



Technical Data Sheet



DEFENDAIR™ 200C Air and Weather Barrier Coating

Water-based silicone, vapor permeable, fluid-applied air and weather barrier

Features & Benefits

- ABAA¹ Evaluated per ABAA S0008 Standard for Air and Water-Resistive Barriers
- Water-based – wet material can be cleaned up using water; no solvents are required
- Long term UV resistance
- High temperature resistance – service temperature range of -20°F to 300°F
- Elastomeric – accommodates building movement
- Seamless – cured membrane is continuous and does not form seams or laps
- Low VOC
- NFPA² Class A fire rating

1. ABAA: Air Barrier Association of America
2. NFPA: National Fire Protection Association

Applications

- Vapor permeable, fluid-applied, air and weather barrier used for new construction and renovation to offer protection from air infiltration and water penetration.

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications. Tested dry-film thickness varies.

DEFENDAIR™ 200C Air and Weather Barrier Coating may be specified as a low-build or medium-build fluid-applied air barrier to be installed at a required minimum total dry-film thickness of 15-mil or 17-mil (0.38 mm or 0.43 mm) on the surface of the substrate.

Test	Property	Unit	Result
ASTM ¹ E2357	Air Leakage Rate – Assembly	cfm/ft ² @ 1.57 psf (L/(s·m ²) @ 75 Pa)	0.0023 (0.0117)
ASTM E2178 (ABAA S0008 § 9.2)	Air Permeance – Material CMU substrate	cfm/ft ² @ 1.57 psf (L/(s·m ²) @ 75 Pa)	0.0002 (0.0011)
ASTM E2178 (ABAA S0008 § 9.3)	Air Permeance – Fastener Gypsum sheathing with 48 #12 SDS fasteners	cfm/ft ² @ 1.57 psf (L/(s·m ²) @ 75 Pa)	0.0005 (0.0025)
ASTM D543, Practice A, Procedure 1 (ABAA S0008 § 9.4)	Alkali Resistance @ pH of 12±0.5	Visual	No visual changes

1. ASTM: American Society of Testing and Materials

Typical Properties (Cont.)

Test	Property	Unit	Result
ASTM D412, Method A, Die C (ABAA S0008 § 9.5)	Elongation	%	669
ASTM D412, Method A, Die C	Tensile Strength	PSI (MPa)	197 (1.36)
ASTM E2485, Method A (ABAA S0008 § 9.6)	Freeze/Thaw Resistance	Visual	No surface changes
ASTM C1338 (ABAA S0008 § 9.7)	Fungi Resistance	%	No growth
ABAA T0004, Type B (ABAA S0008 § 9.8)	Gap Bridging Ability @ -15°F (26°C): Class 1 - 0 inch (0 mm) Class 2 - 1/16 inch (2 mm) Class 3 - 1/8 inch (4 mm) Class 4 - 15/64 inch (6 mm)	Visual	No cracking, splitting, pinholes, or other adverse conditions
ASTM D522 (ABAA S0008 § 9.9)	Low Temperature Flexibility	Visual	No surface changes
ASTM C794 (ABAA S0008 § 9.10)	Peel Adhesion (180 degree) on: DensGlass exterior gypsum sheathing Plywood (APA Exposure 1) CMU (medium density)	PLI (N/mm)	4.5 (0.8) substrate failure 5.7 (1.0) 17.2 (3.0)
ABAA T0002 (ABAA S0008 § 9.11)	Pull Adhesion on: DensGlass exterior gypsum sheathing OSB (APA Exposure 1, smooth side) CMU (medium density)	PSI (MPa)	45 (0.31) 81 (0.56) 143 (0.98)
ASTM E84 (ABAA S0008 § 9.12)	Surface Burning Characteristics	Flame Spread Smoke Development Rating	15 170 NFPA Class A, UBC Class 1
EPA ² Method 24 40 CFR 59.406 SCAQMD Rule 1113	Volatile Organic Content (VOC)	g/L	2 (inclusive) 5 (exclusive)
ASTM C1498 (ABAA S0008 § 9.14)	Water Vapor Absorption by Diffusion	% @ 30% RH % @ 50% RH % @ 98% RH	0.2 0.4 2.8
ASTM D2247 (ABAA S0008 § 9.15)	Water-Resistance in 100% RH	Visual	No color change, no blisters or other visual changes
ASTM E96 (ABAA S0008 § 9.16)	Water Vapor Transmission Rate: Desiccant Method (Procedure A) Water Method (Procedure B)	US Perms (ng/(Pa·s·m ²))	7 (402) @ 18-mil 29 (1660) @ 18-mil
ASTM D2697	Solids Content	% by volume	51
	Color		Charcoal gray

2. EPA: Environmental Protection Agency

Description

DEFENDAIR™ 200C Air and Weather Barrier Coating is a 100% silicone fluid applied air and weather barrier designed to protect against air infiltration and water penetration. The vapor permeable, one-part, water-based coating cures to form a flexible membrane that resists water penetration but has the ability to allow water vapor to escape from inside the substrate.

The coating offers long-term protection from air and water infiltration; normal movement imposed by seasonal thermal contraction and expansion; ultraviolet radiation; and the elements. The coating maintains its water protection properties even when exposed to sunlight, rain, snow, or temperature extremes. There is not a limit on exposure time before being covered by the exterior cladding.

DEFENDAIR™ 200C Air and Weather Barrier Coating may be specified as a low-build or medium-build fluid-applied air barrier to be installed at a required minimum total dry-film thickness of 15-mil or 17-mil (0.38 mm or 0.43 mm) on the surface of the substrate. A minimum total 15-mil (0.38 mm) dry-film thickness on the surface of the substrate is required to qualify for a project-specific warranty.

How to Use

When properly applied and cured, DEFENDAIR™ 200C Air and Weather Barrier Coating supports a fast, easy, and effective method of offering protection from air and water infiltration. This product may settle during prolonged storage, therefore, it is recommended to mix well before using. Do not dilute.

Surface Preparation

All surfaces to be coated with DEFENDAIR™ 200C Air and Weather Barrier Coating must be prepared as described in the most recent Air and Weather Barrier Application Guide (Form No. 63-6945). The following is a short reference guide for surface preparations.

All surfaces must be clean and free of dirt, frost, dust, oil, grease, mold, fungus, efflorescence, laitance, peeling coating, chalking coating, and any other foreign material. Green concrete must be allowed to cure 28 days before application of DEFENDAIR™ 200C Air and Weather Barrier Coating (see "Limitations").

All joints between exterior grade sheathing should be sealed using a sealant listed in Column B of Table 2 in the DEFENDAIR™ 200C Air and Weather Barrier Coating Application Guide (Form No. 63-6945) prior to installing the coating. Static joints may be filled with sealant and tooled flush to the surface. To reduce the amount of sealant used, a backer rod can be inserted into joints greater than 1/4-inch (6.3 mm) prior to applying sealant. Small static sheathing joints, up to 1/8-inch (3.2 mm), may also be sealed by applying sealant over the joint and tooling it approximately 1/2-inch (6.4 mm) onto the adjacent sheathing. In addition, any unused nail holes as well as any countersunk or protruding nails and screws must be sealed (using the same sealant used to seal the joints) and struck flush to the surface of the substrate prior to the installation of DEFENDAIR™ 200C Air and Weather Barrier Coating.

Defects in the substrate can be repaired flush to the surface using the same sealant as used for joints and penetrations or a patching material recommended by the substrate manufacturer. Cementitious patches should be allowed to cure for a minimum of 10 days prior to installing the coating.

How to Use (Cont.)

Installation

DEFENDAIR™ 200C Air and Weather Barrier Coating can be applied using a brush, hand roller, pressure roller, spray roller or airless sprayer as described in the most recent DEFENDAIR™ 200C Air and Weather Barrier Coating Application Guide (Form No. 63-6945). The following is a short reference guide for application.

DEFENDAIR™ 200C Air and Weather Barrier Coating can be applied at ambient air temperatures between 20°F (-6°C) and 100°F (38°C). Do not apply the coating when the relative humidity is greater than 90 percent, or when there is a threat of rain within 8 hours. There is no lower-limit temperature specifically for the substrate, but the surface must remain free of bulk water and frost. Do not apply DEFENDAIR™ 200C Air and Weather Barrier Coating to surfaces above 120°F (49°C).

DEFENDAIR™ 200C Air and Weather Barrier Coating should be roller applied in two coats at 15-mil to 21-mil (0.38 mm to 0.53 mm) wet-film thickness each, depending on the substrate and the desired final dry-film thickness. An additional coat may be necessary to achieve the required minimum total dry-film thickness on porous substrates. DEFENDAIR™ 200C Air and Weather Barrier Coating may also be spray applied, using an airless sprayer, in one coat at 30-mil to 42-mil (0.76 mm to 1.07 mm) wet-film thickness, as long as the coating does not sag and the final dry coating is continuous. Two thinner coats may be necessary if the coating begins to sag or to achieve the required minimum total dry-film thickness on porous substrates. The final dry coating should be continuous.

The total wet-film thickness needed is going to depend on the substrate and the desired final dry-film thickness. A project-specific mockup is recommended to determine the actual wet-film thickness needed which will result in the required minimum total dry-film thickness on the surface of the substrate. Please refer to the DOWSIL™ Silicone Air Barrier System: Tech Talk (63-6947) at BuildaBetterBarrier.com for more information on absorption and estimated wet-film thicknesses on some substrates. It may be possible to utilize DEFENDAIR™ 200 Primer before applying DEFENDAIR™ 200C Air and Weather Barrier Coating to reduce the amount of coating absorbed into the substrate.

The coating may be roller applied using a hand roller, pressure roller or spray roller. Roll apply the coating using a ¾- to 1½-inch (9.5 to 38 mm) nap, polyester or 50/50 polyester/wool blend roller cover. In general, smaller nap lengths are more suitable for smooth substrates. Apply the coating in a fan (W-) pattern to achieve uniform thickness. If applying using a pressure roller, low air pressure is needed to pump the material to the roller head. Pull the application trigger often to apply more material to the roller. There is too much material being applied in one coat when the roller slides instead of rolling. When applying the coating with a sprayer, a minimum 0.021-inch (0.53 mm) tip is recommended. The optimal tip sizes range from 0.025-inch to 0.031-inch (0.64 mm to 0.79 mm). The larger the tip size, the more pressure will be required to spray. Sufficient pump pressure should be used to obtain an even spray pattern.

Allow the coating to dry (typically 2 to 4 hours) before applying additional coats. After the final coat has been applied, the average drying time is 4 to 12 hours, depending upon temperature, humidity, and wind conditions. DEFENDAIR™ 200C Air and Weather Barrier Coating requires temperatures higher than 20°F (-6°C) for a cumulative total of 24 hours to dry. When the temperatures are consistently below 40°F (4°C), allow the coating to dry a minimum of three days prior to applying other materials to the surface of the air barrier. The coating will attain full adhesion and physical properties in 7 to 14 days.

How to Use (Cont.)

Installation (Cont.)

Refer to the DEFENDAIR™ 200C Air and Weather Barrier Coating Application Guide to determine if adhesion testing or a primer is required for your specific substrate.

Low Temperature Application

DEFENDAIR™ 200C Air and Weather Barrier Coating can be applied at temperatures as low as 20°F (-6°C). The coating may freeze on the surface until dry. This will not affect the cured properties of the air barrier but will extend the drying time. During cold temperature installations, the coating may start to freeze around the outer edges of the pail but the inner unfrozen material can still be applied.

Roller application of the air barrier at low temperature will require two coats. The coating should “dry to touch,” not simply freeze, between coats. Application equipment such as rollers and the tips of spraying equipment should be kept above 32°F (0°C) when not in use.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life and Storage

Protect DEFENDAIR™ 200C Air and Weather Barrier Coating and DEFENDAIR™ 200 Primer from freezing. Store in a cool, dry place out of the weather. When properly stored in its original, unopened container above 34°F (1°C) and below 90°F (32°C), DEFENDAIR™ 200C Air and Weather Barrier Coating and DEFENDAIR™ 200 Primer have shelf lives from date of manufacture of 12 months and 18 months, respectively. Refer to product packaging for Use by Date.

If DEFENDAIR™ 200C Air and Weather Barrier Coating freezes during storage, allow the material to thaw before application.

Packaging Information

DEFENDAIR™ 200C Air and Weather Barrier Coating is available in 4.9 gal (18 L) pails (44 lb [20 kg]) and 50.5 gal (191 L) drums (459 lb [208 kg]). DEFENDAIR™ 200C Air and Weather Barrier Coating is supplied in charcoal gray.

Limitations

DEFENDAIR™ 200C Air and Weather Barrier Coating should not be applied:

- On horizontal surfaces that may be subjected to ponding water or subjected to pedestrian traffic.
- When there is a threat of rain within the next 8 hours or the relative humidity is in excess of 90 percent (because conditions would not permit complete surface drying)
- As a roof coating or in below-grade applications
- On newly applied or green cementitious materials; industry guidelines recommend at least 28 days cure before painting or coating the substrates (see SSPC, 2010 Painting Manual, Chapter 3.1. Concrete Surface Preparation)

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

dow.com

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