



Assmann polyethylene vertical storage tanks at a northern Illinois chemical company.

## *The Way We Process Makes the Difference*

Assmann Corporation is a manufacturer of rotationally molded tanks, ranging from 40 to 12,000 gallons, engineered and processed for the most challenging chemical handling and storage applications.

Our commitment is to provide a superior tank for the harshest chemical service. Experienced tank users receiving an Assmann unit for the first time will remark favorably on how it compares with tanks already in their systems.

We begin by selecting resins with the best properties for the application based on our thirty plus years of molding and in-the-field experience. These include ExxonMobil LL-8461 (LLDPE) and ExxonMobil cross-linkable Metallocene resin among others.

However, it is the processing (equipment, tooling and procedures) that will determine the quality of the final product.



Assmann conical bottom storage tanks at a central Indiana chemical company.

## The Way We Process

### 1. Molding

Our unique and efficient large ovens, which rotate end-over-end, receive convection heat from an adjacent stationary furnace. The oven shape and foil design create optimum airflow and uniform heat to set the first stage for the highest quality parts possible.

We never exceed 500° F in the molding process. Using higher temperatures will speed up the cycle time and cut costs but will compromise the results, particularly in XLPE and thicker wall parts.

### 2. Cooling without water

We have separate chambers using only very high volume air movement to assure a gradual cooling of the mold and the part inside. This allows the cross-linking process, still taking place upon exiting the oven chamber, to complete all the way through the tank wall. This is essential to optimize the properties of the cross-linked part. (The whole idea is to achieve as close to 100% cross-linking as possible).

Even in 1.45" thick walls, we consistently attain gel test results (indication of % of cross-linking that has taken place) in the high 70's and low 80's. (ASTM minimum gel requirement is 60%).

It is also important to mention that tanks molded of linear resins, and processed in this manner, will also reach their optimum cure rate.

We introduce no water into our cooling cycle. Water spray or mist will speed up the process, but will abruptly stop the cross-linking and set up the stresses that will shorten the service life of the tank.

### 3. Tooling

Equally important in our process is that we do not "shield" the outside of our tank molds. We exceed ASTM design hoop stress minimums for the lower sidewall and carry this wall thickness as uniformly as possible throughout the entire tank for maximum structural integrity.

In a competitive marketplace it has become a common practice to wrap and weld layers of sheet metal (shielding) around the outside of the mold to reduce heat transfer and thereby reduce thickness over as much as 80% of the area of the tank. Upper sidewalls, domes and tank bottoms are often reduced to less than 25% of the thickness of the lower sidewall.

Some of the obvious consequences of this practice:

- There is greater damage when tank restraint systems are put to the test.
- Tank domes may collapse, even under snow weight.
- Stress cracking agents along with UV deterioration will accelerate dome failure.

Also, it is important to note "shielding" triggers a loss of control in the process resulting in uneven cooking and significant variations in gel percentages over the tank structure. This will also shorten the service life of the part.

Those using this technique sell it as "state-of-the-art" by marketing with such terms as "tapered", "engineered", "strati-formed walls", and "strategic material placement". The intent is only to reduce raw material costs. The savings, however, are rarely passed on to the end user.

## Our Position

Since the rotational molding process uses no pressure it will yield a stress free tank or part, but only if basic processing rules are followed.

We at Assmann Corporation are constantly finding ways to increase efficiency in our process but will not abandon successful methods for any cost-cutting measure that would compromise the quality of the product for which we have become known.

Our plant personnel are our "experts". They have pride in the plant and their workmanship. All of us extend a welcome to visit our plant in Garrett, Indiana.

For information, quotations or plant tours, please call us at 1-888-357-3181.

