

ABSOLUTE BARRIER® X60BCS

RAVEN

2-SIDE TEXTURED HDPE/EVOH GEOMEMBRANE GAS BARRIER

PRODUCT DESCRIPTION

Absolute Barrier® X60BCS is a seven-layer co-extruded double-side textured geomembrane consisting of durable high-density polyethylene (HDPE) and an inner core of highly effective barrier resin, designed specifically as a barrier against methane, radon, landfill odors, and VOCs. High strength HDPE provides excellent chemical resistance and outdoor durability. A robust stabilization package that exceeds the industry standard; provides long-term protection from thermal oxidation and ultraviolet degradation in exposed applications. The aggressive surface texture provides excellent stabilization for earthen and secondary geosynthetics as well as work site safety.

PRODUCT USE

Absolute Barrier® X60BCS is formulated to effectively stop gas vapor and odor migration in long-term outdoor cover, containment, and capping applications. XT-Series has been specifically designed to perform in the municipal solid waste industry as landfill covers, caps and impoundment containment covers.

Absolute Barrier® X60BCS is an effective temporary and long term landfill cap and is less permeable to VOCs than standard 80 mil HDPE geomembranes. Contaminants found in leachate and landfill gas in municipal and hazardous waste landfills can migrate through standard HDPE contributing to both atmospheric and groundwater contaminations.

Absolute Barrier® XT-Series provides an effective barrier to a wide range of VOCs including benzene, toluene, trichloroethylene, perchloroethylene, and many others.

SIZE & PACKAGING

Absolute Barrier® X60BCS is available in 16' wide layflat in various roll lengths. All panels are tightly rolled onto a heavy-duty core for ease of handling and time saving installation. Absolute Barrier® geomembranes are black or can be manufactured in other custom colors with minimum quantity order requirements.



Landfill Odor Control Barrier

PRODUCT

PART

ABSOLUTE BARRIER® X60BCS

APPLICATIONS

Odor Control Barrier	Underslab Radon Barrier
EPS Geofoam Protection	Underslab Methane Barrier
Buried Landfill Cap	Underslab Vapor Barrier
Temporary Landfill Gas Cover	Remediation Cover / Liner
Floating Gas Cover	Leachate Collection Ponds
Underslab VOC Barrier	Interim Landfill Covers

Absolute Barrier®
THE ULTIMATE IN GAS CONTAINMENT

ABSOLUTE BARRIER® X60BCS

2-SIDE TEXTURED HDPE/EVOH GEOMEMBRANE GAS BARRIER

ABSOLUTE BARRIER® X60BCS

PRO-FORMA DATA SHEET - TYPICAL VALUES

PROPERTIES	TEST METHOD	IMPERIAL		METRIC	
		MINIMUM	TYPICAL	MINIMUM	TYPICAL
APPEARANCE		Black 2-Side Texture		Black 2-Side Texture	
THICKNESS	ASTM D5994	57 Mil Average	60 Mil Nominal	1.45 mm Average	1.52 mm Nominal
ASPERITY HEIGHT	ASTM D7466	16 Mil	18 Mil	0.41 mm	0.46 mm
WEIGHT, NOMINAL		317 lbs/msf		1548 g/m ²	
DENSITY	ASTM D792	0.94 g/cm ³	0.95 g/cm ³	0.94 g/cm ³	0.95 g/cm ³
TENSILE STRENGTH AT YIELD	ASTM D6693	126 lbs/in	160 lbs/in	221 N/cm	280 N/cm
TENSILE STRENGTH AT BREAK	ASTM D6693	90 lbs/in	168 lbs/in	158 N/cm	294 N/cm
TENSILE ELONGATION AT YIELD	ASTM D6693	12 %	18 %	12 %	18 %
TENSILE ELONGATION AT BREAK	ASTM D6693	100 %	430 %	100 %	430 %
TEAR STRENGTH	ASTM D1004	42 lbs	52 lbs	187 N	231 N
PUNCTURE RESISTANCE	ASTM D4833	90 lbs	125 lbs	400 N	556 N
OXIDATION INDUCTION TIME (OIT) OR HIGH PRESSURE OIT (HPOIT)	ASTM D3895 ASTM D5885	100 min 400 min	180 min	100 min 400 min	180 min
CARBON BLACK CONTENT ⁷	ASTM D4218	2.0 %	2.2 %	2.0 %	2.2 %
CARBON BLACK DISPERSION	ASTM D5596	Pass			
STRESS CRACK RESISTANCE ⁸	ASTM D5397	500 hrs	> 1800 hrs	500 hrs	> 1800 hrs
BENZENE PERMEANCE	See Note ⁶	1.21 x 10 ⁻¹³ m/s or 3.40 x 10 ⁻¹⁰ m ² /s			
TOLUENE PERMEANCE	See Note ⁶	4.86 x 10 ⁻¹⁴ m/s or 4.72 x 10 ⁻¹⁰ m ² /s			
ETHYLBENZENE PERMEANCE	See Note ⁶	1.11 x 10 ⁻¹⁴ m/s or 3.70 x 10 ⁻¹⁰ m ² /s			
M & P-XYLENES PERMEANCE	See Note ⁶	1.27 x 10 ⁻¹⁴ m/s or 3.50 x 10 ⁻¹⁰ m ² /s			
O-XYLENE PERMEANCE	See Note ⁶	1.14 x 10 ⁻¹⁴ m/s or 3.31 x 10 ⁻¹⁰ m ² /s			
METHANE PERMEANCE	ASTM D1434	< 2.46E ⁻¹³ m/s			
TRICHLOROETHYLENE (TCE)	See Note ⁶	3.50 x 10 ⁻¹⁵ m/s or 2.30 x 10 ⁻¹⁰ m ² /s			
PERCHLOROETHYLENE (PCE)	See Note ⁶	3.48 x 10 ⁻¹⁵ m/s or 2.17 x 10 ⁻¹⁰ m ² /s			
MAXIMUM STATIC USE TEMPERATURE		180° F		82° C	
COLD TEMPERATURE IMPACT	ASTM D746	-40° F		-40° C	

⁶ Aqueous Phase Film Permeance:

Permeation of Volatile Organic Compounds through EVOH Thin Film Membranes and Coextruded LLDPE/EVOH/LLDPE Geomembranes, McWatters and Rowe, Journal of Geotechnical and Geoenvironmental Engineering © ASCE/September 2015. (Permeation is the Permeation Coefficient adjusted to actual film thickness - calculated at 1 kg/m²)
The study used to determine PCE and TCE is titled: Evaluation of diffusion of PCE & TCE through high performance geomembranes by Battista and Rowe, Queens University 8 Feb 2018.

⁷ No carbon black in barrier layers.

⁸ Test frequency according to GRI GM10, base polyethylene resin.

PRO-FORMA SHEET CONTENTS: The data listed in the Pro-Forma data sheet is representative of initial production runs. These values may be revised at anytime without notice as additional test data becomes available.

Absolute Barrier® X60BCS is a seven-layer co-extruded double-side textured geomembrane consisting of durable high-density polyethylene (HDPE) and an inner core of highly effective barrier resin, designed specifically as a barrier against methane, radon, landfill odors, and VOCs. High strength HDPE provides excellent chemical resistance and outdoor durability. A robust stabilization package that exceeds the industry standard; provides long-term protection from thermal oxidation and ultraviolet degradation in exposed applications. The aggressive surface texture provides excellent stabilization for earthen and secondary geosynthetics as well as work site safety.



Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage. Limited Warranty available at www.ravenefd.com

RAVEN ENGINEERED FILMS

P.O. Box 5107 Sioux Falls, SD 57117-5107
Ph: +1 (605) 335-0174 • TF: +1 (800) 635-3456

© 2018 RAVEN INDUSTRIES INC. All rights reserved.

efdsales@ravenind.com
www.ravenefd.com

RAVEN

070318 EFD 1310