SWELLPRUFE® Data Sheet

Versatile, dual protection next generation bentonite & rubberized asphalt waterproofing membrane that bonds integrally to poured concrete for blind side and post-applied walls applications.

Product Description

GCP SWELLPRUFE® Waterproofing Membrane bonds directly to poured concrete and shotcrete in blindside applications. SWELLPRUFE® combines the self-sealing properties of bentonite with specially formulated rubberized asphalt sheets. In blindside applications, when exposed to water from below, the bentonite layer on the underside of SWELLPRUFE® swells significantly compared to its dry volume, restricting water movement. The rubberized asphalt top layer of SWELLPRUFE® fully and continuously adheres to concrete or shotcrete applied onto SWELLPRUFE®.

Mechanically attached overlaps, which offer expedited installation, hydrate and swell, creating a confined seal when exposed to water. Alternatively, hot-welded overlaps provide a watertight seal without confinement.

SWELLPRUFE® is designed for shotcrete walls and cast-in-place concrete, making it ideal for typical foundation applications. For demanding applications with significant hydrostatic pressure, GCP recommends PREPRUFE® Plus membranes. For high-risk shotcrete foundations, the PREPRUFE® SCS Plus blindside system is recommended for superior performance.

SWELLPRUFE® membranes are also suitable for vertical post-applied applications.

Product Advantages

- Innovative design and strategically placed bentonite make SWELLPRUFE® trafficable and safe to work upon when wet.
- Features a specially formulated delayed swelling mechanism mitigating premature swelling, typical of bentonite, when exposed to rain and moisture.
- Bentonite encapsulation makes SWELLPRUFE® resilient to freeze/thaw and wet/dry cycles preventing loss (wash off) of bentonite particles.
- Fully bonds to concrete to prevent lateral water migration between the pre-applied membrane and structure, and remains stable under slabs and blind side walls
- Higher coverage and lower weight per roll compared to other bentonite membranes enable ease of handling and application
- Easy to cut and install with kick-out roll design, saving time during application.
- Visual guides for mechanical fixing (over the black color of the SWELLPRUFE® surface) and overlap lay lines ensure quality assurance for overlaps.

System Components

MEMBRANE

- SWELLPRUFE® Membrane - heavy-duty approx. 135 mil composite sheet designed for horizontal and vertical use.

ANCILLARY COMPONENTS[1]

- PERM-A-BARRIER® Universal Flashing & Sealant - sealant for penetrations, corners & damage repairs
- BITUTHENE® Liquid Membrane – detailing liquid membrane for piles and under BITUTHENE® sheet over cant strip for post applied application
- PREPRUFE® Liquid Flashing – fully bonded to poured concrete detailing solution if needed by project design
- ADCOR® - hydrophilic waterstop for joints in concrete walls and floors and for enhanced protection of penetrations
- SWELLSEAL® WA Single component gun-grade hydrophilic waterstop.

1. For the Ancillary components, refer to the specific product data sheets to get detailed product information.

Installation

SUBSTRATE PREPARATION

ALL SURFACES: It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth, with no gaps or voids greater than 0.5 in. (12 mm). Grout should be applied as needed around all penetrations, such as utility conduits, for stability.

HORIZONTAL: Suitable horizontal substrate can be but not limited to compacted gravels (not more than ¾"), compacted soil, mud slab, protection slab. The substrate must be free of loose aggregate and sharp protrusions. When installing over earth or crushed stone, ensure substrate is well compacted to avoid displacement of substrate due to traffic or concrete pour. The surface does not need to be dry, but standing water must be removed.

VERTICAL: Suitable substrates include but is not limited to drainage, timber lagging, sheet piles, concrete, and prepared shotcrete. Use concrete, plywood, insulation, or other approved facing over sheet piling to provide support. Board systems such as timber lagging must be close-butted and not more than 0.5 in. (12 mm) out of alignment. HYDRODUCT® 220 drainage sheet can be used to bridge voids, gaps, and misalignments up to 2 in. (50 mm) prior to SWELLPRUFE® installation.

MEMBRANE APPLICATION

Follow SWELLPRUFE® standard detail drawings. For questions reach out to GCP Technical Services.

SWELLPRUFE® has yellow double lines evenly spaced lengthwise along the roll. For pre-applied applications the side with the yellow lines face the future concrete or shotcrete. For post-applied applications the yellow lines face the wall substrate. Mechanical overlap fastening can be done with approved fasteners, staples, or nails.

Optional: Hot air welding can be used to seal the overlap.

HORIZONTAL SUBSTRATES

- Apply SWELLPRUFE® membrane on approved substrates. Roll out the membrane, ensuring the yellow lines face the concrete pour.
- Overlap succeeding sheets by at least 4 in. (100 mm) along the side, aligning with the second printed layline, and 6" (in). (150 mm) along end laps. Secure the membrane using approved fasteners spaced a maximum of 6" (in). (150 mm) apart.

VERTICAL SUBSTRATES (BLIND-SIDE)

- SWELLPRUFE® membranes are suitable for vertical application on permanent formwork or adjacent structures. Secure the membrane vertically with approved fasteners appropriate for the substrate, ensuring the yellow overlap lines face the concrete pour. The membrane can be installed in any convenient length. Terminations are required at the top edge of the membrane. Termination can be sealed with minimum 80mil thickness of PERM-A-BARRIER® Universal Flashing & Sealant or a termination bar can be used. termination might be required at the bottom edge of the post applied membrane as well.

ROLL ENDS AND CUT EDGES

- Overlap all roll ends and cut edges by a minimum of 6" in. (150 mm). Stagger end laps to avoid thickness build-up. Mechanically attach using staples or pins (suitable fasteners) spaced 6" in. (150 mm) apart. Fasten through the overlap within 3/4" in. (18 mm) of the leading edge using an approved fastener so the membrane lays flat.
- Vertical end laps should be shingled so that the bottom edge of upper sheet is over the lower sheet top edge. Refer to application details for proper installation.

SIDE LAPS (4-INCH MARKED SELVEDGE)

- Mechanically attach using staples or pins (suitable fasteners) spaced 6" in. (150 mm) apart. Fasten through the marked selvedge within ¾" in. (18 mm) of the leading edge using an approved fastener so the membrane lays flat.
- Vertical side laps should be shingled so that the bottom edge of upper sheet is over the lower sheet top edge. Refer to application details for proper installation.

VERTICAL POST-APPLIED WALLS

- SWELLPRUFE® membranes are suitable for vertical post-applied applications, with yellow double lines facing the wall substrate. Secure the membrane vertically with approved fasteners appropriate for the post-applied concrete, not less than ½ in. in length, spaced a maximum of 12 in. apart for the overlap and in the center of the membrane, securing it tightly to the wall. Ensure the yellow overlap lines face the concrete. The membrane can be installed in any convenient length (width or length). Wooden or mechanically attached terminations sealed with minimum 80mil thickness of PERM-A-BARRIER® Universal Flashing & Sealant may be required to maintain the membrane's position.

Protection for post-applied SWELLPRUFE®: It is recommended to protect the membrane from backfill operation within 30 days of membrane application. Suitable protection course can be HYDRODUCT 220 which also provides drainage performance.

MEMBRANE REPAIR

- Inspect the membrane before installing reinforcement steel, formwork, and final placement of concrete.
- Repair small punctures and slices (0.25 in. / 6 mm or less) by applying PERM-A-BARRIER® Universal Flashing & Sealant centered over the damaged area, with a minimum 3" in. spread to all sides.
- Repair punctures and holes larger than 0.25 in. (6 mm) by applying a patch of SWELLPRUFE® Membrane. Extend the patch 6 in. (150 mm) beyond the damaged area. Apply fasteners at 6 in. (150 mm) spacing within 3/4 in. (18 mm) of the leading edge using an approved fastener so the membrane lays flat. Avoid fish mouths at the overlaps; apply additional fasteners so the membrane lies flat at the seams.

POURING OF CONCRETE

- Under most climatic conditions, concrete should be poured within 30 days of membrane installation. If the concrete pour is delayed beyond 30 days due to unforeseen circumstances, consult GCP Technical Services for guidance on replacing material or covering.
- Place concrete carefully to avoid damaging the membrane. Never use sharp objects to consolidate the concrete.
- Remove ponding water from the membrane as soon as possible. Extended ponding is not allowed. If the membrane is fully submerged in water for more than 24 hours, consult GCP Technical Services for guidance on replacement or repair before the concrete pour.

REMOVAL OF FORMWORK

- A minimum concrete compressive strength of 3,000 psi (20 N/mm²) and 3–5 days of curing are required before stripping formwork supporting SWELLPRUFE® Membranes. Premature stripping may result in displacement of the membrane and/or spalling of the concrete

Environmental Conditions

TEMPERATURE REQUIREMENTS

- SWELLPRUFE® membrane can be applied at temperatures of 25°F and rising.

PRECAUTIONS

- Users must read and understand the product label and Safety Data Sheets (SDSs) for each system component before use. Review all precaution statements on product labels and SDSs prior to working with the material. The most current SDSs are available at gcpat.com.

LIMITATIONS

- Approved uses include only those specifically detailed in this Product Data Sheet and other current Product Data Sheets available at gcpat.com.
- SWELLPRUFE® Membranes are not intended for any other use. Contact GCP Technical Services where any other use is anticipated or intended.
- SWELLPRUFE® Membranes are designed for in-service (throughout the building life) temperatures between -5°F (-20°C) and 120°F (49°C). SWELLPRUFE® membrane remain unaffected during concrete curing, even when temperature temporarily exceed 120°F (49°C).
- SWELLPRUFE® Membranes should not be used with conventional two-sided formwork.
- SWELLPRUFE® Membranes should be installed on an approved substrate, not in standing water or on ice.
- SWELLPRUFE® Membranes are designed to function in groundwater with limited alkali salts and strong acids, with conductivity below 2,500 µS/cm. Submit water samples to the manufacturer for compatibility testing if unsure.

Storage

- Observe 1 year shelf life and use on a first in first out basis
- Store rolls on end in an upright position and maintain the roll wrap on.
- Store in dry conditions between 40°F (4.5°C)-90°F (32°C)
- Store rolls off ground in a clean dry location and cover as necessary to protect rolls environmental damage such as extreme cold, heat, and moisture

Supply

Dimensions (nominal)	SWELLPRUFE®
Roll Size	33 ft. 4 in. × 3 ft. 3 3/8 in. (110 sq. ft) 10 m × 1 m (9.3 sq. m)
Typical Roll Weight	Approx. 89 lb
Weight/sft	0.81 lb
Minimum side laps	4 in. (100 mm)
Minimum end laps/cut edges	6 in. (150 mm)

PHYSICAL PROPERTIES

Dimensions (nominal)	SWELLPRUFE®	Test Method
Color	Black	
Typical Thickness	135 mil	ASTM D3767
Volumetric expansion, day 1	Typical Value: 50%, 77°F	ASTM D 5229-A Unconfined
Volumetric expansion, day 3	Typical Value: 100%,, 77°F	ASTM D 5229-A Unconfined
Ultimate Volumetric expansion	Typical Value: 500%, 77°F	ASTM D 5229-A Unconfined
Lateral Water Migration Resistance	Pass at 231 ft (71 m) of hydrostatic head pressure	ASTM D53851
Resistance to Hydrostatic Head	Pass at 231 ft (71 m) of hydrostatic head pressure	ASTM D53852
Resistance to Hydrostatic Head, Functional Details	Pass at 231 ft (71 m) of hydrostatic head pressure	ASTM D53853
Tensile Strength	400psi	ASTM D412-A
Elongation at break	50%	ASTM D412-A
Crack cycling at -9.4°F (-23°C), 1/8" Movement	Unaffected, Pass	ASTM C1305/ASTM C836
Puncture resistance	>150 lbs	ASTM E154, Section 10
Peel adhesion to poured concrete	5 lb/in. (875 N/m)	ASTM D903
Low Temperature Flexibility	Pass at -10°F	ASTM D1970
Water vapor transmission rate	<0.1 Perm	ASTM E 96, wet and dry cups
Methane permeance	<40ml/day.m2.atm	ASTM D 1434

FOOTNOTES

1. Lateral water migration resistance is tested by casting concrete against membrane with a hole and subjecting the membrane to hydrostatic head pressure with water. The test measures the resistance of lateral water migration between the concrete and the membrane.
2. Hydrostatic head tests of SWELLPRUFE® membranes are performed by casting concrete against the membrane with overlap.
3. Test is performed by casting concrete against the membrane with detail prepared per GCP requirements.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate, and is offered for consideration, investigation and verification by the user, but we do not warrant the results to be obtained. Please read all statements, recommendations, and suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation, or suggestion is intended for any use that would infringe any patent, copyright, or other third party right.

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