



To whom it may concern,

As you know for many years Assmann Corporation has promoted Crosslink Polyethylene for the storage of Sulfuric Acid. We are changing our recommendations to Linear Polyethylene. I know that this change has many of our customers concerned, as they can clearly see the advantages of Crosslink over Linear PE. To understand this change I must explain a brief history of Crosslink and also what we have seen in the past years.

Crosslink polyethylene has been used to manufacture chemical storage tanks for over 30 years. Throughout our history we have seen many resins; "K" resin, CL-100, CL-200, Paxon 7004, and now Schulink XL-350. These materials always replaced one another, never leaving manufacturers with a choice in what they wanted to use, until recently.

- The "K" resin was horrible. This resin was almost the demise of Crosslink material, while produced in the United States. The feedstock that the material was composed of came to us internationally and was found to be defective. This material caused many failures and gave Crosslink material a "black eye" for a long time.
- CL-100 was quite the opposite of its predecessor. The CL-100 material had excellent chemical resistance. This material performed well in all aspects of chemical storage tanks.
- CL-200 material was an upgraded version of the CL-100. While this material was also very chemically resistant, it never was really considered better than the CL-100. Some type of formulation change (that the resin manufacturers don't share) never made this material quite as resilient as the CL-100.

In 2004, the CL-200 material was discontinued, forcing all polyethylene tank manufacturers to move to a newly released material Paxon 7004. Paxon was advertised as creating higher gel tests with reduced cooking cycles. This resin was also to produce smooth interior tank walls on thick walled parts. Both of these points appealed to manufacturers. Assmann molded both CL-200 and Paxon 7004 for a short period of time until the CL-200 was no longer available.

- Paxon 7004 was a new resin formulation that was unknown in the market place. At first, this resin seemed to perform as well as the CL-200. However, quickly Assmann discovered inconsistencies in the material that caused huge spikes in our scrap rates, tanks with shortened life spans, and concerns with ultraviolet stability.

Assmann Corporation molded the Paxon 7004 material from 2004 until 2009. At that point, we made a conscious choice to switch all of our industrial customers to Schulink XL-350 resin. While the Schulink XL-350 resin was unknown to industrial customers, Assmann Corporation had been independently molding with this material for a large custom account we support. The Schulink XL-350 material had been developed specifically for this Assmann customer and had proven its durability through years of custom molding application.

- Schulink XL-350 material was developed specifically for Assmann Corporation. The resin formulation is very similar to the CL-200 material that was discontinued. It's very chemically and UV resistant.

Assmann Corporation has been molding with Schulink XL-350 resin for over 5 years now in the industrial market. We have seen a very limited set of issues with this material in Sulfuric Acid applications. However, as time has progressed we are just now noticing a trend with Schulink not performing to our expectations in Sulfuric Acid applications. Assmann expects our tanks to last easily 7-10 years in this application, but we have seen failures within 5 years. We warranty our tanks for 3



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years in Sulfuric Applications, but we want our customers to be satisfied with the performance of our products, so we feel a change is necessary.

Assmann has always molded our tanks from Linear polyethylene as well as Crosslink. We have been fortunate that Linear material does not change formulations as often as Crosslink. The Linear Polyethylene we use is 8461 material. This material has been consistent for over 30 years now, and we have yet to experience any problems in this material with Sulfuric Acid storage. Based on this history, we are starting to recommend Linear 8461 material for this application to more of our customers. While we know we are asking our customers to sacrifice some of the safety features of the Crosslink, we feel the gain they will receive in life expectancy is well worth the sacrifice.

Linear polyethylene is commonly used for chemical storage. However, we feel it is a necessity to have secondary containment more so with Linear tanks than Crosslink. The mode of failure is much more abrupt with Linear than Crosslink. However, with today's regulations this should not be a concern as most applications require secondary containment in all chemical storage tank installations.

I hope that this letter explains why Assmann is recommending this change to our customers. Ultimately the decision lies with them. We feel that the better educated our customers are on chemical storage will have the largest effect on tank life expectancy.

Sincerely,

Steve Rowison
VP Sales & Marketing
Assmann Corporation of America