SNYDER INDUSTRIES™

READ THE FACTS!

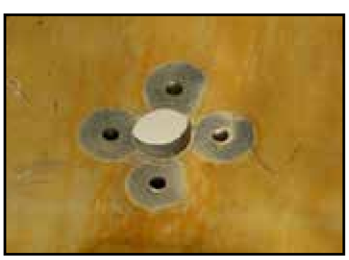
WHY ARE CROSSLINKED PE TANKS WITH LINEAR PE LINERS A BAD IDEA?

Approximately 30 years ago, a technique was developed within the rotational molding process that enabled a Low Density Linear Polyethylene (LLDPE) and/or Medium Density Linear (MDPE) Liner (layer) to be formed within a crosslinked Polyethylene (XLPE) Tank.

Initially the additional layer of LLDPE material was added to reduce cost by using a cheaper resin to build wall thickness. In the late 1980's, early 1990's it was also done in an attempt to create an FDA line of tanks which failed to comply with FDA requirements. Then the process was used to actually improve the chemical resistance of the XLPE tank in certain oxidizing chemical applications. There were limited tank material construction options at the time the dual layered tank was developed, and the LLDPE and MDPE resins did not yet have the strength characteristics to handle the rigors of bulk liquid storage without additional support, which is why the two resins were utilized together in an attempt to solve a chemical storage dilemma.

Unfortunately, chemical manufacturers, distributors, and end users have discovered a multitude of quality and service problems inherent in the dual layered (laminated) tank design since the technique was introduced almost four decades ago.

Delamination – Linear polyethylene is a thermoform plastic, which means it can be melted and cured multiple times. Crosslinked polyethylene is a thermoset plastic, which means the cure is permanent, and cannot be reset. The two plastics do not permanently bond. In application, the sidewall expansion and contraction caused by a tank being filled and emptied creates further long-term stress on the two materials' seam. As a result, end users have experienced delamination failures.



Fitting and Outlet Chemical Exposure – Since it is difficult to mold a uniform wall of linear polyethylene within the dual layered tank processing technique, fitting locations often have to be ground down and smoothed over to achieve a uniform sealing surface, which can inevitably result in the removal of the linear layer and the required chemical resistance protection that goes with it.

The linear liner protection can also be compromised when holes are drilled into the tank wall removing the chemical resistance barrier and exposing the outer XLPE shell to chemical attack.

3. **<u>No FDA Approval</u> of Outer Tank** - The XLPE outer tank has not been and can not be approved by the Food and Drug Administration (FDA) for food or water process chemical contact. If the contents of the tank should be exposed to the XLPE tank material (through grinding/smoothing of tank interior for fitting connections or cracks in the liner from delamination) the contents of the tank would be exposed to non-FDA materials.

4. **<u>No Repair of Maintenance Capabilities</u>** – Since XLPE is a thermoset plastic, it cannot be repaired (welded) or recycled, so maintenance, replacement, and disposal costs can be comparatively exorbitant.

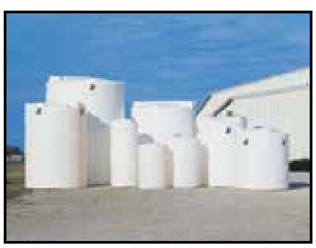
Fortunately, the resin and process technology in High Density Linear Polyethylene (HDLPE) has improved dramatically in the last decade, offering greater tank strength and superior chemical resistance.

<u>Tensile Strength</u>	
HDLPE (Linear) Resin	2800-3220 psi
HDXLPE (Crosslink) Resin	2700-2900 psi

<u>Density</u> *the higher the density the better the chemical resistance

HDLPE (Linear)resin	.941-.947 g/cc
MDPE, LLDPE (Linear) Resin	.926-.938 g/cc
HDXLPE (Crosslink) resin	.940-.945 g/cc

In fact, today's HDLPE's are actually stronger and perform better than XLPE in most applications. As a result, tank specifiers and purchasers can now procure a tank design that maximizes chemical resistance without sacrificing tank durability.



Snyder Industries manufacturers and markets both HDLPE and XLPE (NO LINER!) tanks for a variety of chemical applications. As a leading polyethylene tank manufacturer, we strongly believe in matching the right resin and tank design with specific applications to optimize long-term tank performance.

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