

Poly Tank Safety

Last fall I witnessed an interesting demonstration from a specialist from Purdue Extension. He was talking about the care and maintenance of poly tanks and how disasters can happen if they aren't cared for and inspected properly. To drive home his point, he took a baseball bat and with one good lick completely annihilated the tank he was using for his demonstration

Polyethylene tanks, commonly known as poly tanks, are popular plastic storage devices used on farms for the storage and transportation of water and other liquids such as pesticides and fertilizer. They offer the advantages of being less costly than other types of storage containers, being relatively lightweight and easy to handle, and give the producer the ability to see how much of the product is in the tank.

Although advantageous in many ways, poly tanks don't last forever. If left outdoors over a long period of time, the sun will degrade the material making it brittle and more likely to break. A breakage on the farm with a tank filled with water would be a nuisance. A breakage on the highway with a tank filled with chemicals could be a disaster.

Poly tank manufacturers list the specific gravity rating on the tank before it is sold. The specific gravity of a substance is a comparison of its weight per volume compared to water. The specific gravity of water is 1.0, so a tank rated at 1.5 specific gravity is designed to handle the weight of a liquid product 1.5 times the weight of water.

In general, liquid fertilizers are heavier than water by itself. So if you put water in a tank with a rating of 1.0, that's fine. However, if you carry liquid fertilizer in a tank with a rating of 1.0, you are stretching the limits of what the tank can handle. At a minimum, fertilizers should be stored and handled in poly tanks with at least a 1.5 specific gravity rating.

To inspect your tanks for structural soundness, use a water soluble marker to color an area of the tank. Quickly rub off the ink with a paper towel and notice the ink left behind. If the ink reveals cracking or spider webbing where the lines go in all directions, classic UV radiation damage has occurred.

If signs of cracking were discovered during the ink inspection, you can do further testing by doing what that specialist at the field day did, hit the tank with a baseball bat. Maybe that sounds ridiculous but if a tank can't handle the pressure of you hitting it, can you expect it to handle the pressure of several hundred gallons of fertilizer or chemicals? It is impossible to crack a good tank using this method because the polymer is strong and resilient. If the tank cracks or breaks when hit by a bat, you may have saved yourself from disaster.

Poly tanks play an important role in many operations as they allow water and products to be stored and transported safely and efficiently. But like any piece of equipment, they must be inspected and maintained to ensure safety for the producer as well as the environment. For more information, check out the Purdue Extension publication, "Poly Tanks for Farms and Businesses...Preventing Catastrophic Failures" by going to smith.tennessee.edu and clicking on Agriculture, then "Row Crop Production".



Photos courtesy of Perdue Extension