Statement)<br>HDXLPE w/ OR-1000™, 1.9 spg rating | 5 yrs.
**Non-IMFO® tanks storing Sodium Hypochlorite 9–15 wt%** (refer to PPC Position Statement)<br>1,000 gallons and larger: HDXLPE w/ OR-1000™, 1.9 spg rating<br>Less than 1,000 gallons: HDXLPE 1.9 spg rating | 3 yrs.
Tanks storing Sulfuric Acid ≥ 80% concentration (refer to PPC Position Statement)<br>Safe-Tank® to 8,700 gallons: HDXLPE w/ OR-1000™, 2.2 spg rating<br>Vertical tanks 1,000–6,600 gallons: HDXLPE w/ OR-1000™, 2.2 spg rating<br>Vertical tanks less than 1,000 gallons: HDXLPE 1.9 spg rating<br>≥ 94% concentration tank size limited to 4,400 gallons: Safe-Tank®<br>and 4,000 gallons vertical unless larger size approved for specific application | 3 yrs.
Tanks storing Hydrochloric Acid ≤ 37% concentration (refer to PPC Position Statement)<br>HDXLPE w/ OR-1000™, 1.9 spg rating | 5 yrs.
Tanks storing Hydrochloric Acid ≤ 37% concentration (refer to PPC Position Statement)<br>HDXLPE 1.9 spg rating | 3 yrs.
**Linear Polyethylene Tanks** for all suitable applications except Sodium Hypochlorite 9–15%; Sulfuric Acid and Hydrochloric Acid of any concentration | 3 yrs.

**Chemical manufacturing service, rental service, mobile service and elevated temperature service are special applications. Contact Poly Processing Customer Service for warranty for these applications.**

Poly Processing Company’s warranty consists of repair or ONE TIME replacement of defective product. Owner and/or user may be requested to provide a cleaned section of the product in question for evaluation. Product disposal or alternate use is the owner and/or user’s responsibility. Warranty begins at date of shipment from PPC plant.

Standard Poly Processing parts and ancillary items are warranted for ninety (90) days. Electrical heat tracing systems are warranted ONE YEAR. Non-standard parts warranty is by manufacturer.

Poly Processing Company’s liability is limited to either repair or replacement of its product. By accepting delivery of the product, owner and/or user waives any claim against PPC for incidental or consequential damages as they relate to lost profits or sales or to injury of persons or property, including secondary containment. Owner and/or user accepts full responsibility for providing secondary containment appropriate and adequate for the stored material.

**This warranty will be nullified if:**

1. Product has been used in manner other than its originally declared purpose or if PPC tank recommendations have not been followed.
2. Product has not been installed, used and maintained in accordance with a) all federal, state and local laws and regulations; b) generally accepted best practices within the applicable industry; c) guidelines set forth in the PPC Installation Manual and/or in PPC Position Statements.
3. Product has been altered or repaired by unauthorized personnel.
4. Notification of the defect has not been made in writing within the warranty period.
5. Invoice for product has not been paid.
6. Product has been subjected to misuse, negligence, fire, accident, act of war or act of God.
Tank Specifications
Our Tank Offerings

SAFE-Tank® SYSTEMS
A tank-within-a-tank that creates secondary containment with a minimal footprint. Available with or without OR-1000™ surfacing.

VERTICAL TANKS WITH IMFO®
 Tanks with drainage at the true base, allowing for minimal sludge buildup and easier maintenance.

VERTICAL TANKS
Standard-sized chemical storage tanks in crosslinked polyethylene for superior strength. Available with OR-1000™ antioxidant surface.

CONE-BOTTOM TANKS
Generally used in a process environment, where the tank has to be 100% drained, and to address concerns about vortexing.
Our Tank Offerings

OPEN-TOP TANKS
Process-oriented tanks that are typically used for blending or for containment. Open-top tanks often incorporate the use of mixer bridges.

SECONDARY CONTAINMENT BASINS
Used for the nesting of traditional vertical or vertical IMFO® tanks to meet secondary containment requirements.

HORIZONTAL TANKS
Primarily used in the agricultural industry for application processes.

Visit www.polyprocessing.com for complete and most up-to-date listing of tanks and for easy, intuitive ordering!
## SAFE-Tank® System

### TANK SPECIFICATIONS

#### SAFE-Tank® Systems – Storage & Containment

<table>
<thead>
<tr>
<th>F.O.B.</th>
<th>Stock Number</th>
<th>Nominal Capacity</th>
<th>Approx. O.D.</th>
<th>Approx. Overall Height</th>
<th>Lid Size</th>
<th>Ladder Height</th>
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- • Molded-in lifting lugs
- L • Molded-in ladder attachment lugs
## Vertical Tanks With IMFO®

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<th>Approx. O.D.</th>
<th>Approx. Overall Height</th>
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### SLOPED BOTTOM VERTICAL TANK WITH IMFO®

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### SLOPED BOTTOM VERTICAL TANK WITH IMFO® (continued)

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### PADS FOR TANKS WITH IMFO®

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**NOTE:** IMFO® pads to be used with tanks storing chemicals <1.65 spg.
## Vertical Tanks

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- • Molded-in lifting lugs
- L = Molded-in ladder attachment lugs
- V = Molded-in lifting lugs – Virginia only

TANK SPECIFICATIONS

VERTICAL TANKS CONTINUED **
### Vertical Tanks (continued)

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<th>Approx. Overall Height</th>
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### Cone-Bottom Tanks

#### Cone-Bottom Tanks (Metal Stands)

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<th>Slope Degrees</th>
<th>Approx. O.D.</th>
<th>Overall Height with Stand</th>
<th>Lid Size</th>
<th>Ladder Height</th>
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### All Plastic Cone-Bottom Tanks

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<th>Approx. O.D.</th>
<th>Overall Height with Stand</th>
<th>Lid Size</th>
<th>Ladder Height</th>
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**Note:** Tanks can be supplied as an open top, open top with flat polyethylene bolted cover or molded top with threaded lid.
# Open-Top Tanks

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<th>Approx. Overall Height</th>
<th>Flange Type</th>
<th>Cover Type</th>
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## Secondary Containment Basins

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<th>Approx. O.D. Bottom</th>
<th>Approx. Overall Height</th>
<th>Flange Width</th>
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### Secondary Containment – Cylindrical – Nestable

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<th>Approx. Overall Height</th>
<th>Flange Width</th>
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* Diameter does not include flange.

** Support stand with grating is available.

**Note:** External support is required to maintain calculated volume on rectangular tanks.
## Horizontal Tanks

### Horizontal Tanks

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<th>F.O.B.</th>
<th>Stock Number</th>
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<th>Approx. Length</th>
<th>Lid Size</th>
<th>Saddle/Skid</th>
<th>Stock #</th>
<th>4’ Stand Stock #</th>
<th>6’ Stand Stock #</th>
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### Horizontal Leg Tanks

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<th>Approx. Length</th>
<th>Lid Size</th>
<th>Stock # for Metalwork</th>
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<td>3400700</td>
<td>700</td>
<td>4'-6&quot;</td>
<td>6'-9&quot;</td>
<td>16&quot;</td>
<td>7614</td>
</tr>
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<td>1</td>
<td>3400515</td>
<td>515</td>
<td>4'-0&quot;</td>
<td>6'-4&quot;</td>
<td>12&quot;</td>
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<tr>
<td>4</td>
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<td>3'-3&quot;</td>
<td>6'-2&quot;</td>
<td>12&quot;</td>
<td>6323</td>
</tr>
<tr>
<td>4</td>
<td>3400220</td>
<td>220</td>
<td>3'-3&quot;</td>
<td>4'-2&quot;</td>
<td>12&quot;</td>
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<td>2'-7&quot;</td>
<td>3'-10&quot;</td>
<td>12&quot;</td>
<td>6321</td>
</tr>
<tr>
<td>4</td>
<td>3400065</td>
<td>65</td>
<td>1'-11&quot;</td>
<td>3'-6&quot;</td>
<td>7&quot;</td>
<td></td>
</tr>
</tbody>
</table>
Poly Processing carries hundreds of fittings and accessories for chemical storage. The following pages give an overview of our more popular products. For a complete list of our inventory, with prices, please contact your Poly Processing representative. This representative can also help you determine which products are most suitable for the chemical you are storing.
**Style and Location Placement Guide**

**FITTINGS AND ACCESSORIES**

**FLAT SECTIONS**
All dome fittings including flanges, bulkheads, spooling fittings, universal ball domes and made-verticals.

**SIDEWALL**
These can include bolted flange, bolted spool, the B.O.S.S® and bulkhead fittings.

**TOP DEAD CENTER (TDC)**
Includes universal ball domes, both flange and bulkhead style, as well as made-vertical fittings, bulkhead and standard flanges.

**CURVED SECTION**
Includes flange and bulkhead style universal ball domes as well as made-vertical fittings.

**NOTE**
1. Non-overflow bulkhead fittings on sidewall are limited to tanks holding 2,000 gallons or less.
2. For TDC - in some cases, a standard flange or bulkhead may be used top dead center. Contact your Poly sales rep to confirm.

---

**FLANGE GUIDE**

<table>
<thead>
<tr>
<th>Tank Diameter</th>
<th>FLG 1&quot;</th>
<th>FLG 1½&quot;</th>
<th>FLG 2&quot;</th>
<th>FLG 3&quot;</th>
<th>FLG 4&quot;</th>
<th>FLG 6&quot;</th>
<th>FLG 8&quot;</th>
<th>FLG 10&quot;</th>
<th>FLG 12&quot;</th>
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</thead>
<tbody>
<tr>
<td>&lt; = 36'</td>
<td>ok</td>
<td>ok</td>
<td>ok</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>&gt; = 37&quot; - 48&quot;</td>
<td>ok</td>
<td>ok</td>
<td>ok</td>
<td>ok</td>
<td>curve to diameter</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>&gt; = 49&quot; - 144&quot;</td>
<td>ok</td>
<td>ok</td>
<td>ok</td>
<td>ok</td>
<td>curve to diameter</td>
<td>curve to diameter</td>
<td>curve to diameter</td>
<td>curve to diameter</td>
<td>curve to diameter</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bulkhead (wetted connections)</th>
<th>BHF 1/2&quot;</th>
<th>BHF 3/4&quot;</th>
<th>BHF 1&quot;</th>
<th>BHF 1½&quot;</th>
<th>BHF 2&quot;</th>
<th>BHF 3&quot;</th>
<th>BHF 4&quot;</th>
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<td>&lt; = 48&quot;</td>
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<td>ok</td>
<td>ok</td>
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<td>ok</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
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<td>ok</td>
<td>ok</td>
<td>ok</td>
<td>ok</td>
<td>ok</td>
<td>ok</td>
<td>overflow</td>
</tr>
<tr>
<td>&gt; 3,000 gallons</td>
<td>overflow</td>
<td>overflow</td>
<td>overflow</td>
<td>overflow</td>
<td>overflow</td>
<td>overflow</td>
<td>overflow</td>
</tr>
</tbody>
</table>

For the most accurate fitting selection and placement guidance, find your specific tank drawing at [www.polyprocessing.com](http://www.polyprocessing.com)
Fittings

THE B.O.S.S.® FITTING
This one-piece sure-seal fitting prevents leaks and adds value to your tank installation. Available in PVC and CPVC back ring, its one-piece design reduces the seal point to a single gasket, and its polyethylene construction ensures chemical compatibility. Its back ring design reduces stress on the fitting and makes it three times stronger than similar plastic fittings.

Bolts: 316 stainless steel, titanium and C-276
Body: Polyethylene
Connections: socketed
Size: 1", 2", 3" and 4"
Gaskets: EPDM, Viton® and Viton® GF
Options: flange adapter, siphon leg

BOLTED FLANGE FITTINGS
Available in PVC and CPVC. With these fittings, all aspects of fitting maintenance can be done externally, with no tank entry required. These can be installed on sidewall or dome. Bolt heads are encapsulated in polyethylene, providing chemical resistance.

Bolts: 316 stainless steel, titanium, C-276 and Alloy 400
Body: standard PVC and CPVC
Connections: socketed or threaded
Sizes: 1", 1/2", 2", 3" and 4" threaded; 1", 1/2", 2", 3", 4" and 6" socketed
Gaskets: EPDM, Viton® and Viton® GF
Options: flange adapter, siphon leg
Fittings

BOLTED SPOOL FITTINGS
The bolted spool fitting is fabricated per the customer's requirements and is typically used for larger dome and sidewall connections. Use a van stone flange to connect piping. Bolted spool fittings 8 inches or greater are manufactured with gussets.

- **Bolts:** 316 stainless steel, titanium, C-276 and Alloy 400
- **Body:** standard PVC, CPVC and polypropylene
- **Connections:** flanged
- **Size:** 1” to 12’
- **Gaskets:** EPDM, Viton® and Viton® GF
- **Options:** siphon leg

BULKHEAD FITTINGS
An economical fitting best used on small tanks in mild applications. Can be installed on sidewall, overflow or dome. May be used as an overflow fitting with all chemicals, since it's non-wetted. Bulkhead fittings must be installed from the inside of the tank, requiring tank entry for repairs and maintenance. They should not be used on tanks greater than 2,000 gallons or tanks greater than 6 feet in height.

- **Body:** standard PVC, CPVC and polypropylene
- **Connections:** socketed or threaded
- **Size:** ½” to 6’
- **Gaskets:** EPDM, Viton® and Viton® GF
- **Options:** flange adapter, siphon leg

NOTE: Over time, this fitting “creeps,” causing the nut to loosen. Regular monitoring for drips is critical.
Fittings

UNIVERSAL BALL DOME FLANGES
These flanges are “self-aligning,” which allows for vertical plumbing on the dome of the tank up to 22 degrees. The fitting can be repaired and maintained externally without tank entry. Available with Ryton® bolts, an economical alternative to titanium, C-276 and Alloy 400.

Bolts: 316 stainless steel, titanium, C-276, Alloy 400, Ryton®
Body: standard PVC or CPVC
Connections: threaded
Size: 1” to 4”
Gaskets: EPDM, Viton® and Viton® GF
Options: flange adapter

UNIVERSAL BALL DOME BULKHEADS
Our universal ball dome bulkheads are also “self-aligning,” which allows for vertical plumbing on the dome of the tank. An economical alternative to UBD flange-style bulkheads, since no additional bolts are required.

Body: standard PVC or CPVC
Connections: threaded
Size: 1” to 3”
Gaskets: EPDM, Viton® and Viton® GF
Options: flange adapter

NOTE: This fitting is for top use only.
MADE-VERTICAL FITTINGS
Made-vertical fittings are fabricated per the customer’s requirements. They are typically used for larger domes that require a fitting to be above 4 inches and in those few cases where our domes are extremely steep. They may need to be supported independently of the tank. For optimal support, install it on a tank runway or as close to the edge as possible.

Bolts: 316 stainless steel, titanium, C-276, Alloy 400, Ryton®
Body: standard PVC or CPVC
Size: 1” to 12” (dependent on the size of the tank). Please contact our inside sales to confirm the maximum size.

Gaskets: EPDM, Viton® and Viton® GF
Options: flange adapter socketed or threaded

FLANGE ADAPTERS
Includes a nipple and flange for connection to plumbing system.

Body: standard PVC and CPVC
Connections: socketed or threaded
Sizes: 1”, 1½”, 2”, 3” and 4” threaded; 1”, 1½”, 2”, 3”, 4” and 6” socketed

NOTE: This fitting is for top use only.
STAINLESS STEEL FITTINGS
Complete 316 stainless steel fittings. One-piece reduces seal point to a single surface like the B.O.S.S.® fitting. These can be installed on sidewall or dome.

Bolts: 316 stainless steel
Body: 316 stainless steel
Connections: threaded coupler, half nipple and full nipple
Sizes: 1/2", 3/4", 1", 1 1/2", 2", 3" and 4"
Gaskets: EPDM, Viton® and Viton® GF
Options: flange adapter, siphon leg

BUTTERFLY VALVES
Being slim and lightweight yet robust makes this the ideal shutoff valve for IMFO® drain.

Bolts: 316 stainless steel, titanium, C-276, Alloy 400
Body: standard PVC, CPVC and polypropylene
Size: 2" to 6"
Seals: EPDM, Viton® and Viton® GF
Options: flange adapter

NOTE: Can also be used on mechanical fittings by using a flange adapter.
PLUMBING

BALL VALVES
Complete line of high-performance ball valves to meet varying needs.

- **Body**: standard PVC, CPVC and polypropylene
- **Connections**: socketed, threaded or true union
- **Size**: 1/2” to 6”
- **Seals**: EPDM, Viton® and Teflon®
- **Options**: flange adapter

PVC LIQUID LEVEL GAUGES
PVC liquid level gauges are made from 3/4 inches of clear PVC tubing for a level indicator with up to three optional valves. Please note that one pipe support should be used for every 6 feet of sidewall height to maintain alignment.

NOTE: Check chemical compatibility with PVC to avoid any issues before specifying a site tube.
Plumbing

REVERSE FLOAT LEVEL GAUGES
The reverse float level gauges offer a safe and reliable means of determining the chemical level in your tank and especially in the SAFE-Tank®. Available in PVC as standard.

Advantages:
- No sidewall tank penetrations or chemical exposure
- All joints are dry fit for easier part replacement
- Internal float now weighted to chemical specific gravity
- Polypropylene rope used for indicator
- Calibration tape can be added for tank capacity
- Standard or freestanding pipe supports available

NOTE: These gauges are NOT intended to be used for metering purposes.

COMBINATION INTERNAL & EXTERNAL FILL/DISCHARGE DROP PIPES
Fill Line assemblies are available in PVC and CPVC with sizes ranging from 1 to 3 inches and include a true union for quick assembly. When choosing a fitting, be sure to consider if the fill will be placed on the flat of the dome; otherwise it will require a self-leveling fitting.

For dome fittings installed +/- 12 inches from the sidewall, standard pipe supports can be used. If the dome fitting is more than 12 inches from the sidewall or if the fitting size is greater than 4 inches, you must use a non-invasive internal pipe support to support the internal piping. Customer installation of the internal drop pipe assembly is required. Use a universal ball dome fitting for easier installation. Pipe supports should be used one for every 6 feet of sidewall height.

Optional fittings: ball valve, quick adapter and cap (as shown)
**Fitting/Discharge Internal Drop Pipes**

Fill line assemblies are available in PVC and CPVC with sizes ranging from 1 to 3 inches and include a true union connection for quick assembly. For dome fittings installed +/- 12 inches from the sidewall, standard pipe supports can be used. If the dome fitting is more than 12 inches from the sidewall or if the fitting size is greater than 4 inches, you must use a non-invasive internal pipe support to support the internal piping. 

**Optional fittings:** Ball valve, quick adapter and cap (as shown)

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**Filling/Discharge External Drop Pipes**

Fill line assemblies are available in PVC and CPVC with sizes ranging from 1 to 3 inches and include a true union connection for easy assembly. When choosing a fitting, be sure to consider if the fill will be placed on the flat of the dome; otherwise it will require a self-leveling fitting.

**Optional fittings:** Ball valve, quick adapter and cap (as shown)
**Flexible Connections:**
Solutions for accommodating change.

Chemical storage tanks expand and contract due to seasonal temperature variations, pressure changes from loading and unloading the contents within the tank, and vibrations from pumps during filling and discharge from the storage tank. A flexible expansion joint can help. This special performance-maximizing plumbing component can be installed on any polyethylene tank to maximize tank performance and longevity. The expansion joint enables safe operation of the storage tank in fluctuating seasonal temperatures and can protect against damage caused by pressure changes. It also expands freely during loading and unloading of the tank.

The flexibility of the expansion joint also helps you avoid damage from piping vibrations caused by pumps or hard piping. Hard piping creates a fulcrum that can damage the fitting or crack the tank, and the expansion joint virtually eliminates that threat.
Flexible Connections

**Flexible Hose Connections**
Flexible hose connections isolate the tank from the stresses and forces associated with pumps and piping. This connection is manufactured from ultra-high molecular weight hose, which offers tremendous chemical resistance; two King nipples (barbed), and mechanically attached stainless steel bands securing the hose to the nipple. These connections are also a great solution for transitioning through secondary containment.

- **Connections:** threaded
- **Nipples Option:** PVC or SS
- **Sizes:** 1” to 4”

**Flexijoint® Expansion Joint**
These flexible PTFE connectors and tremor barriers are designed to compensate for misalignment, absorb expansion and contraction, and isolate the vibration and shock that could damage a tank. Their low spring rate protects stress-sensitive connections. Can be installed directly to the dome of the tank to overcome piping misalignment.

- Made of pure 100% virgin PTFE resin
- Ethylene’s exclusive Fluorforming™ process guarantees multiple convolution walls of consistently uniform thickness for any size
- Features T-Band™ root and sidewall support and protection from over-compression
- LimitLinks™ stainless steel cables protect from over-expansion
- **Bolts:** 316 stainless steel, titanium, C-276, Alloy 400
- **Gaskets:** EPDM, Viton® and Viton® GF
- **Flange Type:** threaded or socketed
- **Flange Material:** PVC or CPVC

**Performance specifications:**
- Axial Compression ≥ 0.67”
- Axial Extension ≥ 0.67”
- Lateral Deflection ≥ 0.51”
- Angular Deflection ≥ 14”
- Torsional Rotation ≥ 4”
Manway Covers

SAFE-Surge® MANWAY COVER
Designed specifically for pneumatic-filled tanks. Releases at a 6-inch water column to prevent over-pressurization, ensuring that the tank maintains proper ACFM at all times - even in the event of air surges that cannot be handled by primary venting. Available in 19 and 24 inches. For detailed venting requirements, please refer to the chart on page 79.

F.S. 2650® MANWAY COVER
For plastic chemical storage tanks located outdoors where fumes are not a concern, the F.S. 2650® manway cover is a less expensive option for safely handling any air pressure surges. This combines a vent and manway cover into one engineered lid system that can evacuate air volumes up to 2650 ACFM, which is well within the calculated maximum potential pressure surges resulting using both 2- and 3-inch fill lines (maximum ACFM from a 2-inch standard line is 910, and 1150 from a 3-inch line).
Manway Covers

BOLTED (8/16) MANWAY COVER
These are the most popular covers we provide. They are available in 24 inches. Please note that if you plan on visually inspecting the interior of the tank with some frequency, our SAFE-Surge® manway cover may be a better alternative.

FUME-TIGHT MANWAY COVER
Available in two sizes, 17 and 24 inches, with bolts of stainless steel, Alloy C-276 and titanium. Gasket materials available include EPDM, Viton®, Viton® GF, XLPE or Buna. The 17-inch model is often used on 19-inch manways as well. Fume-tight manway cover is required for HCl applications.

SIDE MANWAY
Used for applications that require employees or personnel to enter the tank.

- Constructed of stainless steel or FRP.
- **Bolts:** 316 stainless steel, titanium, C-276
- **Gaskets:** EPDM, Viton® or Viton® GF

**NOTE:** At Poly Processing, the majority of the chemicals we store DO NOT require side manways.
Lids

**10” FUME -TIGHT SMALL TANK LID**
Available in one size, and designed for tanks less then 2,000 gallons that require a fume-tight lid. The design consists of a male threaded lid and special tooling that allows us to mold female threads into the tank. The lid includes a PE spacer to compress the gasket. Gasket materials available include EPDM, Viton®, Viton® GF or XLPE.

**THREADED LID**
Available in three sizes, 7, 12 and 17 inches, coarse threaded. Gasket materials available include EPDM, Viton®, Viton® GF, XLPE or Buna.
ACCESSORIES

LADDER ASSEMBLIES
Poly Processing’s tank ladders are available in heights from 6 to 20 feet, depending on the tank application. To determine height, ladder height equals height to top of manway rounded to the nearest foot. If height of ladder exceeds the height of the manway, subtract 1 foot.

- Ladders are available in mild steel as well as FRP construction
- All ladders meet OSHA requirements
- Ladders are not offered on all tanks due to safety requirements. Approved systems are noted with the appropriate ladder height in the distributor price list.
- Cages range from 7 to 8 feet and extend 4 feet above the top rung of the ladder

Tanks with a center manway will have the additional cost of a platform to reach the ladder.

HEAT PADS AND INSULATION
Poly Processing’s tank heating systems are specifically designed for temperature maintenance of polyethylene tanks. SilcoPad® tank heating systems maintain a desired product temperature, not to exceed 100°F.

- Each heating system consists of tank heating pad(s) and a temperature controller. The quantity and type of SilcoPad® tank heating pads required is determined by the size of the tank, the desired temperature maintenance and environmental conditions.
- Tanks are available with standard heating systems with a Delta T of 30, 60 and 100°F
- Tanks are typically supplied with the heating panels and a controller installed by Poly Processing. The only field connection required is a power supply to the heating system.

Please contact our Customer Support staff if HT & I is required on a 14-foot-diameter tank.
**OPTIC LEAK DETECTION SWITCH**
This switch is an excellent choice for leak detection in secondary containment tanks. The submersible sensor is mounted in the interstitial space of the tank. The internal 1A relay provides a reliable switch interface with indicators, PLCs, SCADAs and alarms.

- Fail-safe leak sensor inverts wet to alert user for maintenance
- Rugged PP or PFA Teflon® probe and cable rated NEMA 6
- 1A relay selectable NO or NC via power supply wiring polarity
- Compatible with MicroPoint™ multi-channel indicator

**ULTRASONIC LEVEL SWITCH**
This CSA-approved switch is intrinsically safe for use in hazardous-area locations. The ultrasonic level switch is broadly used in chemical liquids. Its 1A relay provides a reliable switch interface with remote devices such as a PLC, SCADA or alarm. This submersible sensor is universally mounted through the wall inside the tank.

- CSA-approved intrinsically safe for use in hazardous-area locations
- Rugged PP or PFA Teflon® probe and cable rated NEMA 6
- 1A relay selectable NO or NC via power supply wiring polarity
- Compatible with MicroPoint™ multi-channel indicator
**Restraints**

**SEISMIC RESTRAINTS**

Used to protect against seismic events, these clip systems are available for location- and site-specific information areas.

- PE wet stamps will be provided for a fee by request. Contact Poly Processing’s customer support staff.
- If the tank will be placed on a concrete pad, it is critical to allow adequate space between the tank and the edge of the pad to accommodate the proper anchoring of the clips.

For all other design considerations, please contact our Customer Support team and ask to talk to our engineering department. For Monroe, LA, call 866.945.9283; for French Camp, CA, call 877.325.3142.

**WIND RESTRAINTS**

Poly Processing offers cable systems to help stabilize tank systems that are challenged by wind.

- Standard systems are designed for wind speeds of 130 mph.
- PE wet stamps will be provided for a fee by request.

For all other design considerations, please contact our Customer Support team and ask to talk to our engineering department. For Monroe, LA, call 866.945.9283; for French Camp, CA, call 877.325.3142.
**Vents**

**Mushroom Vent**
For day tanks, an economical alternative to traditional U-vents or fittings. Made of polypropylene, in sizes 1 to 3 inches.

**U-Vent**
Standard venting for outdoor tanks. Comes in PVC, in sizes 2 to 6 inches.
Venting Requirements

Polyethylene tank fittings and accessories such as vents can be expensive. While vents add to the initial cost of the tank system, proper venting could help avoid far more expensive occurrences like premature tank failure or even catastrophic failure.

Poly Processing meets or exceeds ASTM D 1998 guidelines for tank pressurization. For your specific polyethylene chemical storage system’s proper venting requirements, it’s best to consult with our engineering department. For instance, scrubber applications for chemicals like hydrochloric acid or acetic acid demand an elaborate design to prevent over-pressurization.

Technical information and guidance regarding tank pressurization and proper venting for polyethylene tanks are available in the third-party study, available online at www.polyprocessing.com or from your Poly Processing rep. The tank venting matrix below offers calculations for basic venting design.

<table>
<thead>
<tr>
<th>IF ≤ 1,000 gallons</th>
<th>IF &gt; 1,000 gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vent size should equal size of largest fill or discharge fitting</td>
<td>Emergency Pressure Relief Cover Required</td>
</tr>
<tr>
<td>Vent size should exceed the largest fill or discharge fitting by 1”</td>
<td>Emergency Pressure Relief Cover Required</td>
</tr>
<tr>
<td><strong>Mechanical Pump Fill</strong></td>
<td><strong>Pneumatic Fill</strong></td>
</tr>
<tr>
<td>IF – Vent length ≤ 3’</td>
<td>IF – Vent length &gt; 3’ and ≤ 30’</td>
</tr>
<tr>
<td>AND – Vent screen mesh size ≥ ¼” or no screen used</td>
<td>AND – 3 or less 90° elbows with no other restrictions or reduction in pipe size</td>
</tr>
</tbody>
</table>

**Venting Requirements for Polyethylene Tanks**

- **Mechanical Pump Fill**
  - IF ≤ 1,000 gallons: IF – Vent length ≤ 3’
  - IF > 1,000 gallons: IF – Emergency Pressure Relief Cover Required

- **Pneumatic Fill**
  - IF ≤ 1,000 gallons: IF – Vent length > 3’ and ≤ 30’
  - Vent size should equal size of largest fill or discharge fitting
  - IF > 1,000 gallons: IF – Emergency Pressure Relief Cover Required

- **Emergency Pressure Relief Cover Required**
  - Vent size should exceed the largest fill or discharge fitting by 1”
  - Vent pipe size throughout scrubber system CANNOT be reduced!
  - Centerline of dispersion pipe not to be submersed > 6’
  - Perforated dispersion pipe must be same diameter as vent or larger. Sum of perforations ≥ cross-sectional area of pipe

**See our website for Detailed Venting Guidelines.**
Delivery
Getting it to you at the right time, in the right condition.

At Poly Processing, we do our best to keep you informed and on track. Once you place your order with us, you’ll have full access to daily order tracking, and we’ll give you 24 to 48 hours’ notice of tank delivery as well. We’ll gladly work with you to accommodate special needs, coordinating with issues such as crane delivery.

Your order will ship directly from one of our three strategically located plant sites: Louisiana, California or Virginia. We make all the arrangements for wide loads, escort-permitted loads, flatbeds, vans, less-than-truckloads, and common carriers and hot shots. We also ship via UPS and Fed Ex, when it makes sense to do so. We have the ability to handle overseas shipments, too.

All of our tanks are washed, cleaned, protective-wrapped and final inspected before shipment, and common carrier shipments are wrapped and palletized.

For extra security, fitting and thread protectors are added, and all loose parts are boxed and labeled.

Sales Territories

At Poly Processing, we have designed our tank systems so you can easily select and specify a solution for any application. Our tanks are often used for water and wastewater treatment applications, and in industries such as food service, oil and gas, pharmaceuticals, mining, plating and high-tech.

Our sales reps are knowledgeable in all of these industries, and since they are located across the country, they can help customers configure and specify custom installations and problem-solve storage challenges on-site. Please contact Poly Processing at 866.945.9283 to find a sales representative near you.