



Polyethylene Tank Venting Recommendations

A White Paper from Assmann

Venting polyethylene storage tanks is one of the most commonly overlooked steps but is a significant one. "I have a low feed rate" and "just storage tanks" are phrases used to answer why tanks are not vented properly. It is extremely important that polyethylene tanks are not over pressurized or placed under vacuum. Adequate vent size will always be based on flow rates and delivery rates; however you can NEVER have too much venting. Over pressurization and vacuum are the two leading causes of failure in a polyethylene storage tank. Assmann Corporation had the calculations performed under the following criteria:

- 2" diameter fill line, approximately 72" in length
- Vent lines were reviewed at 2", 3", 4" and 6"
- Vent length at 18"
- 25 PSI fill rate
- A 2" fill line with 25PSI pressure will equate to 506 CFM air flow

Based on this information we found the following results:

- 2" vent line will accommodate for 56 CFM air at 25PSI
- 3" vent line will accommodate for 125 CFM air at 25PSI
- 4" vent line will accommodate for 219 CFM air at 25PSI
- 6" vent line will accommodate for 505 CFM air at 25PSI

These calculations show that a 6" vent line would be required if air offloading chemical at 25PSI.

Assmann's recommendations are as follows:

- Vents should be sized a minimum of 2-3 times the largest inlet or outlet connection when tanks are filled by tanker that uses air unloading techniques.
- Vents should be sized 1 1/2 - 2 times the largest inlet or outlet nozzle when diaphragm pumps or non-pressurized methods are used for filling.
- Special considerations should be used in situations that require tanks to be vented through a scrubber system. The vent size cannot be reduced passing through the scrubber. If a dispersion pipe is used in the scrubbing system, the pipe should not be submersed in more than 6" of liquid. A perforated dispersion pipe must allow for the same cross-sectional area of the pipe to prevent vent restriction.

Venting is critical when considering tank longevity. ***Under no circumstances should tank be placed under pressure or vacuum conditions.***

