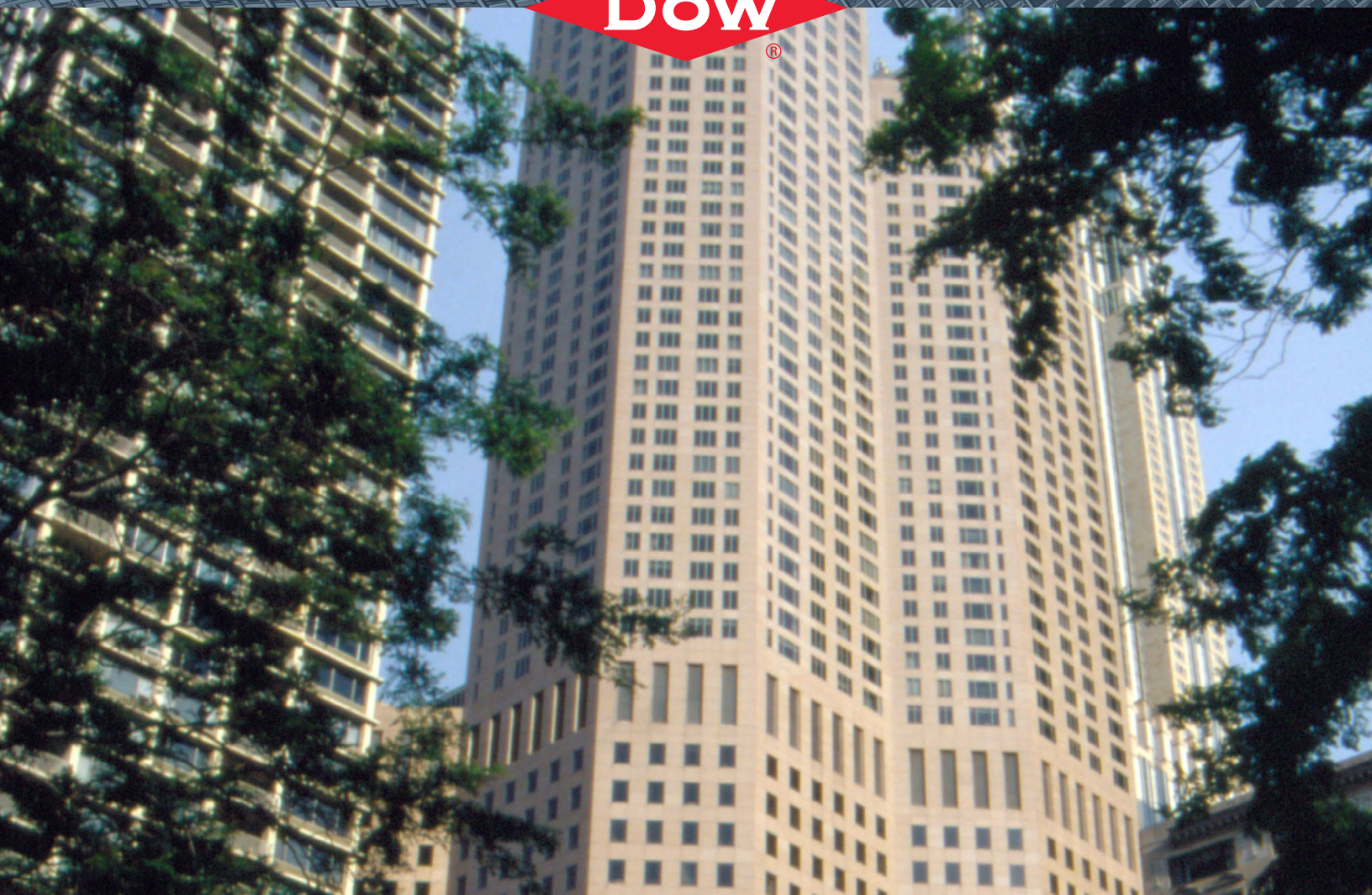
BUILDING SCIENCE

Dow Substitution

Request Package



Dow Substitution Request
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Technical Data Sheet

DEFENDAIR™ 200C Air and Weather Barrier Coating

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

Features & Benefits

- ABAA[1] 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
- NFPA[2] 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·m²))	 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 ⅜- 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 Barring 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

Form No. 62-6925-01-0124 S2D

June 1, 2024

Attention: Dow Silicones Corporation Customer

RE: Certification for: **DEFENDAIR™ 200C Air and Weather Barrier Coating**

DEFENDAIR™ 200C Air and Weather Barrier Coating is a water-based, 100% silicone, fluid-applied, vapor-permeable, air and weather barrier offering high temperature resistance, long term UV resistance, ease of application and it has been ABAA Evaluated per ABAA S0008 Standard for Air and Water-Resistive Barriers.

Typical properties include:

Test	Property	Unit	Result
ASTM E2178	Air Permeance – over CMU	cfm/ft^2	<0.0002 @ 1.57 psf
ASTM E2178	Air Permeance – over gypsum sheathing with 48#12 SDS fasteners	cfm/ft^2	<0.0005 @ 1.57 psf
ASTM E2357	Assembly Air Leakage	cfm/ft^2	<0.0023 @ 1.57 psf
ASTM E96	Water Vapor Permeance Procedure A Procedure B	US Perms	 7 29
ASTM E84	Flame Spread Smoke Developed Rating		15 170 NFPA Class A, UBC Class 1
ASTM T0002	Pull Adhesion DensGlass exterior gypsum sheathing OSB (APA Exposure 1, smooth side) CMU (medium density)	psi	 45 81 143
ASTM D412	Tensile Strength Elongation	psi %	197 669

On behalf of Dow, we appreciate your business and your commitment to silicone technology. If you have any further questions, please feel free to contact us at **dow.com/contactus**.

Sincerely,

Dow Silicones Corporation
Technical Customer Service, Building & Infrastructure
dow.com/contactus

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DOWSIL™
silicones by DOW

April 1, 2024

Attention: Dow Silicones Corporation Customer

RE: **Cold Weather Application of DEFENDAIR™ 200C Air and Weather Barrier Coating**

The purpose of this letter is to address the cold weather installation of DEFENDAIR™ 200C Air and Weather Barrier Coating.

Substrate Preparation

When applying primer or coating at temperatures below the dew and frost point, 40°F / 4°C and lower, the surfaces must be clean, dry and frost-free.

Coating should not be installed immediately following or in anticipation of rain or snowfall. If unexpected snow or rain occurs, note it in the project log so field testing can be done on the potentially affected areas approximately 3 to 7 days later. Please refer to the application guide for additional instructions.

An open flame is not recommended to dry the substrate. This may leave hydrocarbon deposits and excess moisture on the surface that can impede adhesion. Also do not dry the joints or substrate surfaces with a heater or blow dryer. Heating can cause moisture condensation to occur on the substrate once it cools. A moisture meter should be used to assure the substrates are dry before coating with DEFENDAIR™ 200C Air and Weather Barrier Coating; a control sample can be kept in the job office for reference if there are any questions.

DEFENDAIR™ 200C Air and Weather Barrier Coating is a water-based coating containing an additive that allows the coating, as well as the primer (where needed), to be applied in cold weather temperatures as low as 20°F (6°C). In cold temperatures the observed drying rate may be slower.

Cold Weather Application – Low Temperature Application Limit

DOWSIL™ DEFENDAIR 200 Primer	20° F (-6° C)
DEFENDAIR™ 200C Air and Weather Barrier Coating	20° F (-6° C)

On behalf of Dow, we appreciate your business and your commitment to silicone technology. If you have any further questions, please feel free to contact us.

Sincerely,
Dow Silicones Corporation
Technical Customer Service, Building & Infrastructure
dow.com/contact

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DOWSIL™
silicones by DOW

2000024823-7220

Form No. 63-7084-01-0424 S2D

June 1, 2024

Attention: Dow Silicones Corporation Customer

RE: **Cold Weather Application of Dow Silicone Sealants**

The purpose of this letter is to address the cold weather installation of DOWSIL™ silicone building sealants.

Substrate Preparation

When caulking at temperatures below the dew and frost point, 40°F / 4°C and lower, the surfaces must be clean, dry and frost-free.

No sealant should be installed immediately following or in anticipation of rain or snowfall. If unexpected snow or rain occurs, note it in the project log so field testing can be done on the potentially affected areas approximately two weeks later.

An open flame is not recommended to dry the joints. This may leave hydrocarbon deposits and excess moisture on the surface that can impede adhesion. Do not dry the joints with a heater or blow dryer. Heating can cause moisture condensation to occur on metal once it cools. A moisture meter should be used to assure the substrates are dry before caulking; a control sample can be kept in the job office for reference if there are any questions.

Isopropanol alcohol (IPA) and methylethylketone (MEK) are water soluble and may be more appropriate for winter cleaning, as they help in removing condensation and frost.

DOWSIL™ Silicone Building Sealants are not water based, so freezing temperatures above the limits given in the chart below will not cause the sealants to thicken excessively. This characteristic allows the sealants to be applied in cold weather.

In cold temperatures the cure rate may be slower because colder temperatures generally have lower humidity levels. DOWSIL™ one-part sealants require moisture in the atmosphere to cure. The sealants will ultimately cure to the same physical properties as they do when applied in warmer temperatures.

Cold Weather Application – Low Temperature Application Limit

DOWSIL™ 790 Silicone Building Sealant -20° F (-29° C)
DOWSIL™ 791 Silicone Weatherproofing Sealant -20° F (-29° C)
DOWSIL™ 795 Silicone Building Sealant -20° F (-29° C)
DOWSIL™ 995 Silicone Structural Sealant -20° F (-29° C)
DOWSIL™ 756 SM Building Sealant -20° F (-29° C)
DOWSIL™ 758 Silicone Weather Barrier Sealant -20° F (-29° C)

On behalf of Dow, we appreciate your business and your commitment to silicone technology. If you have any further questions, please feel free to contact us.

Sincerely,

Dow Silicones Corporation
Technical Customer Service, Building & Infrastructure
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2000024823-7266

Form No. 63-6171-01-0424 S2D

DEFENDAIR™ 200C AIR AND WEATHER BARRIER COATING LIMITED WARRANTY

10Project
Project Name:
Project Address:

Dow Silicones Corporation

(hereafter referred to as "DOW")

Warranty Recipient / Contractor

Building Owner

Applicable terms and conditions on the following pages.

DEFENDAIR™ 200C AIR AND WEATHER BARRIER COATING LIMITED WARRANTY

Warranty Number:

Warranty Effective Date:

Warranty Duration: a period of time equal to 10 years from the Warranty Effective Date
hereafter referred to as "Warranty Duration Period"

DOWSIL™ Product(s):

hereafter referred to as "DOWSIL™ Product"

Thank you for selecting DOWSIL™ brand silicone products for your project.

When tested and installed as set forth in Section A below, DOW warrants to you, the Building Owner, that the DOWSIL™ Product will meet air infiltration performance standards pursuant to ASTM E 2178 as that standard is published (www.ASTM.org) at the time of installation and will provide through-water penetration protection when properly applied to sound surfaces for the Warranty Duration Period from the Warranty Effective Date.

A. GENERAL REQUIREMENTS

This Warranty is conditioned in its entirety, upon the Building Owner, in its sole responsiblility, ensuring the following:

a. The DOWSIL™ Product is applied in strict compliance with Dow Corning's published or electronic recommended application procedures, and in accordance with any project specific recommendations from DOW.
b. The DOWSIL™ Product is used with compatible materials and substrates
c. The DOWSIL™ Product is applied within its stated shelf life.
d. Field adhesion tests are made, documented, retained and submitted to DOW upon written request as outlined in the DOW Air Barrier Application Guide in order to confirm adhesion under site conditions.

B. LIMITATIONS

This Warranty specifically excludes failure of the product due to:

a. Faults attributable to workmanship including but not limited to (improper surface preparation, use of non-approved materials, insufficient coating thickness, or deviation from DOW recommended application procedures).

b. Natural causes including but not limited to lightning, earthquake, hurricane, flooding, tornado, and fire.
c. Improper installation.
d. Movement of the structure resulting in stresses on the product which exceed DOW's published specifications for elongation and/or compression for the DOWSIL™ Product, including but not limited to structural settlement, design error, or construction error.
e. Use on single-family residential structures.

And does not cover damage to, or failure of, the coating due to:

a. Disintegration, deterioration, or failure of the underlying substrates (including but not limited to cracking, blistering, peeling, structural defects, faulty construction materials, or building joints requiring caulking, sealing, or repointing).
b. Mechanical damage caused by, including but not limited to, surface abrasion, individuals, tools, vandalism, or other outside agents.
c. Changes in the appearance of the coating including but not limited to: natural weathering (whitening, chalking, fading, staining), the accumulation of dirt or other contaminants deposited on the coating from the atmosphere, or from incompatible substrates.

This Warranty excludes costs and damages attributed to mold, mildew and/or fungus.

The Warranty also specifically excludes costs and damages resulting from the presence of any hazardous materials in the existing sealants, coatings, substrates, or the environment/location in which the DOWSIL™ Product is installed or applied, including but not limited to:

a. Establishing appropriate safe handling procedures for the removal of sealants and/or coatings.
b. Removal or disposal of the existing sealants and/or coatings.
c. Removal or disposal of the DOWSIL™ Product after installation.

The DOWSIL™ Product is not intended for encapsulating any hazardous materials.

This Warranty will be null and void if DOW or the DOW distributor, as applicable, has not received payments for the products used.

REMEDIES

In the event of a claim under this Warranty, you must notify DOW within 30 days of the claimed defect and provide DOW with the opportunity to inspect. DOW shall, for the Warranty Duration Period from the Warranty Effective Date, be responsible for the cost of replacement product to make any warranty-related repairs.

DOW SHALL NOT BE LIABLE FOR AND EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY DAMAGE TO THE CONTENTS OF THE STRUCTURE OR FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGE, WHETHER IN CONTRACT OR IN TORT, INCLUDING NEGLIGENCE.

DEFENDAIR™ 200C AIR AND WEATHER BARRIER COATING LIMITED WARRANTY

THIS WARRANTY SUPERSEDES ALL OTHER WRITTEN OR ORAL, EXPRESS OR IMPLIED WARRANTIES AND DOW SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

This Warranty agreement is governed by and construed in accordance with Michigan law.

Transfer of this Warranty to a new building owner may be made only upon the prior written consent of DOW to the new building owner. DOW must be satisfied in its sole discretion that the intended use of the structure by the new owner will not cause detriment to the DOWSIL™ Product. If these conditions are not met, then this Warranty will be rendered null and void.

The DOWSIL™ Product is sold to you upon and subject to DOW's standard Terms and Conditions of Sale or supply agreement, as applicable (collectively, the "Standard Terms"). However, to the extent there may be a conflict between the terms of any warranty in the Standard Terms and the provisions of this Warranty, the provisions of this Warranty shall prevail. This Warranty may be modified only in writing signed by both parties.

This Warranty is not effective unless signed by Dow Silicones Corporation.

For questions on this or any other warranty you have with Dow Silicones Corporation, please contact the Warranty Administration Department at construction.warranty@dow.com.

June 1, 2024

Attention: Dow Silicones Corporation Customer

RE: **DEFENDAIR™ 200C Air and Weather Barrier Coating**

Thank you for your inquiry regarding the above referenced products and its LEED information.

The following information is provided in response to your inquiry:

- DOWSIL™ 200C Air and Weather Barrier Coating is manufactured Dow Elizabethtown Plant, 760 Hodgenville Road, Elizabethtown, KY 42701, USA.
- Extraction for its raw materials are completed at various locations.
- DOWSIL™ 200C Air and Weather Barrier Coating contains 0% pre-& post-consumer recycled materials.
- Rapidly renewable content is not applicable.
- DOWSIL™ 200C Air and Weather Barrier Coating doesn't contain Urea Formaldehyde.
- VOC content is 5 g/L (based on SCAQMD Rule 1113).
  - VOC limit is 50 g/L per CARB 2007 SCM (flat coatings) and SCAQMD Rule 1113, amended February 5, 2016, effective date 1/1/19 (building envelope coating).
  - LEED VOC content criteria only applies to exterior applied products for LEED v4 Healthcare and School projects.

On behalf of Dow, we appreciate your business and your commitment to silicone technology. If you have any further questions, please feel free to contact us at **dow.com/contactus**.

Sincerely,

Dow Silicones Corporation
Technical Customer Service, Building & Infrastructure
dow.com/contactus

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silicones by DOW

2000024823-7220

Form No. 63-6921-01-0624 S2D

SAFETY DATA SHEET
THE DOW CHEMICAL COMPANY

Product name: DEFENDAIR™ 200C Air & Weather Barrier Coating

Issue Date: 05/31/2024

Print Date: 06/01/2024

THE DOW CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: DEFENDAIR™ 200C Air & Weather Barrier Coating

Recommended use of the chemical and restrictions on use
Identified uses: Impregnation agents Coatings

COMPANY IDENTIFICATION
THE DOW CHEMICAL COMPANY
2211 H.H. DOW WAY
MIDLAND MI 48674
UNITED STATES

Customer Information Number: 800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: CHEMTREC +1 800-424-9300
Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification
GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)
Eye irritation - Category 2A
Reproductive toxicity - Category 2

Label elements
Hazard pictograms

Signal word: **WARNING!**

Hazards

Causes serious eye irritation.

Suspected of damaging fertility or the unborn child.

Precautionary statements

Prevention

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves, protective clothing, eye protection and/or face protection.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice and/or attention.
If eye irritation persists: Get medical advice and/or attention.

Storage

Store locked up.

Disposal

Dispose of contents and/or container to an approved waste disposal plant.

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Silicone elastomer
This product is a mixture.

Component	CASRN	Concentration
Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-	60828-78-6	>= 1.3 - <= 2.0 %
Propane-1,2-diol	57-55-6	>= 0.6 - <= 1.1 %
Octamethyl Cyclotetrasiloxane	556-67-2	>= 0.03 - <= 0.18 %

4. FIRST AID MEASURES

Description of first aid measures
General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air and keep comfortable for breathing; consult a physician.

Skin contact: Wash off with plenty of water.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Rinse mouth with water. No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed:
Causes serious eye irritation. Suspected of damaging fertility or the unborn child.

Indication of any immediate medical attention and special treatment needed
Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis.

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical. Water spray.

Unsuitable extinguishing media: None known..

Special hazards arising from the substance or mixture

Hazardous combustion products: Silicon oxides. Nitrogen oxides (NOx). Formaldehyde. Carbon oxides. Titanium oxides..

Unusual Fire and Explosion Hazards: Exposure to combustion products may be a hazard to health..

Advice for firefighters

Fire Fighting Procedures: Use water spray to cool unopened containers.. Evacuate area.. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage..
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Remove undamaged containers from fire area if it is safe to do so.

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus.. Use personal protective equipment..

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Do not release the product to the aquatic environment above defined regulatory levels Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Soak up with inert absorbent material. Clean up remaining materials from spill with suitable absorbant. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
See sections: 7, 8, 11, 12 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not get on skin or clothing. Avoid inhalation of vapour or mist. Do not swallow. Do not get in eyes. Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice. CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings even after container is emptied.
Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Conditions for safe storage: Keep in properly labelled containers. Store locked up. Store in accordance with the particular national regulations.

Do not store with the following product types: Strong oxidizing agents.
Unsuitable materials for containers**:** None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
Propane-1,2-diol	US WEEL	TWA	10 mg/m3
Octamethyl Cyclotetrasiloxane	US WEEL	TWA	10 ppm

Exposure controls
Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Natural rubber ("latex"). Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Wear clean, body-covering clothing.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	viscous liquid
Color	grey
Odor	slight
Odor Threshold	No data available
pH	No data available
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point	**closed cup** >100 °C (212 °F)
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not Applicable
Flammability (liquids)	Does not sustain combustion.
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	1.18
Water solubility	No data available

Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	60000 mm2/s at 25 °C (77 °F)
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Can react with strong oxidizing agents.

Conditions to avoid: None known.

Incompatible materials: Avoid contact with oxidizing materials.

Hazardous decomposition products:
Decomposition products can include and are not limited to: Formaldehyde.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data are available.

Information on likely routes of exposure
Inhalation, Eye contact, Skin contact, Ingestion.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

Acute Toxicity Endpoints:
Not classified due to lack of data.

Acute oral toxicity

Information for the Product:

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):

LD50, > 5,000 mg/kg Estimated.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
LD50, Rat, 5,899 mg/kg

Propane-1,2-diol
LD50, Rat, > 20,000 mg/kg

Octamethyl Cyclotetrasiloxane
LD50, Rat, male, > 4,800 mg/kg No deaths occurred at this concentration.

Acute dermal toxicity

Information for the Product:

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, > 2,000 mg/kg Estimated.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
LD50, Rabbit, 4,990 mg/kg

Propane-1,2-diol
LD50, Rabbit, > 2,000 mg/kg No deaths occurred at this concentration.

Octamethyl Cyclotetrasiloxane
LD50, Rat, male and female, > 2,400 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity

Information for the Product:

Brief exposure (minutes) is not likely to cause adverse effects. Vapor from heated material may cause respiratory irritation.

As product: The LC50 has not been determined.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
The LC50 has not been determined.

Propane-1,2-diol

LC50, Rabbit, 2 Hour, dust/mist, 317.042 mg/l No deaths occurred at this concentration.

Octamethyl Cyclotetrasiloxane
LC50, Rat, male and female, 4 Hour, dust/mist, 36 mg/l OECD Test Guideline 403

Skin corrosion/irritation

Not classified due to lack of data.

Information for the Product:

Based on information for component(s):
Brief contact is essentially nonirritating to skin.
Prolonged contact may cause slight skin irritation with local redness.
May cause drying and flaking of the skin.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
Prolonged contact may cause severe skin irritation with local redness and discomfort.
May cause more severe response on covered skin (under clothing, gloves).

Propane-1,2-diol
Prolonged contact is essentially nonirritating to skin.
Repeated contact may cause flaking and softening of skin.

Octamethyl Cyclotetrasiloxane
Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

Causes serious eye irritation.

Information for the Product:

Based on information for component(s):
May cause moderate eye irritation.
May cause moderate corneal injury.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Propane-1,2-diol
May cause slight temporary eye irritation.
Corneal injury is unlikely.
Mist may cause eye irritation.

Octamethyl Cyclotetrasiloxane

Essentially nonirritating to eyes.

Sensitization

For skin sensitization:
Not classified due to lack of data.

For respiratory sensitization:
Not classified due to lack of data.

Information for the Product:

For skin sensitization:
Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

For respiratory sensitization:
No relevant data found.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Propane-1,2-diol
Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:
No relevant data found.

Octamethyl Cyclotetrasiloxane
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Not classified due to lack of data.

Information for the Product:

Available data are inadequate to determine single exposure specific target organ toxicity.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Propane-1,2-diol
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Octamethyl Cyclotetrasiloxane
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Aspiration Hazard

Not classified due to lack of data.

Information for the Product:

Based on physical properties, not likely to be an aspiration hazard.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
Based on physical properties, not likely to be an aspiration hazard.

Propane-1,2-diol
Based on physical properties, not likely to be an aspiration hazard.

Octamethyl Cyclotetrasiloxane
Material is not classified as an aspiration hazard based on insufficient data, however materials with low viscosity may be aspirated into the lungs during ingestion or vomiting.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Not classified due to lack of data.

Information for the Product:

In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.
Contains an additional component(s) that is not expected to be bioavailable due to the physical state of the material under normal handling and processing conditions.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Propane-1,2-diol
In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

Octamethyl Cyclotetrasiloxane
In animals, effects have been reported on the following organs:

Kidney.
Liver.
Respiratory tract.
Female reproductive organs.

Carcinogenicity

Not classified due to lack of data.

Information for the Product:

Contains a component(s) that is/are not expected to be bioavailable due to the physical state of the material under normal handling and processing conditions.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
No relevant data found.

Propane-1,2-diol
Did not cause cancer in laboratory animals.

Octamethyl Cyclotetrasiloxane
Results from a 2 year repeated vapour inhalation exposure study to rats of octamethylcyclotetrasiloxane (D4) indicate effects (benign uterine adenomas) in the uterus of female animals. This finding occurred at the highest exposure dose (700 ppm) only. Studies to date have not demonstrated if these effects occur through pathways that are relevant to humans. Repeated exposure in rats to D4 resulted in protoporphyrin accumulation in the liver. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans is unknown.

Teratogenicity

Suspected of damaging fertility or the unborn child.

Information for the Product:

Contains component(s) which did not cause birth defects or any other fetal effects in lab animals.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
No relevant data found.

Propane-1,2-diol
Did not cause birth defects or any other fetal effects in laboratory animals.

Octamethyl Cyclotetrasiloxane
Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive toxicity

Suspected of damaging fertility or the unborn child.

Information for the Product:

In animal studies on component(s), effects on reproduction were seen only at doses that produced significant toxicity to the parent animals. Contains component(s) which have interfered with fertility in animal studies.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
No relevant data found.

Propane-1,2-diol
In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Octamethyl Cyclotetrasiloxane
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. In animal studies, has been shown to interfere with fertility.

Mutagenicity

Not classified due to lack of data.

Information for the Product:

Contains component(s) which were negative in some in vitro genetic toxicity studies and positive in others. Genetic toxicity studies in animals were negative for component(s) tested.

Information for components:

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-
No relevant data found.

Propane-1,2-diol
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Octamethyl Cyclotetrasiloxane
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data are available.

Toxicity

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, 103 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), static test, 48 Hour, 164.9 mg/l, OECD Test Guideline 202 or Equivalent

Toxicity to bacteria
IC50, Bacteria, 16 Hour, > 1,000 mg/l

Propane-1,2-diol

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, 40,613 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
LC50, Ceriodaphnia dubia (water flea), static test, 48 Hour, 18,340 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate inhibition, 19,000 mg/l, OECD Test Guideline 201

Toxicity to bacteria
NOEC, Pseudomonas putida, 18 Hour, > 20,000 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Ceriodaphnia dubia (water flea), semi-static test, 7 d, number of offspring, 13,020 mg/l

Octamethyl Cyclotetrasiloxane

Acute toxicity to fish
Not expected to be acutely toxic to aquatic organisms.
No toxicity at the limit of solubility
LC50, Oncorhynchus mykiss (rainbow trout), flow-through, 96 Hour, > 0.022 mg/l
No toxicity at the limit of solubility
LC50, Cyprinodon variegatus (sheepshead minnow), flow-through, 14 d, > 0.0063 mg/l

Acute toxicity to aquatic invertebrates
No toxicity at the limit of solubility
EC50, Mysidopsis bahia (opossum shrimp), flow-through test, 96 Hour, > 0.0091 mg/l
No toxicity at the limit of solubility
EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, > 0.015 mg/l

Acute toxicity to algae/aquatic plants
No toxicity at the limit of solubility
ErC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate, > 0.022 mg/l
No toxicity at the limit of solubility
EC10, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate, >= 0.022 mg/l

Chronic toxicity to fish
No toxicity at the limit of solubility
NOEC, Oncorhynchus mykiss (rainbow trout), 93 d, growth, >= 0.0044 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, survival, 0.0079 mg/l

Persistence and degradability

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-

Biodegradability:
Biodegradation under aerobic static laboratory conditions is moderate (BOD20 or BOD28/ThOD between 10 and 40%).

Theoretical Oxygen Demand: 2.2 mg/mg

Chemical Oxygen Demand: 2.05 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
10 d	3 %
20 d	33 %

Propane-1,2-diol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation may occur under anaerobic conditions (in the absence of oxygen).
10-day Window: Pass
Biodegradation: 81 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
10-day Window: Not applicable
Biodegradation: 96 %
Exposure time: 64 d
Method: OECD Test Guideline 306 or Equivalent

Theoretical Oxygen Demand: 1.68 mg/mg

Chemical Oxygen Demand: 1.53 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	69.000 %
10 d	70.000 %
20 d	86.000 %

Photodegradation
Atmospheric half-life: 10 Hour

Method: Estimated.

Octamethyl Cyclotetrasiloxane

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Not applicable
Biodegradation: 3.7 %
Exposure time: 28 d
Method: OECD Test Guideline 310

Stability in Water (1/2-life)
Hydrolysis, DT50, 3.9 d, pH 7, Half-life Temperature 25 °C, OECD Test Guideline 111
Hydrolysis, DT50, 16.7 d, pH 7, Half-life Temperature 12 °C, OECD Test Guideline 111
Hydrolysis, DT50, 0.075 d, pH 4, Half-life Temperature 25 °C, OECD Test Guideline 111

Photodegradation
Atmospheric half-life: 16 d
Method: Estimated.

Bioaccumulative potential

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-

Bioaccumulation: No relevant data found.

Propane-1,2-diol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -1.07 Measured
Bioconcentration factor (BCF): 0.09 Fish Estimated.

Octamethyl Cyclotetrasiloxane

Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).
Partition coefficient: n-octanol/water(log Pow): 6.49 Measured
Bioconcentration factor (BCF): 12,400 Pimephales promelas (fathead minnow) Measured

Mobility in soil

Poly(oxy-1,2-ethanediyl), .alpha.-[3,5-dimethyl-1-(2-methylpropyl)hexyl]-.omega.-hydroxy-

No relevant data found.

Propane-1,2-diol

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Partition coefficient (Koc): < 1 Estimated.

Octamethyl Cyclotetrasiloxane

Partition coefficient (Koc): 16596 OECD Test Guideline 106

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS SECTION 1: Identified Uses. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section 10 Regulatory Information, MSDS Section 15

Treatment and disposal methods of used packaging: Empty containers should be recycled or otherwise disposed of by an approved waste management facility. Waste characterizations and compliance with applicable laws are the responsibility of the waste generator. Do not re-use containers for any purpose.

14. TRANSPORT INFORMATION

DOT

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
Reproductive toxicity
Serious eye damage or eye irritation

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

U.S. Toxic Substances Control Act (TSCA)
A component of this product is subject to a TSCA Polymer Exemption (40 CFR 723.250).

Pennsylvania Right To Know
The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	CASRN
Water	7732-18-5
Dimethyl, methyl ((diethylamino)oxy) siloxane reaction with dimethyl siloxane, hydroxy-terminated	189896-41-1
Limestone	1317-65-3
Silicon dioxide	7631-86-9
Other Components Below Reportable Levels	Not available
Titanium dioxide	13463-67-7
Talc	14807-96-6
Propane-1,2-diol	57-55-6

California Prop. 65
WARNING: This product can expose you to chemicals including Titanium dioxide, 1,4-Dioxane, Ethylene Oxide, Acetaldehyde, which is/are known to the State of California to cause cancer, and Ethylene Oxide, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

United States TSCA Inventory (TSCA)
The product contains an intentional component that is subject to a restriction. Production and/or use is limited by the conditions of the restriction.

16. OTHER INFORMATION

Hazard Rating System
NFPA

Health	Flammability	Instability
2	1	0

HMIS

Health	Flammability	Physical Hazard
2*	1	0

* = Chronic Effects (See Hazards Identification)

Revision
Identification Number: 99152193 / A001 / Issue Date: 05/31/2024 / Version: 4.0

In case this version of the SDS contains significant changes from the previous version, they are listed below. If no significant changes are displayed, then no significant changes occurred.
Changes encompass identification, hazards, tox/eco-tox information and the addition/removal of the ingredients, and regulatory information, hazard information, uses, risk management measures and other key regulatory changes of the product. Detailed explanation of the changes can be obtained upon request.

Legend

TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Full text of other abbreviations
AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

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US

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US

CASE STUDY

100% Silicone, Liquid-Applied Air Barrier Enables Winter Construction Project to Keep Moving Forward

Scheels All Sports Super Store, Overland Park, Kansas, United States

City and country

Overland Park, KS, United States

Products*

DOWSIL™ DefendAir 200

DOWSIL™ 791 Silicone Weatherproofing Sealant

DOWSIL™ 758 Silicone Weather Barrier Sealant

DOWSIL™ AllGuard Silicone Elastomeric Coating

Key participants

- Dow Distributor – MGS Distributing, Omaha, Nebraska
  - Bob Prchal, Building Materials Division Manager
- Architect – R.L. Engebretson, The RLE Group, Fargo, North Dakota
  - Jeff Engebretson, Quality Control
- General contractor – Sampson Construction Company, Inc., Lincoln, Nebraska
  - Scott Brunken, Project Manager
- Air barrier subcontractor – ARID Resources, Omaha, Nebraska
  - Brian Gibson, Operations Manager

*Prior to February 2018, products listed were branded as Dow Corning

The project

When it opens in the summer of 2015, the new Scheels All Sports Super Store in Overland Park, Kansas, promises to deliver a shopping experience "unlike anything the Overland Park retail customer has ever experienced."

The 220,000-square-foot facility will house the state's largest selection of sports-related merchandise. The store also will feature a collection of entertainment venues and special attractions, including a 16,000-gallon aquarium; a wildlife mountain; and a 65-foot, 16-car operating Ferris wheel.

It is the 26th in a chain of Scheels stores stretching across 11 Western and Midwestern states, where climatic conditions are challenging and the need for high-performing air and water barriers is imperative.

The Challenge

To protect the new Scheels store from the cold winters and hot, often humid, summers of eastern Kansas, the building architect, R.L. Engebretson, specified a liquid-applied air barrier. Liquid-applied air barriers are flexible, breathable, seamless and trouble-free to apply. This generally makes them an excellent choice for building owners and applicators alike.

Unfortunately, most liquid-applied air barriers cannot be applied at low temperatures – a limitation that can bring winter construction projects to a halt.

This was the situation air barrier subcontractor ARID Resources faced when temperatures at the Overland Park construction site threatened to dip below the specified air barrier's application temperature limit.

The Solution

Brian Gibson of ARID Resources learned from Bob Prchal at MGS Distributing about a unique 100% silicone, liquid-applied air and water barrier – DOWSIL™ DefendAir 200 – that could be applied at temperatures as low as 20°F (-7°C).

Impressed by the product's capabilities, Gibson worked with Prchal and Scott Brunken, Project Manager for general contractor Sampson Construction Company, to propose a change to the original air barrier specification.

Jeff Engebretson, who is responsible for quality control at R.L. Engebretson, immediately recognized the benefits of DOWSIL™ DefendAir 200 for Scheels projects across the country and was happy to revise the specification.

DOWSIL™

silicones by DOW

About DOWSIL™ DefendAir 200 and the DOWSIL™ Silicone Air Barrier System

DOWSIL™ DefendAir 200 is a one-part, liquid-applied elastomeric coating that cures to form a flexible, vapor-permeable membrane.

It is the only water-based silicone air barrier complemented by a fully compatible system.

Advantages include:

- Airtight performance exceeding industry standards
- Long-term UV resistance
- Passes NFPA 285 assembly testing
- A complete offering of compatible accessory materials
- Vapor-permeable and breathable
- One-coat spray application; also may be roller-applied
- Water-based, low-VOC formulation
- Can be applied at temperatures as low as 20°F (-6°C)
- Primerless adhesion

DOWSIL™ DefendAir 200 was applied to the building's GlasRoc Sheathing and concrete block substrates using an airless sprayer. Thanks to the product's excellent unprimed adhesion to most common construction materials, no primer was required.

High Vapor-Permeability Plus Low-Temperature Application

"I've spent more than 60 hours researching air barriers," Engebretson said. "DOWSIL™ DefendAir 200 has one of the highest perm rates out there, combined with the lowest application temperature. That makes it an excellent choice for our cold-weather construction projects."

According to Prchal, everyone from the general contractor and the air barrier subcontractor to the building owner's representative was excited about the benefits DOWSIL™ DefendAir 200 had to offer.

Ease Of Installation

The contractors especially appreciated how easy the air barrier was to apply and how simple it was to detail.

"The simplicity of the details is phenomenal," Prchal said. "Nearly all of the detail work, including sealing the joints in the GlasRoc Sheathing and around the building openings, was accomplished using just two sealants – DOWSIL™ 791 Silicone Weatherproofing Sealant and DOWSIL™ 758 Silicone Weather Barrier Sealant."

According to Gibson, DOWSIL™ DefendAir 200 "is easier to apply in Midwest winters than any other product we've seen. And the Dow distributor was on-site on a regular basis to help us with field adhesion testing and wet-film testing and to answer any questions we had about the product."

The Result

A total of 65,000 square feet of DOWSIL™ DefendAir 200 was applied to the GlasRoc Sheathing and concrete block substrates on the Overland Park Scheels store.

Construction continued to move forward during the winter months.

And DOWSIL™ DefendAir 200 is now approved for use on all future Scheels stores.

For more information

Learn more about Dow's full range of High Performance Building solutions by visiting us online at **dow.com/buildingscience.**

Dow has sales offices, manufacturing sites and science and technology laboratories around the globe. Find local contact information at **dow.com/contactus.**

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dow.com/buildingscience

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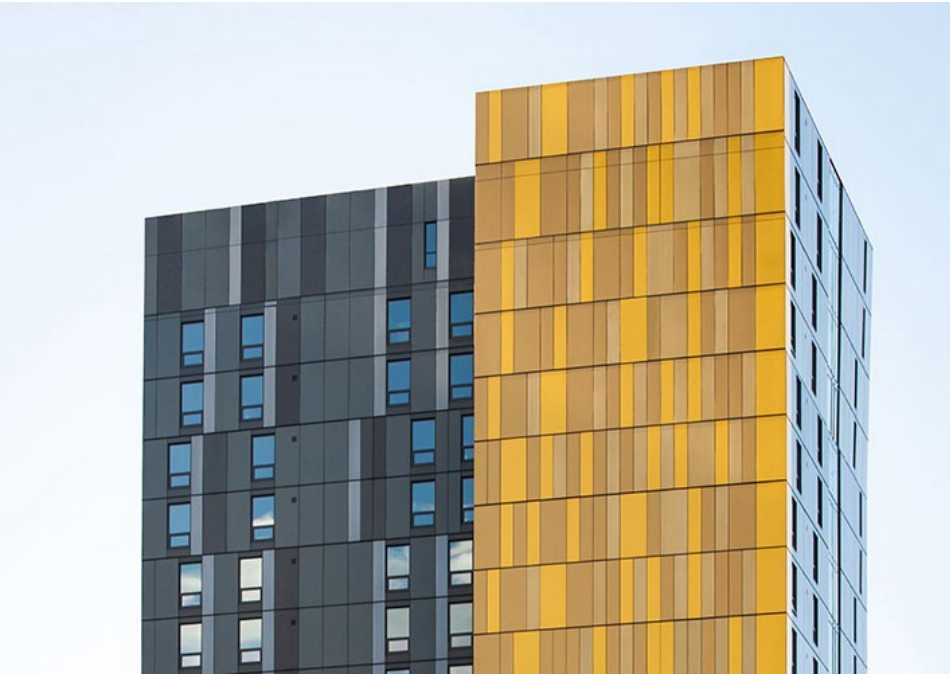
CASE STUDY

All-silicone product solutions simplify installation, enhance productivity

CORNISH COMMONS, CORNISH COLLEGE OF THE ARTS, SEATTLE, WASHINGTON



A premier college for the visual and performing arts, Cornish College of the Arts' main campus is located in Seattle's popular South Lake Union neighborhood, where the 20-story Cornish Commons opened in 2015.

The new residence hall and academic building includes a unique rainscreen design featuring 3/16" thick architectural aluminum cladding on cold-form framing. The innovative building design boasts thermal performance 40% better than required by current Seattle Building Code.

The challenge

To achieve its ambitious thermal performance, the rainscreen design includes 2" continuous R-8 exterior insulation to supplement the R-32 interior batt/cavity insulation. But that created additional challenges to be compliant with the Seattle Building Code, which dictates use of insulation outboard of the metal framing. The proposed design needed an air barrier with high permeability to ensure water vapor was not trapped in the wall cavity.

Additionally, staying on schedule – in spite of challenging Seattle weather conditions – was critical. Minimizing product incompatibility issues also was important.

The solution

Ankrom Moisan Architects, Inc. selected the 100% silicone DOWSIL™ Silicone Air Barrier System to ensure enclosure airtightness performance, durability and compatibility.

50+ YEARS PROVEN PERFORMANCE

City and country

Seattle, Washington

Products*

The DOWSIL™ Silicone Air Barrier System

- DEFENDAIR™ 200C Air and Weather Barrier Coating**
- DOWSIL™ 791 Silicone Weatherproofing Sealant
- DOWSIL™ Silicone Transition System

Key Participants

- Building Owner – Cornish College of the Arts
- Developer – Capstone Development Partners, LLC
- Architect – Ankrom Moisan Architects, Inc.
- General Contractor – Howard S. Wright
- Exterior Cladding Contractor – The Raymond Group

*Prior to February 2018, products listed were branded as Dow Corning.

**The product used at that time was DOWSIL™ DefendAir 200 which is comparable to DEFENDAIR™ 200C Air and Weather Barrier Coating.

"When we learned about the option of a fluid-applied silicone air and water barrier, we realized that DOWSIL™ DefendAir 200 was ideal for our needs," said Architect Eric Bressman of Ankrom Moisan Architects. "Not only did the spray-applied product simplify installation and eliminate the need for traditional membrane materials, its high permeability ensured our design's compliance with Seattle Building Code."

Unitized construction

To keep the project on schedule, the design called for a combination of unitized rainscreen panels and traditional construction techniques. The use of unitized panels assembled off-site in a controlled manufacturing environment enabled continued productivity, regardless of weather.

Construction of the unitized panels by The Raymond Group was facilitated by the external cladding contractor's licensed use of a patented universal joint system (U.S. Patent 8,943,7731), which is designed with interlocking joints that mitigate improper installation conditions that increase the risk of failure. The joint system relies on DOWSIL™ sealants for enhanced performance.

DOWSIL™ silicones were used exclusively in the panels – DOWSIL™ DefendAir 200 as an air barrier and DOWSIL™ 791 Silicone Weatherproofing Sealant for unit sealing. The quick cure capability of the DOWSIL™ products helped keep unit assembly on schedule. The unitized rainscreen system was used from the third floor to the 20th floor – using 30 units per floor – with approximately 50,000 square feet protected by the DOWSIL™ Silicone Air Barrier System.

[1]Assigned to AGN Universal, LLC, Duvall, WA.

All-weather installation

Construction on-site was able to continue into late fall, due in part to the low-temperature installation capability of DOWSIL™ DefendAir 200, which can be applied at temperatures as low as 20°F (-6°C).

"The ability to use spray-applied product was much easier," said Jerry Jensen, Project Manager for The Raymond Group. "Its cold-weather ability allowed us to continue construction into inclement fall weather."

In addition to the unitized rainscreen panels, on-site work totaling nearly 8,000 square feet was completed using the DOWSIL™ Silicone Air Barrier System on the first and second floors.

Confidently build a better barrier – Simple. Compatible. Silicones.

Because it's not uncommon to face challenges with varying interfacing construction materials, having a compatible all-silicone solution from Dow was appreciated and deemed advantageous.

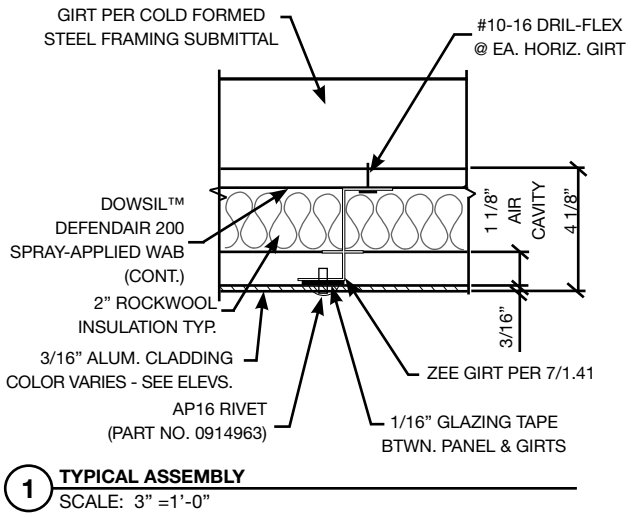
"Having exclusively silicone products ensured compatibility," Jensen said. "Rather than an 'origami' of incompatible materials around openings, having all-silicone materials simplified construction and eliminated uncertainty.

"It's straightforward. We can get answers from a single, trusted manufacturer, without unproductive back-and-forth exchanges with multiple suppliers," he said. "It's helpful to have the continuity and support – and the confidence of warranty protection – from [Dow.]"

Additionally, the all-silicone compatibility of the DOWSIL™ Silicone Air Barrier System allowed materials to be applied in any order, eliminating sequencing delays and expenses.

Learn more

Dow High Performance Building solutions include proven and innovative materials for structural and protective glazing, weatherproofing, insulating glass, high-efficiency insulation, and window and door fabrication. To learn more about the DOWSIL™ Silicone Air Barrier System and other High Performance Building solutions from Dow, visit **BuildaBetterBarrier.com**.



Unitized exterior cladding panel construction includes Dowsil™ DefendAir 200 as its vapor-permeable protection.

For more information

Learn more about Dow's full range of building solutions, including service and support, at **dow.com/buildingscience.**

Dow has sales offices, manufacturing sites and science and technology laboratories around the globe. Find local contact information at **dow.com/contactus.**

DOWSIL™

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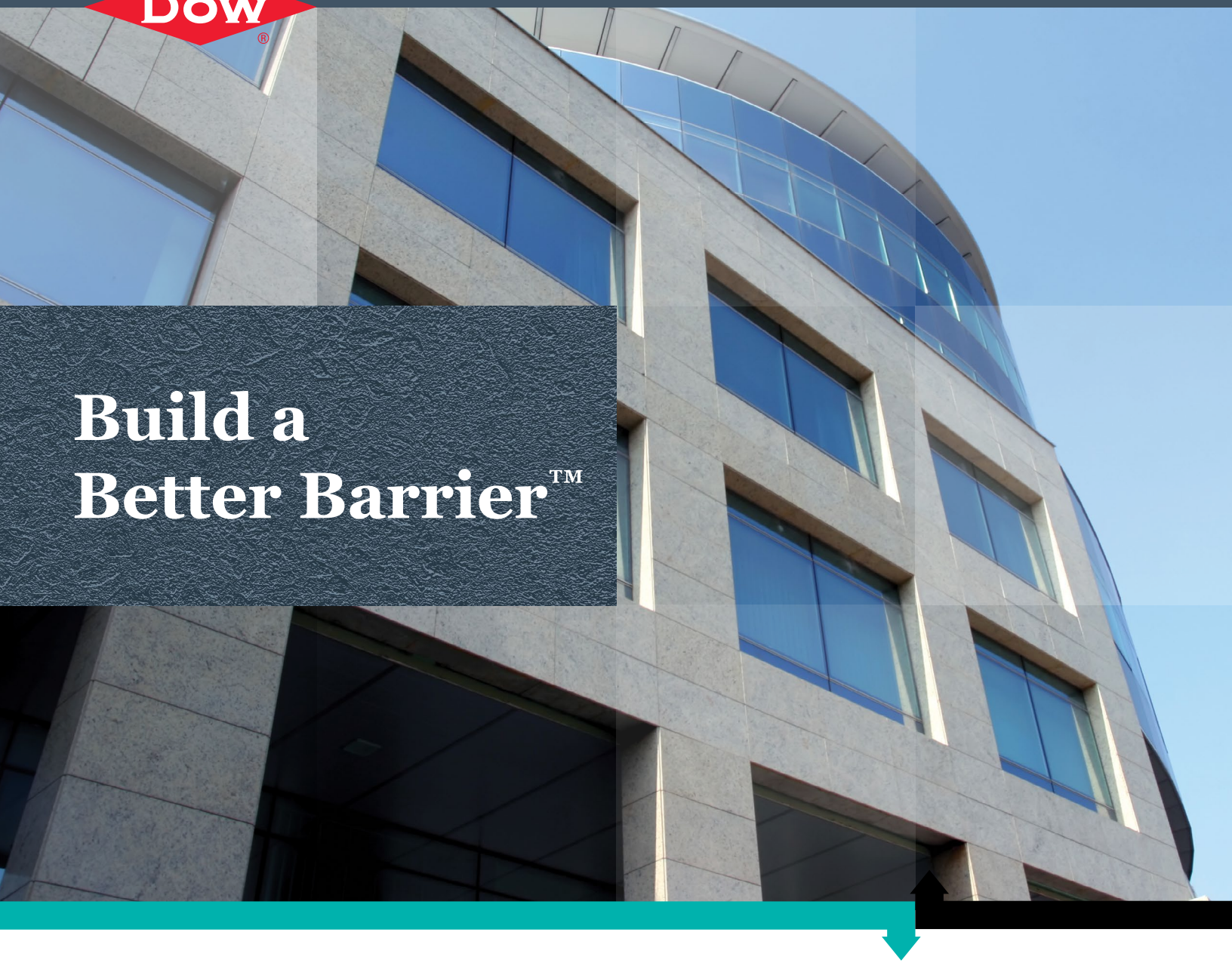


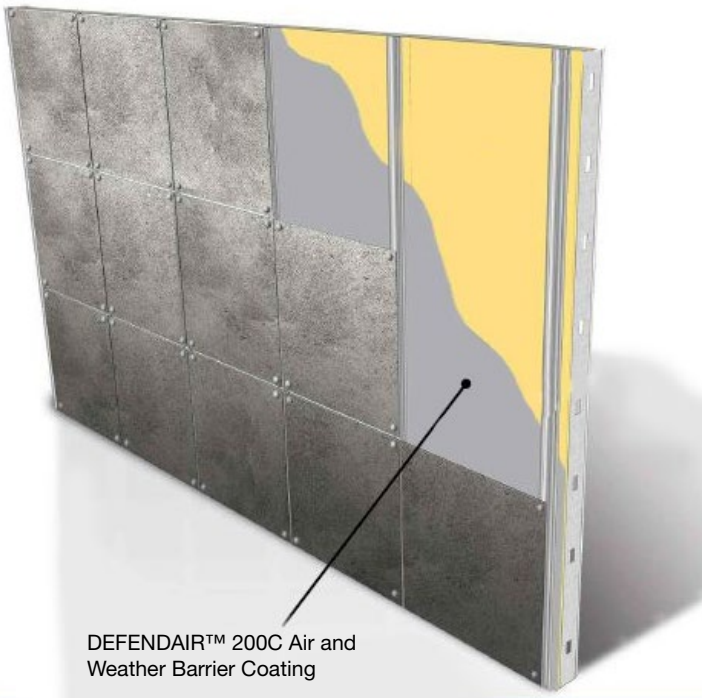
Build a Better Barrier™

DEFENDAIR™ 200C Air and Weather Barrier Coating

Application guide

DOWSIL™

silicones by DOW



Contents

This document is intended to offer installation and field testing guidance for DEFENDAIR™ 200C Air and Weather Barrier Coating. The information contained herein is offered in good faith and is believed to be accurate. This information should not be substituted for engineering or architectural advice and is offered for your guidance only. Because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to help ensure that our products are safe, effective and fully satisfactory for the intended end use.

Product descriptions

DEFENDAIR™ 200C Air and Weather Barrier Coating

DEFENDAIR™ 200C Air and Weather Barrier Coating is a 100 percent silicone fluid-applied air and weather barrier designed to protect against uncontrolled air infiltration and water penetration. The vapor-permeable, one-component, water-based coating dries to form a flexible membrane that resists water penetration but has the ability to allow water vapor to escape from inside the substrate. It can be brush applied, or roller applied using a manual roller, pressure roller, spray roller or spray applied using an airless sprayer.

The coating offers long-term protection from air infiltration and water penetration and the elements while allowing for normal movement imposed by seasonal thermal contraction and expansion. The coating maintains its air and water protection properties even when exposed to sunlight, rain, snow or temperature extremes.

DOWSIL™ Silicone Transition System

The DOWSIL™ Silicone Transition System (STS) is comprised of a preformed silicone strip and molded pieces designed for flashing and transition applications to weatherproof against air and water infiltration.

DOWSIL™ 791 Silicone Weatherproofing Sealant

DOWSIL™ 791 Silicone Weatherproofing Sealant is a one-part, medium-modulus, neutral-curing silicone sealant for general weathersealing applications. Available in a wide variety of colors.

DOWSIL™ 758 Silicone Weather Barrier Sealant

DOWSIL™ 758 Silicone Weather Barrier Sealant is a neutral, one-part silicone sealant designed for adhering to low-energy surfaces common in sheet or self-adhered air and weather-resistant barriers. Available in white.

DOWSIL™ 778 Silicone Liquid Flashing

DOWSIL™ 778 Silicone Liquid Flashing is a one-part, liquid silicone flashing that can be trowel applied to weatherproof at window and door openings and other through cavity penetrations. Available in charcoal gray and light green.

UV exposure

DEFENDAIR™ 200C Air and Weather Barrier Coating does not have a limit on exposure time before being covered by the exterior cladding if applied in strict accordance with the requirements of this application guide. After the coating is installed, any delays in the construction schedule that will result in the coating being exposed longer than expected will not affect the performance of the material. Open-joint rainscreen applications where sections of the coating will remain exposed will not affect the performance of the material. When using in conjunction with DOWSIL™ Brand Silicone Sealants and transition materials, most components are approved for long-term UV exposure.

Availability

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.

If a different color coating is desired, one 10-mil wet (5-mil dry) coat of DOWSIL™ ALLGUARD Silicone Elastomeric Coating can be applied. DOWSIL™ ALLGUARD Silicone Elastomeric Coating and DEFENDAIR™ 200C Air and Weather Barrier Coating are compatible and will adhere to each other. DEFENDAIR™ 200C Air and Weather Barrier Coating should be installed to the required minimum total dry-film thickness and all quality control performed before any DOWSIL™ ALLGUARD Silicone Elastomeric Coating is applied.

Coverage rates

Table 1. Estimated application rates[1]

Texture/substrate	Estimated rate	
	ft^2/gal	m^2/L
Smooth (sheathing)	36-49	0.9-1.2
Coarse (CMU)	29-43	0.7-1.1

These are typical properties, not to be construed as specifications.

[1]Application rates vary tremendously with porosity and degree of texture of the substrate. These values are estimated and should be confirmed at the job site prior to bidding the project.

Specific brands of the substrates (especially exterior grade sheathing) may absorb more or less of the air barrier. Reference the DOWSIL™ Silicone Air Barrier System: Tech Talks (63-6947) found at **BuildABetterBarrier.com** for more information on specific substrates that have been tested. DOWSIL™ DEFENDAIR 200 Primer may be required for some substrates. See Table 4 for information on substrate preparation.

Shelf life

DEFENDAIR™ 200C Air and Weather Barrier Coating has a shelf life of 12 months from the date of manufacture. It should be stored in its original, unopened container above 34°F (1°C) and below 90°F (32°C).

Compatibility and adhesion between DOWSIL™ Brand Products

DEFENDAIR™ 200C Air and Weather Barrier Coating is compatible with many DOWSIL™ Brand Sealant and Precured Silicone Components. DEFENDAIR™ 200C Air and Weather Barrier Coating is also compatible with DOWSIL™ ALLGUARD Silicone Elastomeric Coating.

Table 2 contains a list of adhesion information for sealants commonly used with DEFENDAIR™ 200C Air and Weather Barrier Coating. Sealants in Column A can be applied over the air barrier 48 hours after the DEFENDAIR™ 200C Air and Weather Barrier Coating is installed. Any recommended sealant listed in Column A can be used to install the DOWSIL™ Silicone Transition System over DEFENDAIR™ 200C Air and Weather Barrier Coating in order to create an essentially complete airtight and watertight system. (Note: The DOWSIL™ Silicone Transition System may also be installed under DEFENDAIR™ 200C Air and Weather Barrier Coating using a sealant that adheres to the underlying substrate. Refer to the DOWSIL™ Silicone Transition System application guide [63-1236] for more information.)

DEFENDAIR™ 200C Coating can be applied over any DOWSIL™ Brand Sealants listed in Column B of Table 2 after they have been allowed to achieve tack-free cure, which ranges from approximately 15-45 minutes depending on the sealant and environmental conditions (see sealant data sheets for more specific tack-free times).

Table 2. Adhesion between DEFENDAIR™ 200C Air and Weather Barrier Coating and DOWSIL™ Brand Sealants

	Column A	Column B
Sealant	Sealant adheres to DEFENDAIR™ 200C Air and Weather Barrier Coating	DEFENDAIR™ 200C Air and Weather Barrier Coating adheres to sealant
DOWSIL™ 791 Silicone Weatherproofing Sealant	X	X
DOWSIL™ 756 SM Building Sealant	X	X
DOWSIL™ 795 Silicone Building Sealant		X
DOWSIL™ 758 Silicone Weather Barrier Sealant	X	X
DOWSIL™ 790 Silicone Building Sealant		X

These are typical properties, not to be construed as specifications.

Please contact your local Dow representative for information regarding the use of DOWSIL™ Brand Products not listed here.

Application and service temperature and humidity

DEFENDAIR™ 200C Air and Weather Barrier Coating can be applied at ambient air temperatures between 20°F (-6°C) and 100°F (38°C). For cold temperature considerations, refer to page 9 of this guide.

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. Reference the DOWSIL™ Silicone Air Barrier System: Tech Talks (63-6947) found at **BuildABetterBarrier.com** for more information on damp substrate and rain applications.

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 has a service temperature range of -20°F to 300°F (-29°C to 149°C).

Chemical resistance

DEFENDAIR™ 200C Air and Weather Barrier Coating has passed ABAA S0008, section 9.4 alkali resistance test which requires dried free film material to be tested using ASTM D543 Practice A, Procedure 1, in a sodium hydroxide solution with an initial pH of 12 ± 0.5.

DEFENDAIR™ 200C Air and Weather Barrier Coating should not be applied to cast-in-place/precast concrete that has cured for less than 28 days. Thinner applications of cementitious-based patching materials, such as, but not limited to, grouts and patch compounds, should be allowed to cure for 10 days prior to coating.

Substrate compatibility and adhesion

DEFENDAIR™ 200C Air and Weather Barrier Coating has been tested according to ASTM D4541 for adhesion on the substrates in Table 3. DOWSIL™ DEFENDAIR 200 Primer optionally may be used for more robust adhesion.

There are numerous other substrates that will come into contact with the air and weather barrier. Please contact your local Dow representative for information on substrates not listed here.

Table 3. Substrate adhesion: tested per ASTM D4541 (new substrates)

Substrates that do NOT require primer
Plywood Sheathing
Oriented Strand Board (OSB) Sheathing - rough side
DensGlass Sheathing[2]
e2XP Sheathing
Securock Sheathing
GlasRoc Sheathing
Durock Cement Board
Concrete Masonry Unit (CMU)

[2] ASTM E2357 was completed using DensGlass as a substrate without DOWSIL™ DEFENDAIR 200 Primer.

Workmanship considerations

It is important to protect adjacent surfaces and surroundings that are not to be coated with the air and weather barrier.

Application instructions

Step 1. Surface preparation and evaluation

All surfaces must be clean and free of excessive dirt, dust, oil, grease, mold, fungus, efflorescence, laitance, peeling 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. Large amounts of dust and dirt should be removed from the substrate through a light dusting of the surface using either a brush or dry cloth. If other substances are found on the substrate, refer to Table 4 for recommendations to help ensure proper cleaning and preparation of the substrate prior to coating. If other parts of the air barrier system, such as sealant, liquid flashing or precured strips, have accumulated dirt prior to the installation of the air barrier, the substrate should be cleaned using a solvent and two-cloth cleaning method.

When installing the DOWSIL™ Silicone Transition System or another window transition system as part of the air and weather barrier system, follow the recommendations of the system manufacturer. For the DOWSIL™ Silicone Transition System, clean the substrate where the sealant is to be installed using a solvent and two-cloth cleaning method. Refer to the Americas Technical Manual (Form No. 62-1112) for more information on general sealant installation recommendations.

Table 4. Substrate preparation

Surface conditions	Detection method	Removal method
Efflorescence	Wipe with dark cloth	Wire brush; then clean with high-pressure water. On stubborn deposits, mix 1 part muriatic acid (or similar) to 12 parts water, then clean with high-pressure water.
Laitance	Scrape with putty knife, looking for powdery material	Scrape with steel scraping tool followed by high-pressure water cleaning.
Mildew	Visual	Scrub with 5 percent bleach solution followed by high-pressure water cleaning.
Grease/oil	Visual; sprinkle water on surface	Trisodium phosphate (TSP) solution in hot water and high-pressure water cleaning.
Form release, curing or surface-hardening compounds	Visual; sprinkle water on surface	Must be removed by mechanical abrasion or abrasive water cleaning.

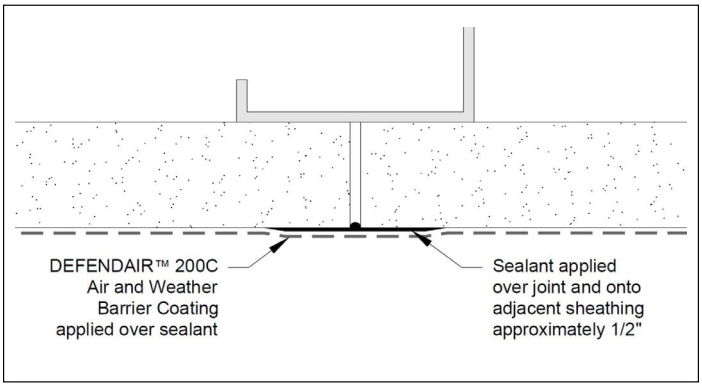
Step 2. Sealing joints and penetrations

Substrate joints, defects and holes

All joints between substrates or between sheets of exterior sheathing (such as those found in exterior grade gypsum or plywood sheets) should be sealed using a sealant listed in Column B of Table 2. 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 (Figure 1).

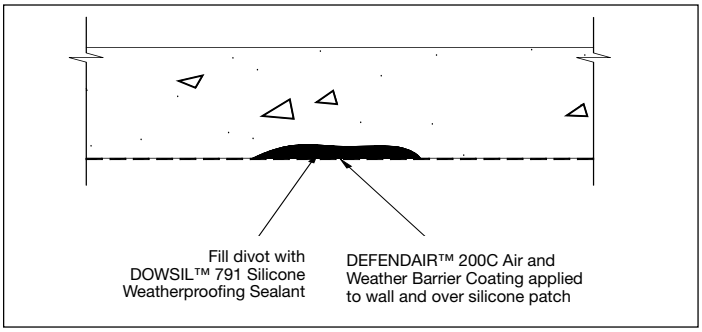
Any unused nail holes, as well as any countersunk or protruding nails and screws, must be sealed (using the same sealant used to seal the joints) and struck flush to the surface of the substrate prior to the installation of DEFENDAIR™ 200C Air and Weather Barrier Coating. Screw and nail heads that are installed flush to the substrate and remain in the substrate do not need to be sealed separately prior to the installation of the air and weather barrier.

Figure 1. Small static sheathing joint (up to 1/8 inch)



Defects in the substrate can be repaired flush to the surface using the same sealant as used for joints and penetrations (Figure 2) 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.

Figure 2. Divot in concrete wall



Changes in the substrate (Figure 3) and control joints (Figure 4) should be sealed as a traditional weatherseal joint. There are five basic steps for proper joint preparation and sealant application:

1. **Clean** – Joint surfaces must be clean, dry, dust-free and frost-free.
2. **Prime** – If required, primer is applied to the clean surface(s).
3. **Pack** – Backer rod or bond breaker is applied.
4. **Seal** – Sealant such as DOWSIL™ 791 Silicone Weatherproofing Sealant is applied into the joint cavity.
5. **Tool** – Dry-tooling techniques are used to create a flush joint and to make certain the sealant has the proper configuration and fully contacts the joint walls.

Wall offsets or changes in plane can be sealed using a fillet bead of sealant (Figure 5). Bond breaker material does not need to be used unless greater than 15 percent movement is expected in the joint.

Figure 3. Change in wall substrate

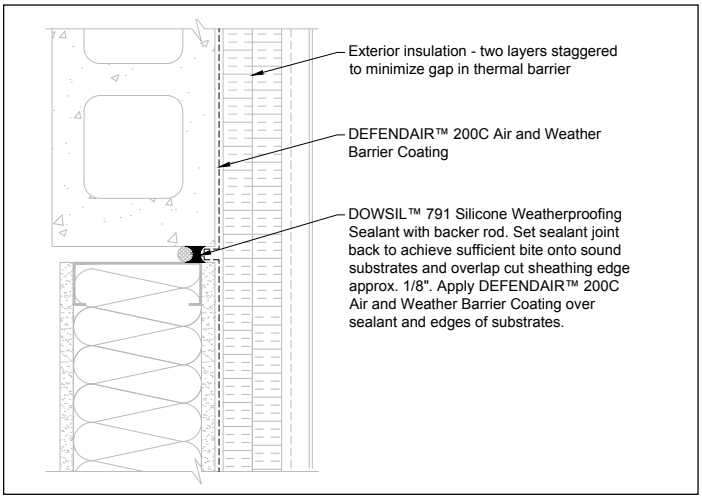


Figure 4. Control joint

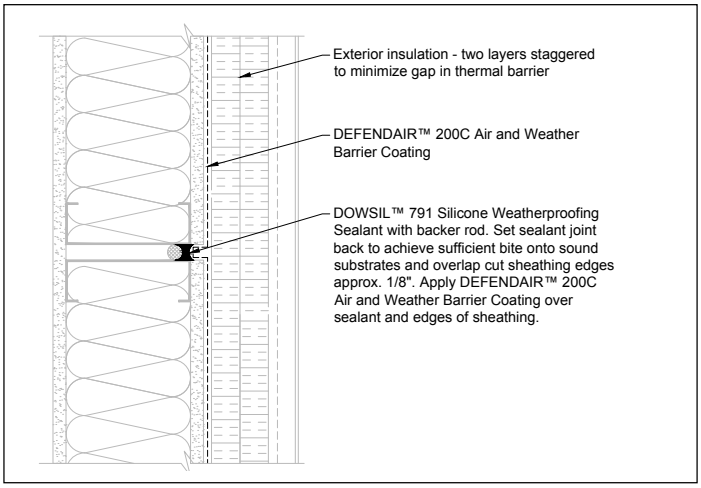
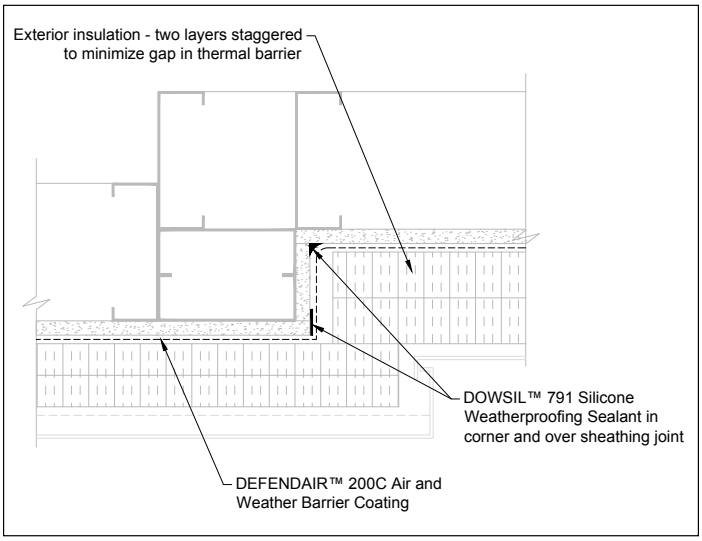


Figure 5. Vertical wall offset

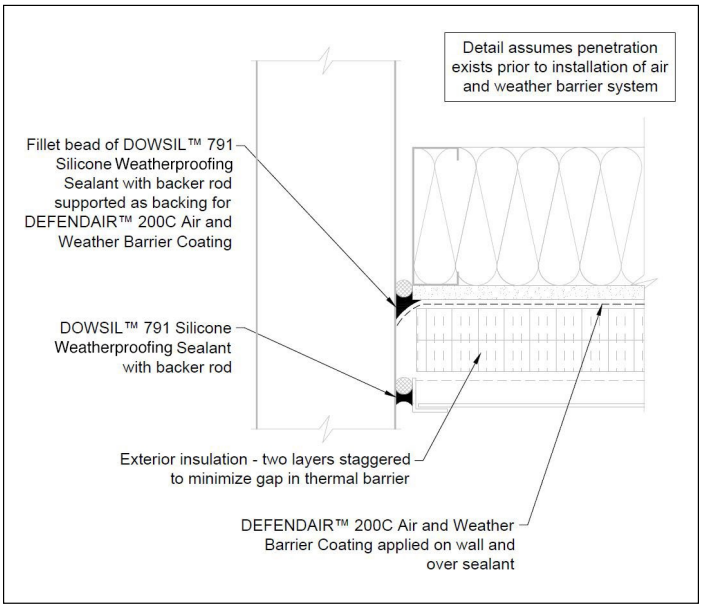


Penetrations

Gaps around penetrations should be sealed in a similar manner using a sealant listed in Table 2. To reduce the amount of sealant used, a backer rod can be inserted into gaps greater than ¼ inch (6.3 mm) and sealed as a traditional sealant joint (Figure 6).

For information on fasteners installed after the air barrier, refer to page 9.

Figure 6. Penetration



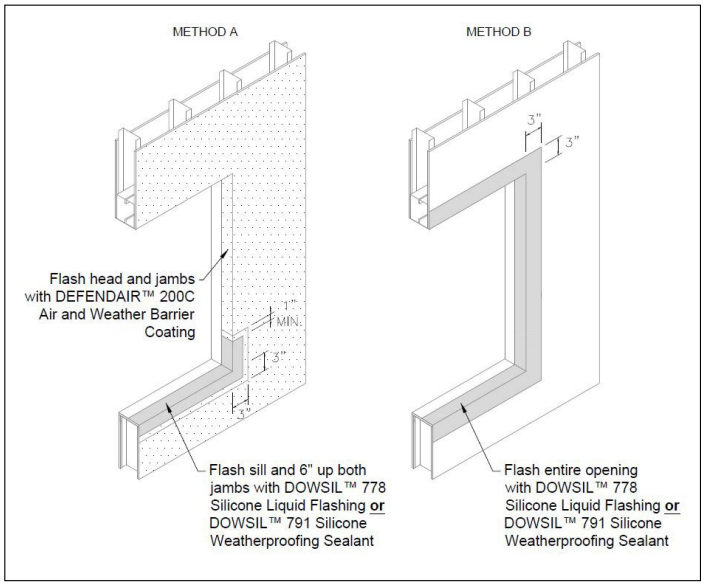
Window openings

Window openings must be flashed with an approved flashing method. There are two different methods that can be used. In flashing applications, DOWSIL™ 778 Silicone Liquid Flashing should be applied at 20- to 50-mil (0.51 to 1.27 mm) wet-film thickness and DOWSIL™ 791 Silicone Weatherproofing Sealant should be applied at 25-mil (0.63 mm) wet-film thickness.

One method (Figure 7 - Method A) is to first trowel apply DOWSIL™ 778 Silicone Liquid Flashing or DOWSIL™ 791 Silicone Weatherproofing Sealant on the entire windowsill and a minimum of 6 inches (152.4 mm) up both vertical jambs. The flashing should extend a minimum of 3 inches (76.2 mm) onto the face of the wall. The depth of the flashing into the window opening should be a minimum of 3 inches or 1 inch (76.2 or 25.4 mm) behind where the inner air and/or water seal is to be installed. Next, seal all the remaining joints between framing members or between the sheathing and framing with DOWSIL™ 791 Silicone Weatherproofing Sealant or another sealant in Table 2. Lastly, apply DEFENDAIR™ 200C Air and Weather Barrier Coating, at the required total thickness, to the face of the wall and into the remainder of the jambs and head of the window opening, making sure to overlap the sill flashing by a minimum of 1 inch (25.4 mm).

Another method (Figure 7 - Method B) is to trowel apply DOWSIL™ 778 Silicone Liquid Flashing or DOWSIL™ 791 Silicone Weatherproofing Sealant around the entire window opening. The flashing should extend a minimum of 3 inches (76.2 mm) onto the face of the wall and into the window opening a minimum of 3 inches or 1 inch (76.2 or 25.4 mm) behind where the inner air and/or water seal is to be installed. Ensure all the joints between the framing members or between the sheathing and framing are continuously sealed with the liquid flashing.

Figure 7. Window opening flashing methods



Example of using DOWSIL™ 778 Silicone Liquid Flashing

The sealing of window openings to the curtain wall or window system can be completed with a recommended sealant (Figure 8) or the DOWSIL™ Silicone Transition System (Figure 9). This step can be completed before or after DEFENDAIR™ 200C Air and Weather Barrier Coating is installed. When the DOWSIL™ Silicone Transition System is installed after the air and weather barrier, DEFENDAIR™ 200C Coating should be allowed to dry for a minimum of 48 hours before the DOWSIL™ Silicone Transition System is installed. A primer is not required when one of the recommended sealants in Table 2, Column A is used to adhere the DOWSIL™ Silicone Transition System to DEFENDAIR™ 200C Coating.

It is important to seal the absolute edge of the DOWSIL™ Silicone Transition System. This most often requires a second line of sealant to be applied along the edge of the strip after it has been initially installed. This additional step will help ensure that no area of the substrate is left exposed once the air and weather barrier is installed and will help to prevent unwanted water penetration into the system.

Figure 8. Curtain wall jamb at flush condition – DOWSIL™ Brand Sealant

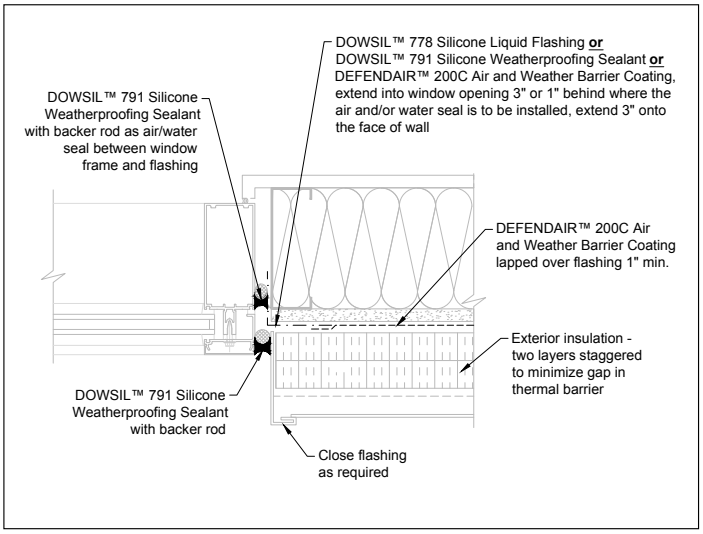
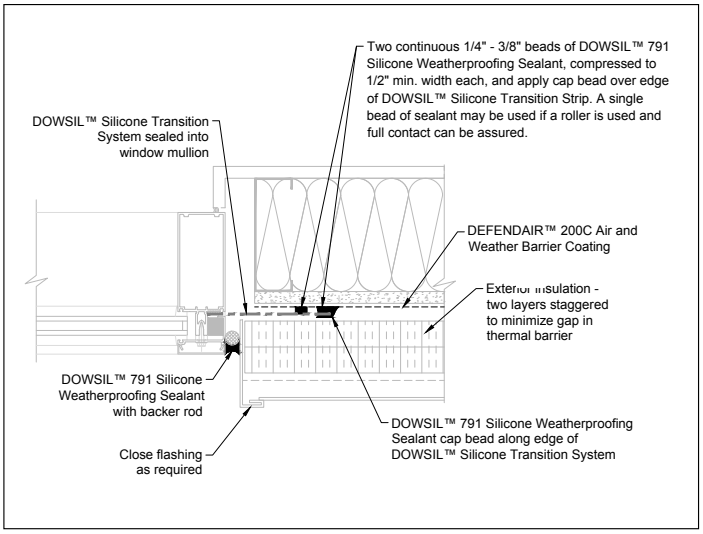


Figure 9. Curtain wall jamb at flush condition – DOWSIL™ Silicone Transition System

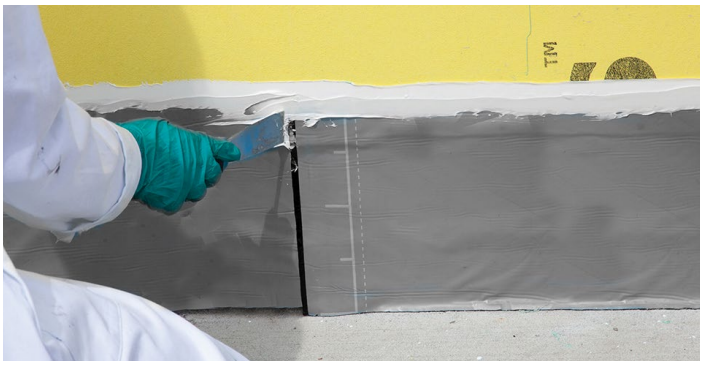


Foundation and roof transitions

Foundation and roof transition seals can be made using DOWSIL™ 758 Silicone Weather Barrier Sealant or DOWSIL™ Silicone Transition System (with a recommended sealant). DOWSIL™ 758 Silicone Weather Barrier Sealant, is designed for adhesion to low energy materials and is the recommended sealant to be used with most foundation and roof membranes.

DOWSIL™ 758 Silicone Weather Barrier Sealant can be used to bridge the transition between DEFENDAIR™ 200C Air and Weather Barrier Coating and the foundation or roof membrane by applying a large bead of sealant to the top edge of the membrane and tooling it to 2 inch (50.8 mm) wide and 1/8 inch (3.18 mm) thick, centered across both materials.

DEFENDAIR™ 200C Air and Weather Barrier Coating is not approved to transition to other membranes without the use of DOWSIL™ 758 Silicone Weather Barrier Sealant or the DOWSIL™ Silicone Transition System.



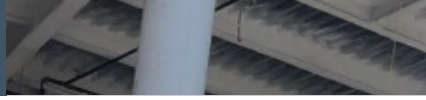
Example of bridging from below grade waterproofing to air barrier using DOWSIL™ 758 Silicone Weather Barrier Sealant

Step 3. DOWSIL™ DEFENDAIR 200 Primer

DEFENDAIR™ 200C Air and Weather Barrier Coating does not require a primer on most substrates. To determine if primer is required on substrates not listed in Table 3 or on substrates that may have been contaminated by other substances, it is recommended to perform a project-specific adhesion test. The procedure for this test can be found in the "Adhesion Test Procedure" section of this guide (page 10).

When required, DOWSIL™ DEFENDAIR 200 Primer is applied in one coat using either a ½- to ¾-inch (13 to 19 mm) nap roller or an airless sprayer. The primer should only be installed when temperatures are above 20°F (-6°C) and when there is no chance of rain within four hours. The expected coverage rate of DOWSIL™ DEFENDAIR 200 Primer is approximately 300 square feet per gallon (7.4 square meters per liter). It is available in 5-gallon (19 L), 42 lb (19.1 kg) pails.

Allow the primer to "dry to the touch" (30 minutes to two hours) before applying DEFENDAIR™ 200C Air and Weather Barrier Coating. After priming, before installing the air and weather barrier, the spray equipment should be fully cleaned or a new roller used.



Step 4. Installing DEFENDAIR™ 200C Air and Weather Barrier Coating

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. 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. Estimated application rates can be found in Table 1 of this guide.

Please refer to the DOWSIL™ Silicone Air Barrier System: Tech Talks (63-6947) at **BuildaBetterBarrier.com** for more information on absorption and estimated wet-film thicknesses on some substrates. It may be possible to utilize DOWSIL™ DEFENDAIR 200 Primer before applying DEFENDAIR™ 200C Air and Weather Barrier Coating to reduce the amount of coating absorbed into the substrate.

Prior to installing DEFENDAIR™ 200C Air and Weather Barrier Coating, it is important that all sealants and primers that have been installed during the wall preparation process are allowed to "dry to touch" (15-45 minutes for sealant and 30 minutes to two hours for DOWSIL™ DEFENDAIR 200 Primer). Apply one coat of DEFENDAIR™ 200C Air and Weather Barrier Coating around all penetrations and openings prior to the installation of the air barrier on the entire surface. This will help ensure complete coverage of these details.

DEFENDAIR™ 200C Air and Weather Barrier Coating should overlap the liquid flashing and all window opening detailing by a minimum of 1 inch (25.4 mm).

Do not thin or cut back DEFENDAIR™ 200C Air and Weather Barrier Coating.

Roller application

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. Allow the coating to dry to the touch (typically two to four hours) before applying the next coat. The final dry coating should be continuous.

The coating may be roller applied using a hand roller, pressure roller or spray roller. Apply the coating using a ⅜- 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.

Spray application

DEFENDAIR™ 200C Air and Weather Barrier Coating may 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, depending on the substrate and the desired final dry-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.

Refer to the equipment manual for your spray equipment for detailed information on tip size selection, tip wear and recommended pressure. A minimum 0.021-inch (0.53 mm) tip is recommended to spray DEFENDAIR™ 200C Air and Weather Barrier Coating. The recommended tip sizes range from 0.025 inch to 0.031 inch (0.63 mm to 0.79 mm). The larger the tip size, the more pressure will be required to spray the material – and the faster the application of the air and weather barrier. Ensure that your spray equipment is able to accommodate the tip size you wish to use before starting the application.

When spraying DEFENDAIR™ 200C Air and Weather Barrier Coating, start with a low pressure and increase the pressure until a uniform pattern is sprayed. Increase the size of the tip if more material is desired. As the tip wears, the pressure on the sprayer will need to be increased to maintain an even application of material. If the air and weather barrier begins to exhibit pinholing or fisheyes, reduce the pressure of the sprayer and/or move the sprayer head farther away from the substrate.

A respirator is not required when spraying DEFENDAIR™ 200C Air and Weather Barrier Coating. Personal preference may be to wear a mask.

Drying time

After the final coat of the air barrier has been applied, the average drying time of DEFENDAIR™ 200C Air and Weather Barrier Coating is four to 12 hours, depending on coat thickness, temperature, humidity and wind conditions. DEFENDAIR™ 200C Air and Weather Barrier Coating will attain full adhesion and physical properties in seven to 14 days.

Cold temperature considerations

DEFENDAIR™ 200C Air and Weather Barrier Coating can be applied at temperatures as low as 20°F (-6°C). If temperatures drop below 20°F (-6°C) after DEFENDAIR™ 200C Air and Weather Barrier Coating is applied, the coating will freeze on the surface until the temperature increases. This will not affect the cured properties of the air barrier but will extend the drying time. DEFENDAIR™ 200C Air and Weather Barrier Coating requires temperatures higher than 20°F (-6°C) for a cumulative total of 24 hours to dry. DEFENDAIR™ 200C Air and Weather Barrier Coating will attain full adhesion and physical properties in seven to 14 days.

Roller application of the air barrier at low temperature will require two coats. The air barrier 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. When the temperatures are consistently below 40°F (4°C), allow the air barrier to dry a minimum of three days prior to applying other materials to the surface of the air barrier.

Fasteners installed after air barrier

DEFENDAIR™ 200C Air and Weather Barrier Coating has passed the ABAA S0008, section 9.3 air leakage rate testing with 48 - #12, self-drilling screw fasteners installed through the air and weather barrier coating, proud of the surface, without any pre- or post-sealing.

DEFENDAIR™ 200C Air and Weather Barrier Coating dries to form an elastic membrane that may self-gasket around smooth nails or against fully seated fasteners. However, self-drilling screws will cut/tear through the dried air and weather barrier, potentially creating a pathway for air and water infiltration to occur. A recommended practice for sealing seated cladding anchors that use self-drilling screw fasteners is to first apply sealant behind the cladding anchor at the penetration location and then apply an additional sealant cap bead over the fastener head and washer, using a sealant from Table 2, Column A.

Many different wall assembly designs, cladding attachment systems, and fastener types exist. It is the responsibility of the design professional to determine the desired water penetration performance of the building envelope/enclosure, the cladding attachment system, the fastener types, and the appropriate fastener penetration sealing methods for the design. It is recommended that the project team perform a water penetration test, on a project specific mockup, to verify the fastener penetration sealing method used is acceptable for the intended performance level.

If fasteners miss the stud during installation, typical practice is to remove the fastener from the wall and seal the hole with a sealant from Table 2, Column A.

Example of a self-drilling screw fastener penetration

Quality control

Wet-film thickness can be measured using a wet mil gauge. When measuring the thickness of DEFENDAIR™ 200C Air and Weather Barrier Coating that has been installed on porous substrates, wait five minutes before measuring the coating thickness. This measures the amount of material that remains on the surface of the substrate, after any material has been absorbed. Document the location and thickness from the testing in a quality control form (an example can be found in the DOWSIL™ Silicone Air Barrier System: Tech Talks (63-6947) found at **BuildABetterBarrier.com**). Wet-film thicknesses should be measured on every floor and elevation to help ensure proper air barrier thickness is being applied. As a guideline, measure at least every 10 feet during application.

Demonstrating usage of wet mil gauge

At the beginning of the project, it is recommended to measure the dry film thickness of the air barrier in the same area as where the wet-film thickness was measured. This will determine the actual absorption rate of the air barrier into the project substrate. The required minimum total dry-film thickness should remain on the surface of the substrate.

At least one day after the air barrier is applied, visual inspection should be performed on the entire wall area that has been coated to assess that the wall has an adequate coating thickness. Any areas where the text on the underlying sheathing is visible, there is insufficient air barrier material and an additional coat of DEFENDAIR™ 200C Air and Weather Barrier Coating should be applied.

The visual assessment should also look at seams between sheathing panels, mortar joints and screw heads to help ensure that they have all been covered. After DEFENDAIR™ 200C Air and Weather Barrier Coating has been installed and allowed to dry, the charcoal gray color of the coating allows joints and deficiencies in the substrate that were not sealed before or during the application of the air and weather barrier to become visible. Screw heads and joints that did not receive enough material can be sealed over the air barrier using DOWSIL™ 791 Silicone Weatherproofing Sealant or another sealant found in Column A of Table 2 or by touching up the area with DEFENDAIR™ 200C Air and Weather Barrier Coating.

Post-application inspection shows sheathing joint not properly sealed. Reseal with sealant.

Equipment cleanup

DEFENDAIR™ 200C Air and Weather Barrier Coating is a water-based material. Any equipment that is used to install the air and weather barrier can be cleaned using water; no solvents are required. Spray equipment can be cleaned by running water through the sprayer. It is recommended to clean the equipment at least every five working days. If a longer period between cleanings is needed, sprayability of the material should be verified by the contractor.

Disposal

See the Safety Data Sheet (SDS) for disposal information.

Adhesion test procedure

A field adhesion test, using one of the methods below, is recommend for substrates not listed in Table 3 or substrates that may have been contaminated by other materials. If the adhesion strength is found to be low, then the test should be repeated after using DOWSIL™ DEFENDAIR 200 Primer.

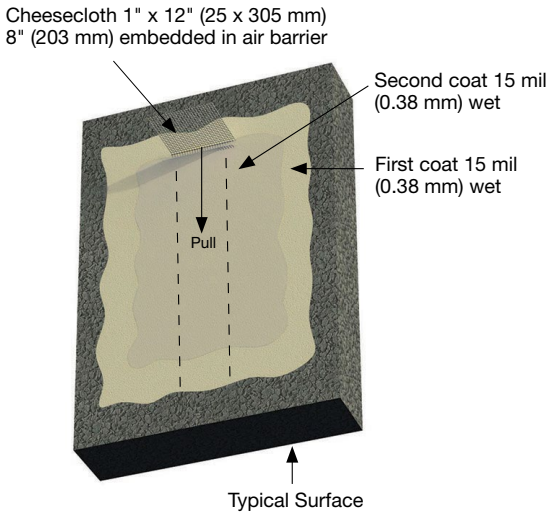
ABAA T0002 (Standard Test Method for Pull-Off Strength of Adhered Air and Water Resistive Barriers Using an Adhesion Tester) can be used for testing the adhesion of DEFENDAIR™ 200C Air and Weather Barrier Coating (or DOWSIL™ ALLGUARD Silicone Elastomeric Coating) to a substrate (Figure 12) Contact Dow Technical Service for adhesives that can be used to adhere the disc to DEFENDAIR™ 200C Air and Weather Barrier Coating. The current ABAA S0008 standard requires air barriers to have a pull adhesion strength of greater than 16 psi (110 kPa).

Figure 12. ABAA T0002 Adhesion Test

Another option available for adhesion testing is to perform a “cheesecloth” test (Figure 13). This test is well-suited for concrete and masonry substrates. Some substrates, especially gypsum sheathing, may produce a false-negative result when using this test method.

1. Prepare surfaces as described in the section on Substrate Preparation and Evaluation (page 5).
2. Use of a primer is optional, but testing is required to help ensure sufficient adhesion in primerless applications. If primer is used, apply per the application method and allow it to dry.
3. Apply the first coat of DEFENDAIR™ 200C Air and Weather Barrier Coating at a rate of 15-mil (0.38 mm) wet-film thickness. Embed a cheesecloth strip (1 x 12 inch [25 x 305 mm]) in the wet coating with a paintbrush.
4. Apply the second coat over the cheesecloth at the same 15-mil (0.38 mm) wet-film thickness and allow to fully dry for seven to 14 days. This is an adhesion test only; additional coats may be required to achieve thickness requirements.
5. Test adhesion of the coating by pulling the uncoated part of the cheesecloth at a 180° angle at a slow, steady rate.
6. Inspect and note the percent cohesive failure (percentage of coating material left on the wall surface). At least 80 percent of the coating should remain on the substrate.
7. If 80 percent retention is not achieved, the test should be repeated using DOWSIL™ DEFENDAIR 200 Primer. If necessary, contact Dow Technical Service for further instruction.

Figure 13. Adhesion test procedure diagram



Product limitations

DEFENDAIR™ 200C Air and Weather Barrier Coating should not be installed on horizontal surfaces that may be subjected to ponding water or subjected to pedestrian traffic.

DEFENDAIR™ 200C Air and Weather Barrier Coating should not be installed 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).

DEFENDAIR™ 200C Air and Weather Barrier Coating should not be installed as a roof coating or in below-grade applications.

DEFENDAIR™ 200C Air and Weather Barrier Coating should not be installed on newly applied or green cementitious materials; industry guidelines recommend at least 28 days of cure before painting or coating the substrates.

DEFENDAIR™ 200C Air and Weather Barrier Coating does not adhere to high-density polyethylene-backed materials. When using these materials in conjunction with DEFENDAIR™ 200C Air and Weather Barrier Coating, please contact Dow for assistance.

Appendix I – Material compatibility

DEFENDAIR™ 200C Air and Weather Barrier Coating has been tested with a selection of materials offered by other manufacturers in the industry. For information on compatibility with materials from other manufacturers, please contact your local Dow representative. Project-specific testing typically is recommended. Reference the DOWSIL™ Silicone Air Barrier System Tech Talks (63-6947) found at **BuildaBetterBarrier.com** for more information on material compatibility.

Appendix II – Referenced standards

ASTM E2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies

ASTM D543 Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents

ABAA S0008 Standard for Air and Water-Resistive Barriers - Fluid Applied Membrane - Material Specification

ABAA T0002 Standard Test Method for Pull-Off Strength of Adhered Air and Water Resistive Barriers Using an Adhesion Tester

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 (PS&RC) specialists available in each area.

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

Warranty

DEFENDAIR™ 200C Air and Weather Barrier Coating is offered with a 10-year limited warranty. When DOWSIL™ Brand Sealants and Transition Materials are applied with DEFENDAIR™ 200C Air and Weather Barrier Coating, the system qualifies for a 15-year limited warranty. Please contact your local Dow representative for more information.

For more information

Learn more about the full range of Dow Building Science offerings, including products, service and support, at **dow.com/buildingscience**.

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DEFENDAIR™ 200C Air and Weather Barrier Coating

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