MOELLER®
marine products
www.moellermarine.com

Moeller Marine Products is improving technology through Innovative concepts. These concepts will revolutionize the Recreational Marine Industry.

The fuel tanks fabricated by Moeller Marine Products are rotationally molded using cross-linked polyethylene. This material is widely accepted as the polyethylene of choice for producing permanently installed recreational marine fuel tanks. The cross-linked polyethylene fuel tanks meet and exceed all current federal regulations for recreational marine tanks.

Over the past couple of years there have been a number of comparative tests made to determine the "pros and cons" of thermoset plastic tanks compared to metal or aluminum tanks. For example:

1. The cross-linked polyethylene is inert, which totally eliminates any rust or corrosion problem. Cross-link polyethylene provides a longer life cycle and less weight than metal or aluminum tanks. Non-ferrous tanks (aluminum) can be subject to "oxygen starvation" which causes corrosion. This is usually caused by excess water being trapped on or under the aluminum tank surface.
2. All of Moeller's cross-linked thermoset plastic fuel tanks are one-piece seamless construction. This eliminates the pin-hole leak problems associated with metal or aluminum tanks, where welding slag is dislodged from the welds causing pin-hole openings.

In addition to the features listed above, cross-linked thermoset plastics fuel tanks offer a wide variety of customer configurations not available in metal or aluminum fabricated tanks. Also the thermoset material can be blended to produce different colors, or processes altered to produce Moeller's "low-perm" Fuel Tank.

What is "low-perm"? This is a new innovation offered by Moeller Marine Products to address the pending regulations being drafted by the EPA – Environmental Protection Agency and CARB – California Air Resources Board. The drafted regulations are centered on fuel permeation related issues associated with current marine fuel systems and associated components. Moeller's "low-perm" Fuel Tank will provide an environmentally friendly fuel tank that greatly reduces the amount of fuel permeation into the atmosphere.

The question that has been raised by many of our customers is; what is fuel permeation? Permeation is the process by which smaller hydro carbon molecules pass through the chemical chain of the cross-linked polyethylene. That permeation can be described as a "wicking effect". Fuel odor is the end result of this process; note this is a normal occurrence in plastic fuel tanks and should not be confused with fuel vapor.

Permeation Key Drivers:

1. Storage temperatures increase the permeation rate: for every 50 F / 10 C (degree(s)), the rate doubles.
2. Pressurized fuel tanks will increase the permeation rate.
3. Ethanol Blends will increase permeation rates.

The fuel permeation levels from current tanks are higher than the drafted regulations, thus the introduction of the Moeller's "low-perm" Fuel Tanks. Moeller's "low-perm" Fuel Tanks utilizes Moeller's trade secret processing techniques. This is the solution for meeting stricter EPA / CARB Fuel Permeation Regulations set for 2011. Moeller Marine Products is leading the way in the industry by providing the first recreational marine fuel tank for testing at CARB. Moeller's "low-perm" Fuel Tank has surpassed expectations and is the solution for the industry.

Moeller's "low-perm" Fuel Tanks offers the following:

- Unique composite structure
- Ultra-low permeation to fuel –meets proposed levels
- Excellent permeation resistance to higher alcohol contents fuels
- Two layer composite system with excellent adhesion
- Excellent impact and toughness

This is where our innovative concept provides Moeller Marine Products a competitive advantage. Please contact us today to discuss our solution with you.

The time lines for the drafted regulations are as follows:

- Fuel Hoses – Jan 1,2009 (Perm rate equal or less than 15 g/ m2/day)
- Self Sealing Cap (Portables) – Jan 1, 2010.
- Primer Bulb and Marine Tank (Portable and Permanent) – Jan 1, 2011
    - (Perm Rate for Primer Bulb equal or less than 15 g/ m2/day)
    - (Perm Rate for Marine Tank equal or less than 1.5 g/ m2/day)

Please use the following websites to stay informed versus the regulations and time lines:

www.arb.ca.gov/omt/omt.htm
www.epa.gov/otaq/marine.htm

801 North Spring Street, Sparta, Tennessee 38583
1-800-432-8344