A CLEAR AND SIMPLE GUIDE TO ANNUAL STORAGE TANK INSPECTIONS

PolyProcessing
SOLUTIONS, SIMPLIFIED.

No matter what chemicals you're storing, it's important to conduct routine storage tank inspections. These inspections are vital to help keep the chemical tanks, fittings, venting and accessories in good working condition—and to avoid costly surprise failures. Even if the polyethylene tank is relatively new, a routine and careful visual inspection is recommended.

Checking The Tank Yourself

Even new polyethylene tanks should receive routine and careful visual inspections. We have developed some inspection guidelines. These are not comprehensive, but they can help get you started on inspecting your tanks at least annually or possibly more often. This is to help ensure the safety of personnel, the preservation of the chemical you're storing, the tank itself, and the surrounding environment and equipment.

Poly Processing has created an annual tank inspection checklist to assist with your visual inspections. Here are a few of the basic steps—you can find a longer list in the inspection checklist in our Installation, Operation, and Maintenance manual.

NOTE: This list is not comprehensive. Your installation may require further inspection and evaluation as well as other specific guidelines based on your tank system.

IMPORTANT: Poly Processing recommends that no one enter the tank for any reason, unless all confined space safety measures are followed according to the end user's safety program.

1. Empty the storage tank. Neutralize any chemical that remains in the tank. Thoroughly clean the exterior and interior of the tank. A dirty tank cannot be properly inspected.

2. Visually examine the exterior and interior of the tank for signs of cracking, crazing or brittle appearance. Use a bright light source to inspect the tank interior from the manway opening.

3. Check the areas around fittings and where different portions of the tank converge into one another. Give special attention to "corners" where the sidewall and dome meet and where the sidewall and bottom meet.

4. Inspect the interior of the storage tank. Use a bright light source to inspect the tank interior from the manway opening. An interior inspection is essential because stress cracks can often show up on the inside of a tank before appearing on the outside.

5. Carefully inspect the dome of the storage tank for brittleness. With fume-emitting chemicals, the dome can be subject to oxidation and embrittlement without any actual contact with the chemical. This must be done using safety certified personnel lift equipment so that there is no walking or standing on the dome surface. Polyethylene tank domes are NOT designed to be stood on or walked on.

6. Check fittings, hoses, gaskets, and all connections for any signs of general corrosion or deterioration and leaks.

7. Check the vents and scrubber piping and make sure they are functioning properly. Ensure that the end of the scrubber piping is never submerged in more than 6 inches of liquid.

8. Confirm that filling the tank from tanker trucks does not cause over pressurization and doesn't end with a line purge that "balloons" the tank.

9. Ensure the secondary containment of the chemical storage tank is adequate in size, and in good condition.

WARNING: Failure to follow these inspection guidelines and take necessary corrective actions can result in unintended chemical release, causing serious property damage, injury, or even death.

Chemical fumes may be present in the area of the manway opening.

A tank is a confined space. Do not enter a tank without a confined space entry and retrieval plan.

Use lift equipment and/or fall protection to prevent fall into or away from the tank.

DO NOT STAND OR WORK ON TOP OF THE TANK. Dome surfaces are flexible and slippery. The dome may be embrittled. A dangerous fall could occur.

Professional Help with Your Annual Tank Inspection

We recommend having a professional perform an in-depth inspection, with testing, periodically. If you need a professional field service technician to help with your inspection, Poly Processing can send a third-party factory-trained service expert to your site. Talk to our service department for details.

What do you get with professional tank inspection services? Here's an overview of the inspection and testing our field service technicians perform on your chemical storage tanks.

Comprehensive Visual Inspection

A close inspection of the chemical tank's exterior can reveal cracks or crazing caused by UV degradation and other stressors. If cracks are present, a field technician may scrape off a small bit of the surface of the tank to see how deep the cracks go. If they are at least 1/32" deep, further testing may be required.

As long as the tank is empty, the field technician can ultrasonically measure the tank wall thickness. This will reveal any corrosion that is eating away at the sidewall, indicating dangerous wear and tear on the tank. The technician can also insert a camera inside to take photos, which will show any degradation or interior cracking.

Testing the Tank Material Itself

One of the best ways to test the actual polyethylene of the storage tank is to take a sample for impact and gel testing. These tests are strong indicators of whether the tank is holding up under the stress of the chemical or if it's reaching the end of its useful life.

The ASTM-D 1998 impact test and gel test can provide an indication of the tank becoming brittle. We can take a sample from the dome and plug the tank with a bulkhead fitting, then send the sample to the lab for testing.

When a field service technician inspects your chemical tank system, they will also verify the chemical and tank compatibility. This is especially important if you have changed the chemical concentrations being stored in your tank.

Testing Fittings, Gaskets, Venting and More

Even if the structure of the tank itself seems secure, it's important to test the fittings and attachments for signs of wear. Often, a field service representative can replace a fitting or gasket onsite. The technician will also inspect restraints, ensure seismic clips are spaced properly, and inspect ladders and brackets for signs of corrosion.

Venting is critical to the life of a tank, and it's important to inspect the vent line for obstructions and proper vent sizing. Bird nests, beehives and other obstructions can collect in outdoor vents, and dust and other debris can collect in indoor lines.

More Frequent Inspections

Depending on the chemical you're storing, you may need to inspect your tanks more frequently—especially if they are exposed to outdoor conditions. These routine, periodic tank inspections can be done by Poly technicians as well. This includes checking the following components of your chemical storage system:

- Tank interior and exterior: Visual inspection of your tank's interior and exterior to spot signs of cracking, brittle appearance, and other signs that the tank has potential weaknesses. In some instances, we'll scrape off the top 1/32" of a small area of the exterior surface to inspect the extent of cracking or hazing.

- Fittings and attachments: Visual inspection of the tank's fittings and attachments for signs of fatigue. When present, gaskets are examined as well. We also check the bolt torque on all bolted fittings, inspect any flexible connections to ensure they're functioning properly and look at valves for signs of leakage.

- Vent line: Any and all vent lines are visually inspected to detect any restrictions or obstructions. We also check the size of the vent and make any recommendations for improvement. If a scrubber is present, we do a visual inspection for areas of wear.

- External components of the tank: Thorough visual inspection of ladders, brackets, stabilizers, seismic systems and stands to identify signs of corrosion.

Getting Your Results

All the findings from your tank inspection are presented with photo documentation and any recommendations for repairs or replacements. The report can also make a recommendation for the date of the next inspection, based on the age and condition of the tank and the chemical application.

To learn more about tank inspections and to schedule a professional tank inspection, talk to a field service expert today.

866-765-9957 fieldservice@polyprocessing.com