

# Stronger geomembrane solutions help provide advanced performance for tough load applications

Energy lives here™



Enable™ 4002 performance polymer provides outstanding mechanical properties, environmental stress crack resistance (ESCR) and processability for geomembrane films. The unique properties of Enable 4002 allow the production of stronger films compared to existing market alternatives, delivering geomembrane sheets with high durability and excellent chemical resistance. In addition, the exceptional processability offered by this polymer improves processing consistency for large bubble sizes.

### Suggested uses

- Geomembranes
- Pond liners
- Geotextiles

Melt index g/10 min	Density g/cm <sup>3</sup>	Melt flow ratio MI21/MI2
0.25	0.940	>60

Test methods based on: Melt index and Melt flow ratio - ASTM D1238; Density - ASTM D1505

Delivered attributes	Derived benefits and potential value
High melt strength	Bubble stability
Toughness (puncture, tensile, tear)	Durability
High ESCR	Opportunity for long service life

## Market comparisons

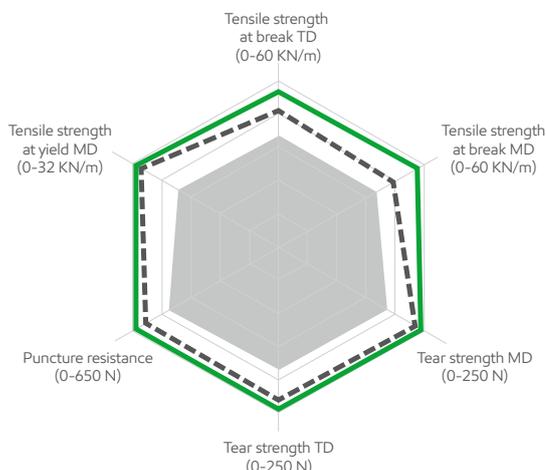
A monolayer film based on Enable™ 4002 performance polymer delivers the following benefits:

- High durability
- Good processability
- Excellent chemical resistance

## Sheet integrity for optimum environmental protection

Using Enable 4002 in your formulation, you can now produce improved films for geomembrane applications. With Enable 4002, geomembrane films can be fabricated to offer improved toughness and puncture performance that exceeds GM13 standards.

**Figure 1:** Selected properties of a 1.5 mm Enable 4002 formulated film versus a commercial 1.5 mm HDPE film.



WOMS 201308.0175

Geomembrane films made using Enable 4002 offers improved liner integrity and greater flexibility than HDPE. Because of this enhancement in flexibility, geomembrane films made with Enable 4002 can be prefabricated. Prefabricated sheets means fewer field seams so customers will realize savings in both job time and costs.

## Cost optimization

Enable 4002 provides excellent processability for consistent film production and high-speed operations. Savings can be achieved across the value chain through greater durability, compared to films made with conventional geomembrane sheet formulations. Less manufacturing and post-consumer waste can be realized during installation because of the high integrity of sheets produced using Enable 4002.

## In summary

If you're looking for, stronger films to improve high integrity geomembrane sheets with an enhanced environmental footprint look no further than Enable 4002.



**Table 1: Product data for Enable 4002 formulated film and the reference film.**

	Melt index (g/10 min)	Density (g/cm <sup>3</sup> )	————— Enable 4002 1.5 mm monolayer film	- - - - - Reference MDPE 1.5 mm film	————— GM13 (smooth) 1.5 mm film
Layer ratio			1	1	1
Enable 4002	0.25	0.940	●		
MDPE				●	
Carbon black masterbatch			●	●	
Anti oxidant masterbatch			●	●	

Test methods based on: Tensile - ASTM D6693; Puncture resistance - ASTM D4833; Tear resistance - ASTM D1746

©2016 ExxonMobil. ExxonMobil, the ExxonMobil logo, the interlocking "X" device and other product or service names used herein are trademarks of ExxonMobil, unless indicated otherwise. This document may not be distributed, displayed, copied or altered without ExxonMobil's prior written authorization. To the extent ExxonMobil authorizes distributing, displaying and/or copying of this document, the user may do so only if the document is unaltered and complete, including all of its headers, footers, disclaimers and other information. You may not copy this document to or reproduce it in whole or in part on a website. ExxonMobil does not guarantee the typical (or other) values. Any data included herein is based upon analysis of representative samples and not the actual product shipped. The information in this document relates only to the named product or materials when not in combination with any other product or materials. We based the information on data believed to be reliable on the date compiled, but we do not represent, warrant, or otherwise guarantee, expressly or impliedly, the merchantability, fitness for a particular purpose, freedom from patent infringement, suitability, accuracy, reliability, or completeness of this information or the products, materials or processes described. The user is solely responsible for all determinations regarding any use of material or product and any process in its territories of interest. We expressly disclaim liability for any loss, damage or injury directly or indirectly suffered or incurred as a result of or related to anyone using or relying on any of the information in this document. This document is not an endorsement of any non-ExxonMobil product or process, and we expressly disclaim any contrary implication. The terms "we," "our," "ExxonMobil Chemical" and "ExxonMobil" are each used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliate either directly or indirectly stewarded.

Contact us for more information:  
[exxonmobilchemical.com/pe](http://exxonmobilchemical.com/pe)

E1216-019E49

**ExxonMobil**  
Energy lives here™