

## GacoOnePass F1850 CLOSED CELL SPRAY FOAM INSULATION

### DESCRIPTION

GacoOnePass F1850 is a two component HFC-blown (zero ozone-depleting) liquid spray system that cures to a medium-density rigid cellular polyurethane insulation material. GacoOnePass F1850 contains polyols derived from naturally renewable oils, post-consumer recycled plastics, and pre-consumer recycled materials.

GacoOnePass F1850 is a Class A (Class 1) fire rated foam that meets or exceeds the requirements of ICC-ES AC377 *Acceptance Criteria for Foam Plastic Insulation*. See Intertek *Code Compliance Research Report CCRR-1043* for code compliant application information. GacoOnePass F1850 is a Type II foam in accordance with ASTM C1029.

GacoOnePass F1850 is designed to be installed in up 5½" (139.7 mm) passes when installation instructions are followed. This closed cell foam is designed to provide: excellent thermal performance; air impermeable insulation; and, an integral part of an air barrier assembly. Unprotected trade workers can safely reenter sprayed work areas **one hour** following application of Gaco 1850 SPF formulations – given adequate ventilation.

### RECOMMENDED USES

GacoOnePass F1850 will provide excellent performance in a wide range of residential, commercial and industrial applications where in service temperatures are between -40 °F and 200 °F (-40 °C and 93 °C) including:

Walls	Attics	Concrete Slabs	Cold Storage	Storage Tanks
Ceilings	Crawlspaces	Residential Ducts	Freezers	Flotation
Floors	Foundations	Plenums	Piping	Industrial Applications

GacoOnePass is FEMA Class 5, the highest rating for flood-resistant materials.

### PHYSICAL PROPERTIES

The following physical property tests were conducted by independent certified laboratories with traceable samples in accordance ICC-ES AC377 and ASTM C1029 for Type II foam and ABAA D-115-010 for Air Barrier Materials and Assemblies.

PROPERTY*	ASTM TEST	VALUE	UNIT
Core Density	D1622	2.1 ± 10%	lb/ft³
Aged R-Value **	C518	R 6.5 at 1" (25.4 mm)***	h·ft²·°F/Btu
	C518	R 25 at 3.5" (90 mm)***	h·ft²·°F/Btu
Compressive Strength (Parallel to Rise)	D1621	28.5	psi
Tensile Strength	D1623	39.7	psi
Water Vapor Permeance	E96 – Method A	0.44	perm-in
Dimensional Stability	D2126	L=5.2%, W=1.1%, T=8.5%	% linear change
At 158 °F (70 °C) and 97% RH		L=-0.3%, W=-0.2%, T=-0.5%	% linear change
At 176 °F (80°C) and ambient RH		L=0.2%, W=0.2%, T=1.7%	% linear change
At -4 °F (-20 °C) and ambient RH			
Open Cell Content	D6226	4.4	%
Air Permeance @ 75Pa (Infiltration/Exfiltration)	E2178	0.00 at 1" (25.4 mm)	L/s·m²
Air Barrier Assembly @ 75Pa (Infiltration/Exfiltration)	E2357	0.007 at 1" (25.4 mm)	L/s·m²
Crack Bridging @ -15 °F (-26 °C)	C1305	Pass	No-cracking
Water Absorption 96 hours, 2" (50.8 mm) head, 70-74 °F (21-23 °C)	D2842	2.76	% by volume



PROPERTY*	ASTM TEST	VALUE	UNIT
Water Absorption	C1763	0.21	% by volume
Water Resistive Barrier	ICC-ES AC71, AATCC Method 127	Pass	
UV Weathering	AC71	Pass	No blistering or delamination
Accelerated Aging	AC71	Pass	No blistering or delamination
Hydrostatic Pressure – 55 cm (21.6") water column	AATCC Method 127	Pass	No water leakage
Pull Adhesion			
DensDeck	D4541	39	psi
Concrete	D4541	48	psi
OSB	D4541	43	psi
Fungi Resistance	C1338	Pass	no growth
Hot Surface Performance	C411	Pass	No flaming, charring, or smoldering
VOC Emissions	UL GREENGUARD	Pass	No harmful effects
	UL GREENGUARD Gold	Pass	No harmful effects

\* These items are provided for general information.

\*\* Federal Trade Commission regulations published in the Federal Register 16 CFR Part 460 require that R value testing of polyurethane foam insulation must be conducted on aged samples at a 75 °F (24 °C) mean test temperature. Failure to comply can result in substantial fines by the FTC.

\*\*\* To determine R values for thickness not listed: a. between 1" (25.4 mm) and 3.5" (90 mm) can be determined through linear interpolation; or, b. greater than 3.5" (90 mm) can be calculated based on R 7.2/inch

Gaco requires uniform ventilation of the immediate and adjacent work areas at a minimum of 10 air exchanges per hour. Once spraying is completed and for 1 hour following, ventilation should continue at this minimum (10ach) rate. It is then recommend ensuring passive ventilation (overnight) by opening a window on each level of the structure in the vicinity of the spray installations.

### **SURFACE BURNING CHARACTERISTICS**

GacoOnePass F1850 meets Class A (Class 1) requirements when tested in accordance with ASTM E84 (UL 723) as defined in NFPA 101 and Section 803 of the International Building Code (2009, 2012, 2015).

SYSTEM	FLAME SPREAD INDEX	SMOKE DEVELOPED INDEX
GacoOnePass F1850 <sup>1</sup>	5	350

<sup>1</sup> Sample tested at 4" (10.2 cm) thickness. May be installed at unlimited thicknesses when covered with ½" (12.7 mm) gypsum board.

### **LARGE SCALE FIRE TESTING**

TEST	PERFORMANCE	LOCATION	FOAM THICKNESS / COATING
AC377	Ignition Barrier	Vertical surfaces	Up to 8" (20.3 cm) / No Coating Required
		Horizontal or sloped surfaces	Up to 10" (25.4 cm) / No Coating Required
NFPA 286	Thermal Barrier	Vertical surfaces	Up to 7.5" (19.1 cm) / DC315-18 mil wet
		Horizontal or sloped surfaces	Up to 9.5" (24.1 cm) / DC315-18 mil wet
NFPA 286	Thermal Barrier	Vertical surfaces	Up to 7.5" (19.1 cm) / TPR <sup>2</sup> Fireshell F10E/TB-18 mil wet
		Horizontal or sloped surfaces	Up to 11.25" (24.1 cm) / TPR <sup>2</sup> Fireshell F10E/TB-18 mil wet

GacoOnePass F1850 meets or exceeds the IBC requirements for exterior walls in type I, II, III, IV and V construction. This includes NFPA 285 and NFPA 259 testing with Intertek Listings (GWL/FIP 30-02, GWL/FIP 30-01).

### **VAPOR RETARDER**

GacoOnePass F1850 meets the requirement of one perm or less for a Class II vapor retarder per the International Code Council and ASHRAE when installed at 0.44" (11.18 mm) in depth. However, minimum installed thickness recommended by Gaco Western is 0.75" (19.1 mm). Water vapor permeability at various thicknesses is provided below:

Thickness	WVP	Thickness	WVP
0.44" (11.2 mm)	1.00 perms	3" (76.2 mm)	0.15 perms
1" (25.4 mm)	0.44 perms	4" (101.6 mm)	0.11 perms
2" (50.8 mm)	0.22 perms		



**AIR BARRIER PERFORMANCE**

GacoOnePass F1850 is an air impermeable insulation and an air barrier material based on testing in accordance with ASTM E2178 at 1" (25.4 mm) depth or more and has passed air barrier assembly testing in accordance with ASTM E2357 and has been evaluated by the Air Barrier Association of America in accordance with ABAA D-115-010.

**INDOOR AIR QUALITY**

GacoOnePass F1850 is a low VOC emitting material and is GREENGUARD Gold Certified (29167-410, 29167-420) (formerly known as GREENGUARD Children & Schools Certification) by UL Environment. This program demands strict certification criteria and considers safety factors to account for sensitive individuals (such as children and the elderly), and ensures that a product is acceptable for use in environments such as schools and healthcare facilities. It is referenced by both the Collaborative for High Performance Schools (CHPS) and the Leadership in Energy and Environmental Design (LEED) Building Rating System.

**FLOTATION PERFORMANCE**

GacoOnePass F1850 meets the requirements of US Coast Guard requirement for flotation materials for both bilge and engine room applications in accordance with Code of US Regulations, Navigation and Navigable Waters Article §183.114 by testing from an independent laboratory.

**LEED INFORMATION**

GacoOnePass F1850 has a minimum of 9.7% recycled content based on weight, including 1.8% pre-consumer material and 7.9% post-consumer material. It contains 8.5% rapidly renewable content. GacoOnePass F1850 raw materials are blended in Waukesha, WI. Actual polyurethane foam end product production is done on-site by the applicator.

**TYPICAL LIQUID CHEMICAL PROPERTIES**

"A" Component contains polymeric isocyanate. "B" Component contains polyol, catalysts, fire retardants, surfactants and blowing agents.

PROPERTY	TEST TEMPERATURE	ASTM TEST	VALUE	UNIT
Viscosity – "A" Component: Viscosity – "B" Component:	77 °F (25 °C)	D2196	200 ± 50 1080 ± 100	cps cps
Specific Gravity – "A" Component: Specific Gravity – "B" Component:	77 °F (25 °C)	D1638	1.24 1.235	S.G. S.G.
Weight/Gallon – "A" Component: Weight/Gallon – "B" Component:	77 °F (25 °C)	---	10.34 10.3	lb/gal lb/gal
Mixing Ratio – "A" & "B" Component:	---	---	1:1	By volume
Stability When Stored at 50 °F to 70 °F (10 °C to 21 °C):	---	---	A Component – 6 B Component – 6	Months Months

**APPLICATION**

To ensure optimum performance, a min. pass thickness of ¾" (19.1 mm) is recommended with the maximum not to exceed 5½" (139.7 mm) per pass. To obtain optimum results substrate temperature should be within the ranges as stated below. All substrates must be dry at the time of application. Do not apply to wood surfaces with a moisture content of above 18%.

Material	Substrate Temperature
GacoOnePass F1850R	30 °F to 120 °F (-1 °C to 49 °C)
GacoOnePass F1850W	20 °F to 80 °F (-7 °C to 27 °C)

EQUIPMENT SETTINGS	REACTIVITY TIME
Pre-Heaters - Iso (A):	105 °F to 135 °F (41 °C to 57 °C) Cream Time: 1 second
Pre-Heaters - Poly (B):	105 °F to 135 °F (41 °C to 57 °C) Rise Time: 3 - 6 seconds
Hose Heat:	105 °F to 135 °F (41 °C to 57 °C) Tack Free Time: 4 - 8 seconds
Recommended Spray Pressure:	1,000 to 1,200 psi (dynamic) Cure Time: 24 hours

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