

# High Performance HD Polyethylene Geomembranes

High Performance GSE HD products are high density polyethylene (HDPE) geomembranes specifically designed to be used in the most stringent applications.

High Performance GSE HD products are available in a variety of colors such as green for more aesthetic landfill caps<sup>1</sup> and white for a solar reflective upper surface<sup>2</sup>. The upper surface, lower surface, or both surfaces can be textured for use in applications where increased frictional resistance is required. The bottom surface can be comprised of a conductive layer to enable liner integrity surveys to be performed following installation of the liner<sup>3</sup>.



[GSE High Performance HD Geomembranes]

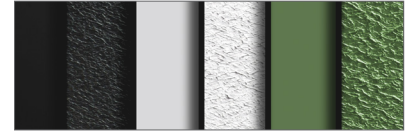
## PREMIUM RAW MATERIALS

Only the finest raw materials are selected for High Performance GSE HD. GSE utilizes HDPE resin that has been specifically engineered for remarkable stress crack resistance and flexibility. The GRI GM 13 specification requires a minimum of 300 hours to failure while High Performance GSE HD provides in excess of 1,000 hours without failure. The material is free of any fillers and nonessential additives to achieve the highest performance possible.

## BENEFITS OF HIGH DENSITY POLYETHYLENE

HDPE is the most universal polymer used for geomembranes because of its proven chemical resistance, durability, and low permeability. HDPE is resistant to a wide variety of chemicals including aromatic and halogenated hydrocarbons. The chemical resistance of HDPE is especially helpful in applications that require harsh chemicals such as mining heap leach facilities, hazardous waste landfills, and in most containment facilities within chemical plants.

Because of these factors and the broad and successful history of HDPE geomembranes, regulators are very familiar with these products and their usage.



High Performance GSE Geomembranes



Stringent Applications

## HIGH PERFORMANCE GEOMEMBRANES

This HDPE geomembrane is specifically engineered to provide exceptional multiaxial performance, stress crack resistance and longevity.

### GSE HD FEATURES:

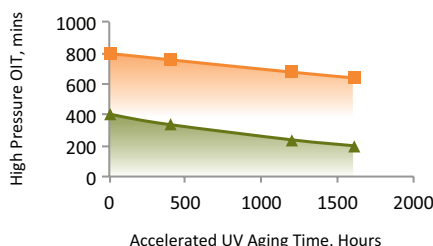
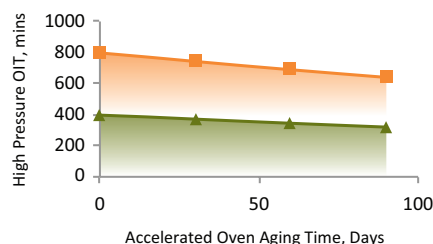
- Superior geomembrane lifetime
- Outstanding stress crack resistance
- Exceptional flexibility
- Superb UV resistance
- Industry Familiarity
- Exceptional Chemical Resistance
- Lowest Permeability Among Polymers

### COMMON APPLICATIONS:

- Exposed Applications
- Elevated Temperatures
- Harsh Chemical Environments
- Solid and Liquid Waste Containment
- Secondary Containment
- Mining
- Hazardous Waste Containment
- Pond Lining

## ENGINEERED ANTIOXIDANT PACKAGE

High Performance GSE HD includes a specially engineered additive package to ensure the geomembrane maintains its superior mechanical properties. These high quality additives are highly resistant to extraction and will inhibit geomembrane degradation exposure due to harsh chemicals, elevated temperatures, and UV light.



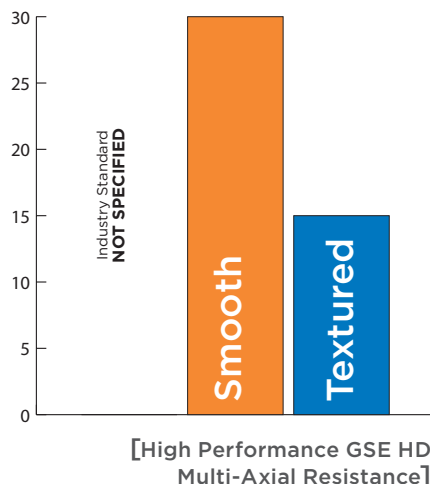
[High Pressure OIT during UV and oven aging. High Performance GSE HD is shown in orange (■) and the industry standard in green (▲).]

## OUTSTANDING UV RESISTANCE

High Performance GSE HD has been engineered to have excellent resistance to UV radiation from the sun. A well-dispersed premium grade carbon black is utilized to support the additional UV protection that is provided by a smaller particle size of carbon black. A smaller carbon black particle provides additional surface area to increase UV absorption.

## SUPERIOR FLEXIBILITY

Combining the manufacturing expertise of GSE with premium raw materials, High Performance GSE HD is the most flexible HDPE on the market and far exceeds the limitations of the industry standard HDPE geomembranes.



## BENEFITS OF A ROUGHENED SURFACE

A textured geomembrane provides increased frictional resistance that improves the stability of slopes. The ability to use a steeper slope provides cost savings by increasing the capacity of the project. GSE products can be manufactured with a black, green<sup>1</sup>, or white<sup>2</sup> textured surface on one or both sides of the geomembrane.

## QUALITY ASSURANCE

All GSE geomembrane production involves three levels of quality assurance. First, raw material suppliers must comply with GSE specifications on incoming resin. Before the resin is unloaded from the railcar, GSE verifies the raw material test results that are submitted by our suppliers by performing selected conformance tests. The second level of QA occurs during production. As each roll is

produced, it is electronically monitored for pinholes. Finally every roll of GSE product undergoes a rigorous Quality Assurance program after production to ensure the mechanical properties are intact and meet or exceed GSE quality standards. All GSE laboratories are certified to meet GAI-LAP standards.



[Landfill Application, Hawaii]

## ENGINEERING SUPPORT

The GSE engineering support staff is available to help solve any issues you have with your project. It is comprised of a multidisciplinary group of professionals with knowledge across a wide range of products and their applications. This includes geomembranes, geosynthetic clay liners, geonets, geocomposites, and woven and nonwoven geotextiles.

<sup>1</sup>Refer to the application sheet for GSE Green Surfaced Geomembranes for more information.

<sup>2</sup>Refer to the application sheet for GSE White Surfaced Geomembranes for more information.

<sup>3</sup>Refer to the application sheet for Electrically Leak Location Geomembranes for more information.

<sup>4</sup>Refer to the application sheets for High Performance GSE Geomembranes for more information.

GSE is a leading manufacturer and marketer of geosynthetic lining products and services. We've built a reputation of reliability through our dedication to providing consistency of product, price and protection to our global customers.

Our commitment to innovation, our focus on quality and our industry expertise allow us the flexibility to collaborate with our clients to develop a custom, purpose-fit solution.

**[DURABILITY RUNS DEEP]** For more information on this product and others, please visit us at [GSEworld.com](http://GSEworld.com), call 800.435.2008 or contact your local sales office.

