Canada 1.855.530.4226
USA 1.855.894.7436
www.layfieldgroup.com/HeatGard

HEATGARD® GEOMEMBRANES

CRITICAL CONTAINMENT IN THE HARSHEST CONDITIONS

Your critical containment infrastructure demands the best in longevity, toughness, and chemical resistance. HeatGard® is made from next-generation bimodal resins that retain antioxidants for an unprecedented length of time. This retention over time is vital to extending the service life of a geomembrane.

Environmental Stress Cracking (ESCR), a common failure mechanism, can be combated with lower-density resins, which generally lead to less stress cracking risk. Unfortunately, this also leads to lower chemical resistance. With HeatGard® made from bi-modal resins, the resulting product has a stronger crystal from both the high molecular weight portion and the lower molecular weight polyethylene. The result is a more robust product with a very low risk of stress cracking and a high level of chemical resistance.

WITHSTANDS HIGH-TEMP EXPOSURE

HeatGard® can withstand continuous use at 85°C [185°F] for over 20 years.

EXCELLENT LONGEVITY IN HARSH CLIMATES

Chlorine resistant, UV stable, and Brine resistant (70% HPOIT retained after one year at 100°C).

WIDE FORMAT ROLLS FOR QUICK INSTALLATION

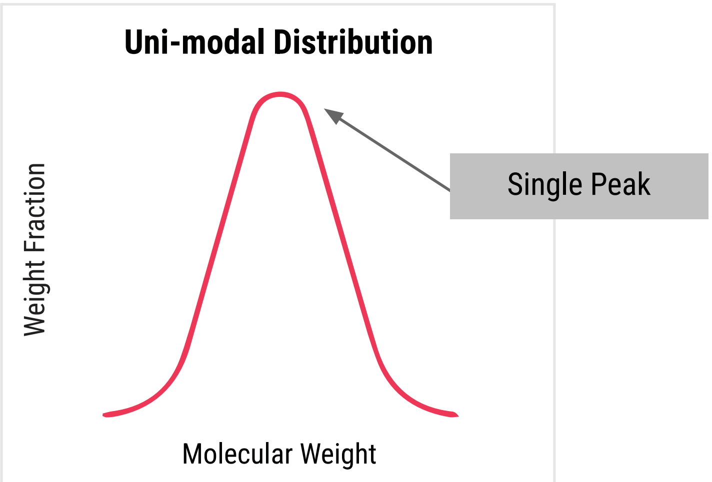
Fewer seam welding requirements leads to quicker installation & lower instances of failure.

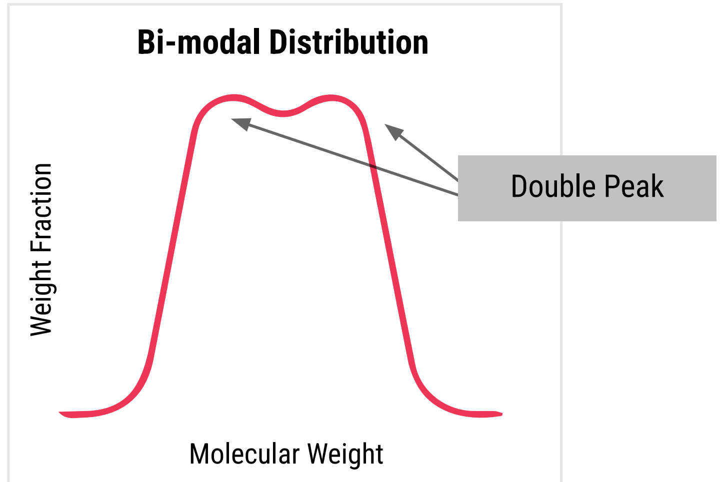
We are the geosynthetics company that delivers the best technical expertise and innovative solutions you need at the quality you and your customer expect.

WeProtect
Our People. Our Communities. Our Environment.

BI-MODAL RESIN TECHNOLOGY

To understand bi-modal resins, let's first understand how to construe a molecular distribution curve of a polymer. During the manufacture of polymer resins, the polymer molecules form in a variety of different lengths. When you analyze the molecules formed, you see a distribution of these chain lengths which we call molecular weight distribution. The bottom axis in both graphs shows the molecular weight (the length of each chain). The vertical axis shows the weight fraction (how many of each chain there are). These graphs usually create a classic Bell Curve (normal distribution in statistics).





The above graphs show both Uni-modal (left) and Bi-modal (right) distribution. For Uni-modal, the polymer shows a single peak. A very narrow distribution will be strong, stiff, and difficult to process (all other properties being equal). A very wide distribution (graph is shorter and wider at the base) will normally be softer and more pliable, and easier to process. A bi-modal distribution shows two distinct peaks on the graph. Bi-modal resins are generally made utilizing dual reactors and combine high-molecular-weight and low-molecular-weight resins to improve the balance of processability, mechanical and endurance properties.

DISCUSSION

When considering Environmental Stress Cracking (ESCR) as a failure mechanism, in the traditional unimodal sense, the lower the density generally led to better performance (less stress cracking risk). This is a result of a higher amount of comonomer incorporation into the polymer backbone. Unfortunately, the higher the amount of comonomer, the lower the density; thus, lower chemical resistance. With Bi-modal resins, the resulting resin has a very high amount of comonomer incorporated into the high molecular weight region. This leads to a stronger crystal from both the high molecular weight portion and the lower molecular weight polyethylene. The result is a more robust product with a very low risk of stress cracking.

SCAN ME

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