

# Product Information Bulletin

## EnerSpan® EFS Insulation - Canadian Applications

**EnerSpan® EFS** insulation is rigid, closed cell, silver-gray insulation that meets or exceeds requirements for expanded polystyrene (EPS) insulation manufactured to CAN/ULC-S701<sup>1</sup>, Annex A for use in exterior insulation and finish systems (EIFS). **EnerSpan EFS** insulation is manufactured using **Neopor® F5300 GPS Plus**, a graphite-enhanced expandable polystyrene (GPS) raw material provided by **BASF**.

The graphite within the silver-gray cellular structure of **EnerSpan EFS** insulation reduces radiation heat transfer and results in an enhanced thermal resistance compared to standard white EPS insulation manufactured to CAN/ULC-S701.

**Table 1 – EnerSpan EFS Insulation Material Property Values**

Material Properties	Test Method	Units	Values
<b>Thermal Resistance<sup>2</sup></b> <i>Minimum</i>	ASTM C518	m <sup>2</sup> •°C/W (ft <sup>2</sup> •hr•°F/BTU)	0.82 (4.7)
<b>Water Vapour Permeance<sup>3</sup></b> <i>Maximum</i>	ASTM E96	ng/Pa•s•m <sup>2</sup> (perms)	300 (5.2)
<b>Dimensional Stability</b> <i>Maximum</i>	ASTM D2126	% linear change	1.5
<b>Water Absorption</b> <i>Maximum</i>	ASTM D2842	% by volume	6.0 <sup>Note 4</sup>
<b>Flexural Strength</b> <i>Minimum</i>	ASTM C203	kPa (psi)	170 (25)
<b>Compressive Resistance</b> <i>Minimum @ 10% Deformation</i>	ASTM D1621	kPa (psi)	70 (10)
<b>Limiting Oxygen Index</b> <i>Minimum</i>	ASTM D2863	% volume	24
Additional Material Properties for EnerSpan EFS Insulation			
<b>Water Absorption</b> <i>Maximum</i>	ASTM D2842	% by volume	2.0
<b>Dimensional Stability</b> <i>Maximum</i>	ASTM D2126	% linear change	0.5
<b>Tensile Strength</b> <i>Minimum</i>	ASTM D1623	kPa (psi)	103 (15)

<sup>1</sup> **EnerSpan EFS** material properties as per CAN/ULC-S701, **Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering**, are third party certified under a quality listing program administered by Intertek. Intertek Code Compliance Research Report CCRR-1033 confirms compliance with the National Building Code of Canada 2010 and 2015.

<sup>2</sup> Values are minimum per 25-mm (1-inch) of thickness at mean temperature of 24 °C (75 °F).

<sup>3</sup> Values are maximum for 25-mm (1-inch) thick samples with natural skins intact. Lower values will result for thicker materials.

<sup>4</sup> The water absorption laboratory test method involves complete submersion under a head of water for 96 hours. The water absorption value above is applicable to specific end-use design requirements only to the extent that the intended end-use conditions are similar to test method requirements.

The dimensions, dimensional tolerances and block aging requirement for **EnerSpan EFS** insulation meet requirements specified in CAN/ULC-S701, **ANNEX A – Expanded Polystyrene (EPS) Thermal Insulation Requirements For Use In Exterior Insulation and Finish Systems (EIFS)** as detailed in Tables 2 and 3 below.

**Table 2 - Dimensions and Dimensional Tolerances**

CAN/ULC-S701, Annex A – Standard Dimensions		
Length	1219.2 mm (48)	
Width	609.6 mm (24 inches)	
Thickness	19.1 to 127.0 mm (3/4 to 5 inches)	
CAN/ULC-S701, Annex A – Dimensional Tolerances		
Length	±1.6 mm (±1/16 inch)	
Width	±1.6 mm (±1/16 inch)	
Thickness	19.1 to 25.4 (3/4 to 1 inch)	-0/+1.6 mm (-0/+1/16 inch)
	>25.4 to 127.0 mm (>1 to 5 inch)	±1.6 mm (±1/16 inch)
Squareness	When measured on the large flat face from one corner to the opposing corner, dimensional variations shall not exceed 0.8 mm (1/32 in.) in 305 mm (12 in.)	
Edge Trueness	When measured with a straight edge, edges shall not deviate more than 0.8 mm (1/32 in.) in 305 mm (12 inch)	
Face Flatness	When measured across the face with a straight edge, maximum deviation from the straight edge shall not exceed more than 0.8 mm (1/32 in.)	

**Table 3 - Block Aging Requirements Prior to Cutting**

Storage Condition	Average Temperature	Minimum Storage Period
Low Pentane (<4.5% pentane) Raw Materials and Vacuum Mould Technology		
Plant Aging	Ambient Temperature 20 °C (68 °F) and RH	12 Days
Full Pentane (nominal 6% pentane) Raw Materials and Vacuum Mould Technology		
Plant Aging	Ambient Temperature 20 °C (68 °F) and RH	18 Days
Full Pentane (nominal 6% pentane) Raw Materials and Non-Vacuum Mould Technology		
Plant Aging	Ambient Temperature 20 °C (68 °F) and RH	42 Days
Heat Aging	Elevated Temperature 60 °C (140 °F)	5 Days

The flame spread rating and smoke developed classification for **EnerSpan EFS** insulation is determined in accordance with CAN/ULC-S102.2-M as per **National Building Code of Canada** 2010 and 2015. Flame spread rating and smoke developed classification as per Table 4 are third party certified under a quality listing program administered by Intertek Testing Services.

**Table 4 - Flame-Spread Rating and Smoke Developed Classification**

Material Properties	CAN/ULC-S102.2
Flame Spread Rating	220
Smoke Developed Classification	Over 500