



AIR & VAPOR BARRIER

Barriseal®-S

Description

Barriseal-S is a water-based asphalt emulsion modified with a blend of synthetic polymers and special additives. Barriseal-S is dispensed in tandem with Barricure, a non-corrosive, chloride-free deliquescent salt solution. Barriseal-S and Barricure are applied through approved co-spray equipment to achieve a nominal 0.040-inch (40 mils) dry film thickness. Barriseal-S can be applied over concrete block, concrete, exterior gypsum sheathing, foam insulation board, plywood, OSB and many other common building materials. The product is fully adhered to the substrate, flexible and rubber-like. The high film thickness and flexible, elastic properties enable Barriseal-S to bridge cracks and seal around penetrations, which creates a truly continuous, monolithic air, vapor and water barrier.



Features and Benefits

- Instant resistance to rain wash-off
- High water resistance of cured membrane permits use in high moisture exposure areas
- Non-flammable and fume-free composition contributes to safety during installation
- Monolithic coverage and self-sealing properties around fasteners enable an air- and water-tight installation
- Cover large areas quickly
- Barriseal-S is a warranted air/vapor barrier system from Carlisle Coatings & Waterproofing

Installation

Project Conditions

Building Codes and Project specifications require continuity of the air barrier installation. It is the installer's responsibility to understand the extent and sequencing of air barrier installation on the project. Do not proceed with installation until substrate and project conditions conform to requirements specified in this document. Identify any membranes, coatings, sealants, tapes and joint compounds by others which will come into contact with Barriseal-S and CCW accessories, and verify compatibility through CCW. All surfaces accepting Barriseal-S and CCW accessories shall be clean, dry, frost free and of sound condition. Verify that wall assemblies are dried in, such that water intrusion will not occur from above, behind or around the membrane installation. Gaps and cracks exceeding ¼" across shall be filled with materials and technique approved by CCW. As Barriseal-S and CCW Accessories cannot span any gap in excess of ¼" (exception - up to a 1" gap for PS Elastoform), electrical/mechanical penetrations, structural steel penetrations, columns/beams, expansion/seismic joints, shelf angles, tie-ins to fenestration and transitions to other building assemblies may require extra work and materials to provide suitable surfaces for continuous installation of the air barrier. Please consult CCW's Barriseal details for guidance.

Substrate Inspection

Concrete: Shall be cured in place 7 days minimum. It shall be smooth, with sharp protrusions such as cold joints ground flush. Honeycomb and holes/cracks exceeding ¼" across shall be filled with grout or mortar.

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Concrete Masonry Unit (CMU): Mortar joints shall be struck flush and shall be free of voids exceeding ¼" across. Mortar droppings shall be removed from brick ties and all other surfaces accepting Barriseal-S and CCW Accessories. Allow mortar joints to dry a minimum of 3-days prior to application of Barriseal-S and CCW Accessories.

Gypsum Sheathing: Sheathing boards shall be flush at joints, with gap between boards according to building code and sheathing manufacturer's requirements. Sheathing boards shall also be securely fastened to the structure with proper fastener type, technique and spacing according to building code and sheathing manufacturer's requirements. Sheathing boards shall be repaired or replaced if inspection reveals moisture damage, mechanical damage or if sheathing boards have exceeded the exposure duration or exposure conditions as required by the sheathing manufacturer.

OSB, Plywood, Lumber, Pressure-Treated Wood: Wood sheathing inspection carries the same protocol given for gypsum sheathing. Also, moisture content, measured with a wood moisture meter in the core of the substrate, shall be below 20%. Do not cover any wooden materials with Barriseal-S or CCW accessories if moisture content is 20% or above. Do not encapsulate wood (such as nailers) with membrane, as this will cause premature rot. In most cases fire- and pressure-treated wood must be kiln dried to accommodate the less than 20% moisture content requirement.

Foam Insulation Board: Foam insulation board shall be repaired or replaced if inspection reveals mechanical damage or surface damage. Holes/cracks exceeding ¼" across shall be properly repaired. Board joints shall be prepared with 4" AlumaGrip 701 and primed with CCW-702 WB.

Note: Do not use CCW-705 or Barritape over foam insulation board.

Application

The following conditions shall be detailed in accordance with CCW Barriseal standard details:

Sheathing joints, rough openings, pipe/duct penetrations, expansion joints, control joints, transitions at roof to wall, transitions of dissimilar materials, wall to foundation transitions, shelf angles, and wall to fenestration transition. Consult CCW Barriseal details for specific conditions.

Procedure for Spraying Barriseal-S: Obtain full, safe access to the area and mask adjacent surfaces to protect from overspray. Verify that the product is within shelf life, as indicated on the product label. Inspect the freeze indicator on the drum or tote to verify if it has been broken from exposure to freezing temperatures. Open drums or totes bearing broken freeze indicators and inspect material for sludge, particles or separation. Contact CCW Technical Service for more information on product inspection. Load Barriseal-S and Barricure into the spray system and start it up

according to the instructions given in the CCW Spray Equipment Brochure. Spray the wall surfaces, holding the gun approximately 20" to 24" from the surface. Keep the gun pointed square to the surface while spraying surfaces from the bottom, upward. Minimum wet mil thickness by spray shall be 60 mils, measured with a comb type wet mil gauge immediately after spray and before the emulsion breaks. Apply a maximum of 70 mils wet thickness per coat. Provide proper coverage over opaque surfaces and details as shown in Barriseal standard drawings. Provide complete coverage over surfaces, so that there are no voids, pinholes or similar passages through membrane. Allow the membrane to dry completely before subjecting it to inspection for air/water leakage and adhesion testing. Drying time varies with substrate, ambient temperature and humidity. Membrane is dry when it appears black and rubber-like, and feels dry when pressed.

Special Installation Procedures for Ambient Temperature below 50°F:

Store Barriseal-S and the spray equipment in an area maintained at or above 50°F. Employ measures, such as a heated trailer and drum heaters, to keep the product in drums warm (above 70°F) during spray. Keep the hose and gun reeled in except during spray. Maintain Barricure dilution at 4:1 ratio (Water: Barricure). Warmer product sprays, builds and cures more consistently than cold product. Do not heat product higher than 100°F.

Recommended Spray Tip Sizes:

High Coverage: GHD 635

Detail Coat: GHD 429

Procedure for Repairing Damage to Installed Membrane: Remove damaged and loosely-adhered material. Clean weathered or dirty surfaces with a towel wet with xylene. Allow to dry and cover the damaged area with two, 30-wet-mil coats of Barriseal-R or a minimum 60 mil wet coat of Barriseal-S.

Note: In rare instances small spider web cracking may occur in isolated locations of the dry Barriseal-S when applied in temperatures below 40-degrees. If that occurs clean weathered or contaminated surfaces with a wet xylene towel. Allow to dry and apply minimum 30-wet mils of Barriseal-R followed by a spritz of Barricure over the affected areas. Alternatively, spray Barriseal-S and Barricure at a minimum 30 wet mils over the affected areas.

Procedure for Installation of Foam Plastic Board Insulation over Barriseal: Allow the Barriseal membrane to dry completely. Attach insulation to the surface of the membrane with CAV-GRIP or approved insulation adhesive by others. Where CAV-GRIP is used, spray the adhesive over the surface of Barriseal, and press insulation in place. Secure insulation with mechanical fasteners or brick ties.

Clean Up

Promptly clean uncured Barriseal-S from hands, tools, surfaces and spray equipment with a solution of tap water and citrus de-greaser. Cured product must be removed mechanically or by soaking in solvent, such as xylene.

Limitations

Do not allow product in packaging or in spray equipment to freeze. Product is not freeze-thaw stable. Maintain product temperature above 50°F during spray. Do not apply at ambient temperature below 20°F. Maximum permitted exposure time of Barriseal-S on a vertical wall is 30 days.

Do not apply product in rain. Do not use in areas where temperatures exceeding 180°F are anticipated.

Product is designed to be used as a positive side water barrier and will not function as negative side water barrier.

Not intended for traffic resistance or as a wearing surface. Not for use on horizontal surfaces.

Do not install on roofs. Do not install over PVC membrane, silicone, uncured sealants or other incompatible materials. Consult Barriseal details for more information.

Keep edge of membrane ½" minimum back from finished exterior. Do not allow the membrane to come into contact with any visible sealants.

Do not apply solvent-based products over Barriseal-S.

Storage

Store Barriseal-S and accessory products in a location protected from temperature extremes, precipitation and direct sunlight. Protect Barriseal-S from freezing temperatures during delivery, storage and handling. Shelf life of Barriseal-S in original, unopened packaging, stored under these conditions, is nine (9) months from the date of manufacture.

Packaging

Product	Size
Barriseal-S	Spray-applied, air/vapor barrier packaged in 55-gallon drums with 50 gallons of product.
Barricure	Chloride-free curing agent for Barriseal-S package in 5-gallon pail of concentrate diluted with tap water in 4-1 ratio in spray equipment tank.
CCW - 705/705 LT	40-mil self-adhering sheet flashing/membrane, 36" x 75' rolls and 24", 18", 12", 9", 6" and 4" x 100' rolls
Sure-Seal® Pressure-Sensitive Elastoflex Flashing	90-mil malleable, self-adhering EPDM flashing, 12", 9" and 6" x 50' rolls
Sure-Seal EPDM Primers	EP-95 Splicing Cement: solvent based, 1-gal cans HP 250 Primer: solvent based, 2.5-gal pails Low-VOC EPDM Primer: OTC-Compliant, solvent based primer, 1-gal cans
LiquiFiber™-W	Glass matt consisting of randomly oriented strands in soluble binder, 6" and 12" x 300' rolls
DCH Reinforcing Fabric	Woven polyester fabric, 4", 6" and 12" x 324' rolls
CCW CONTACT ADHESIVES (SELECT ANY)	
CAV-GRIP	Aerosol spray contact adhesive packaged in pressurized cylinders containing 30-lb. fill weight of adhesive. Reusable spray gun and 6', 12' or 18' hoses are sold separately and are attached to cylinder for dispense.
CCW-702	Solvent-based contact adhesive, 1-gal cans and 5-gal pails
CCW-702 LV	OTC-compliant, solvent-based contact adhesive, 5-gal pails
CCW-715	Solvent-based contact adhesive for green concrete, 5-gal pails
CCW-702 WB	Water-based contact adhesive, 5-gal pails
APPROVED SEALANTS FOR CONTACT WITH BARRISEAL-S	
LM-800XL	Trowel-grade synthetic rubber sealant, 29 fl-oz cartridges, 12 per case and in 5-gallon pails
CCW-201	2-Part, Non-Sag Polyurethane Sealant, 1.5-gallon kits
Sure-Seal Lap Sealant	Solvent-based synthetic rubber, 11-fl-oz tubes and 5-gal pails

Sealants by others as approved in Barriseal details.

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Typical Properties

Property	Method	Results
Color	—	Un-cured: dark brown, cured: black
Volatile Organic Content	—	<20 g/L
Shelf Life	—	9 months
Percent Solids (weight)	—	63%
Coverage (Theoretical)*	—	25 sq. ft. per gallon
Application Temperature	—	Minimum 20°F, ambient and substrate
Service Temperature	—	-20°F to 149°F
UV Exposure	—	30 days maximum
Resilience	ASTM D5329	98% (recovery)
Low-Temp Flexibility	ASTM D1970	No cracking at -20°F, bent over 1" mandrel
Low-Temp Crack Bridging	ASTM C1305	No cracking after 10 cycles at -15°F
Extensibility over Crack after Heat Aging	ASTM C1522	No cracking
Peel Adhesion (lb/in)	ASTM D903	HDPE Film 12.2, Concrete 14.1, CMU 14.1, DensGlass® Gold 13.1
Pull-Off Adhesion	ASTM D 4541, modified 4" wood puck	20 PSI on Densglass Gold >28 PSI on CMU (max load capacity of pull tester)
Elongation	ASTM D412	1,000%
Water Vapor Permeance	ASTM E96	0.02 Perm
Air Leakage Through Assembly	ASTM E283	<0.02 L/s*m ²
Air Permeance, 40 Mil Thickness Free Film	ASTM E2178	0.000 L/s*m ²
Air Permeance, CMU Substrate	ASTM E2178, Mod Barriseal-S at minimum 40 mils cured on CMU	0.009 L/s*m ²
Water Leakage Through Assembly	ASTM E331	No visible leaks
Wind Loading of Assembly	ASTM E330	No de-lamination of membrane or propagation of air leakage.

Property	Method	Results
Air Barrier Assembly Test	ASTM E 2357. Gypsum sheathing over steel studs, wall assembly. Sheathing joints were prepared with Barritape. Gaps, joints, penetrations and rough opening primed with CCW 702 and reinforced with CCW 705. Barriseal-S spray-applied at 45 mils wet.	Air Leakage: Maximum 0.0603 L/s*m ² @ 75 Pa [0.0119 CFM / ft ² @ 1.57 PSF] infiltration & exfiltration, after deformation, pressure cycling and gust loading. Deformation: No Damage. 600 Pa [12.56 PSF], sustained load for 60 min Pressure Cycling: No damage. 2000 cycles at +/- 800 Pa [16.75 PSF]. Gust Load: No damage, 1440 Pa [110 mph wind], windward and leeward load, 10 sec each direction.
Nail Sealability	ASTM C1970	Pass
Water Resistance to Hydrostatic Pressure Head	AATCC 127-03 mod. 22: [55 cm] column of water for 5 hours	No water leakage through membrane

*Actual coverage varies by substrate and is typically less than theoretical coverage due to substrate roughness and porosity, wind, scrap and installer skill. Measurable dry mil thickness may also be lower than theoretical, due to substrate roughness, porosity and measurement technique. On all substrates, coating shall be visibly continuous, with no pinholes. Dry thickness, measurable with a pin gauge, comb gauge or micrometer shall be a minimum of 30 mils.

Limited Warranty

Carlisle Coatings & Waterproofing Incorporated (Carlisle) warrants this product to be free of defects in workmanship and materials only at the time of shipment from our factory. If any Carlisle materials prove to contain manufacturing defects that substantially affect their performance, Carlisle will, at its option, replace the materials or refund its purchase price. This limited warranty is the only warranty extended by Carlisle with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose. Carlisle specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever. The dollar value of Carlisle's liability and buyer's remedy under this limited warranty shall not exceed the purchase price of the Carlisle material in question.