CretePRO® ULTRA PLUS Waterproofing Agent
is a bio-based waterproofing material that employs a sodium silicate waterproofing agent, that is enzymatically modified to chemically bond with concrete. With the introduction of water, the waterproofing agent increases in mass and forms a gel that encapsulates water trying to enter the concrete. This vapor permeable gel fills cracks, pores, and voids in the concrete, creating a long-term barrier to water infiltration. It penetrates into the concrete and reacts with the calcium and water contained in the concrete, to form a calcium silicate gel complex that fills cracks, pores, and capillaries. This gel creates a sub-surface barrier against the ingress of water and contaminants such as chloride ions.

CretePRO ULTRA PLUS Waterproofing Agent once reactive within the concrete will **seal existing cracks up to 5/64" (2.0 mm) in width and will seal future cracks, up to 1/64" (0.4 mm)**. In the matrix, the product remains reactive when in contact with water, to provide autogenous repairing properties to future hairline cracks.

KEY BENEFITS
• 15-year Warranty.
• Seals existing and future cracks.
• 100% trafficable within 4 hours after completed and dry, with minimal risk of damage during construction

PRODUCT PROPERTIES
• Colorless, clear to slightly opaque, odorless, soapy feel
• Non-toxic & Biodegradable
• Percent non volatile solids 26.55%
• Specific gravity at 77°F (25°C) : 1.2
• Flash point - no true flash - boils at 214°F (101°C)
• Auto-ignition temperature - N/A Non-explosive
• Viscosity - 14.3 centipoise or 0.1172 Stokes
• Hazardous chemicals - Sodium Silicate (modified)
• pH 11.51

SYSTEM COMPONENTS
The following components are __required__ be used in combination with the CretePro ULTRA PLUS Waterproofing Agent.
• ACR Accelerating Agent
• ACR Crack & Void Treatment

The following components __may__ be used in combination with the CretePro ULTRA Waterproofing Agent, but are not required.
• ACR Polyseal Sealant S+
• ACR PolyMembrane Flashing
• ACR Concrete & Masonry Etch
• ACR Concrete & Masonry Cleaner
• ACR Emulsifying Cleaner
• ACR Paint Remover
• ACR Ceramic Granules
• DuraTite Crystalline Admix
• DuraTite Plug
• DuraTite Repair Mortar
• DuraTite Concrete Patch & Repair
• DuraTite Foundation
• DuraTite MLastic

CONCRETE WATERPROOFING & MAINTENANCE PRODUCTS

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PERFORMANCE TIMELINE

The CretePro ULTRA PLUS Waterproofing Agent utilizes a bio-based modified sodium silicate gel-forming technology to stop water penetration. Sodium Silicate is often referred to as "liquid glass" and is a silicon-oxygen polymer containing ionic sodium (Na+) components. Sodium silicate is similar to carbon-based plastics since silicon-oxygen-silicon bonds between each monomer are covalent. The polymer-like nature of the sodium silicate matrix as well as the polar character of oxygen and sodium atoms allows for bonding of water molecules within the polymer matrix. The modified sodium silicate penetrates into and bonds with the concrete to create a barrier to water, stopping the water from within the concrete rather than on the surface. The chemical reaction that creates this barrier is catalytic in nature and **may require 3-5 days to reach full water stopping capabilities.** Full waterproofing should not be expected until complete gel formation has been achieved.

PERFORMANCE CHARACTERISTICS

- UL Classified NSF/ANSI 61.
- Safe for potable (drinking) water.
- Seals cracks up to 5/64" (2.0 mm) on initial application and will seal future cracks up to 1/64" (0.4 mm), except for cold and control joint applications.
- Reduction of chloride diffusion coefficient by 89% to 3.5 (10-12m2/s).
- Increases surface hardness from 6 to 8 on Moh's scale.
- Allows 84.1% moisture vapor permeability.
- Suitable for tanking applications (positive hydrostatic pressure) - tested to 400 meters (1,312').

APPLICATION

SURFACE CLEANING & PREP

CretePro ULTRA PLUS Waterproofing Agent must be applied to a clean, dry, dust-free concrete surface, at least 14 days after the concrete has been poured in place. In the case of old concrete and where the surface is not clean one of the following products may be used.

ACR Concrete Masonry Cleaner - Use this product to remove dirt and environmental debris. This product is sprayed on the surface and in most cases will require some agitation. Once the dirt and debris has been removed rinse with water.

ACR Concrete Etch - This product should be used when the surface of the concrete does not allow the proper penetration of the water based products. It is an environmentally safe and human safe substitute for muriatic acid. Apply by spraying over the entire surface of the concrete. Once the product is no longer reacting with the concrete, it may either be; 1) allowed to dry in place and once dry remove loose material with a broom or vacuum; 2) remove by rinsing with water.

ACR Emulsifying Cleaner - Use this product to remove grease and oil that has penetrated into the concrete. This is a solvent-based product that will break down the oil and grease and allow it rise to the surface. Once used, clean with ACR Concrete Cleaner and rinse with clean water.

ACR Paint Remover - Use this product to remove paint from the surface of the concrete. This is an environmentally safe product and will remove paint quickly and effectively. Once used, clean with ACR Concrete Cleaner and rinse with clean water.

Check the Alchemco website (www.alchemco.com) for technical data sheets on each of these products or for help on which cleaning product will provide the best result.

CLEANING AND PREPARATION

1. Clean the entire concrete surface, including any vertical surfaces adjoining the concrete surface to be waterproofed. Make sure all dirt and environmental debris has been removed from the surface.

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CRACK PREPARATION - OPTIONAL
The following steps are optional and are not required.

2. **Identifying cracks to be treated** - Once all surfaces are clean and free of dirt and debris. Begin reviewing all cracks and joints in the concrete surface. Mark any cracks that are 5/64" (2.0 mm) or larger. NOTE: Any crack that has voids or chipping where the voids or chips are greater than 5/64" (2.0 mm) should be considered in this category.

3. **Routing and grinding** - Cracks that have been marked as greater than 5/64" (2.0 mm) then need to be routed or ground out. This routing should provide for a clean edge and any debris that is in the crack should be removed. Loose material should not be allowed.

4. **Old caulking** - Any joints that have old caulking or sealant need to have the old caulking or sealant removed from those joints and thoroughly cleaned. This will include control joints and expansion joints.
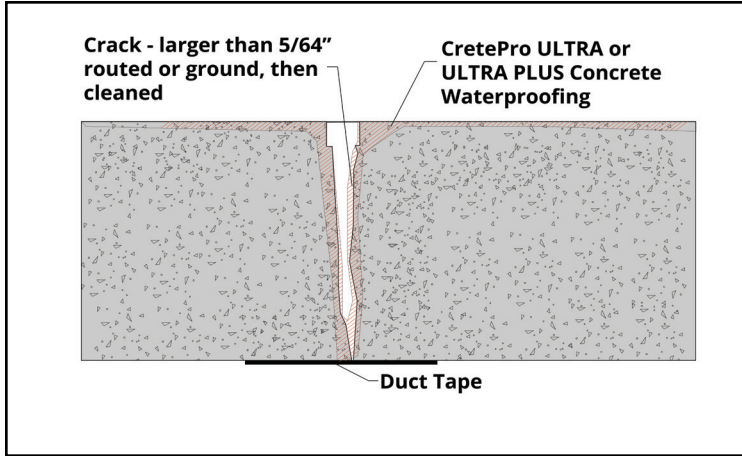
WATERPROOFING APPLICATION - REQUIRED

5. **Important** - If the system is to be applied to newly poured concrete, then the application must not begin for at least 14 days after the pour is completed. If the system is being applied to older existing concrete then the application can begin once the surface is clean and all cracks have been properly cleaned & prepared.

6. **NOTE: Any of the products should only be applied when the ambient temperature is 40°F (+4°C) and rising or 100°F (+38°C) and falling.**

7. Before applying any waterproofing product, determine if any of the cracks extend all the way through the concrete. Slab on grade applications this will not be possible. If a crack can be identified from below the concrete slab, then these cracks will need to have an application of duct tape applied to the underside of the deck.
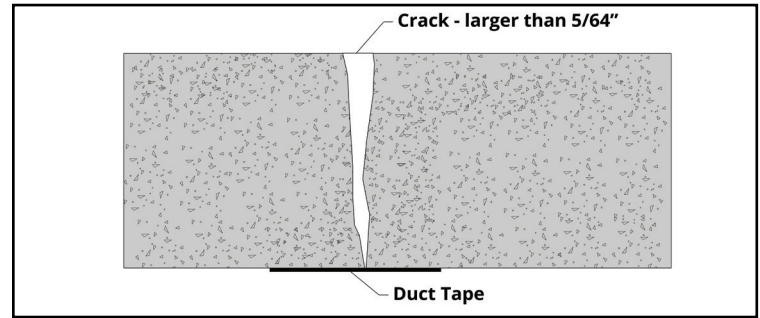
8. The purpose of the duct tape is to ensure that the waterproofing material stays within the crack and does not run out. Once duct tape has been applied to the underside of any through cracks, then application of the waterproofing may begin.

9. Waterproofing should be applied using a low-pressure pump style sprayer, backpack sprayer or a drum style sprayer. A fan or cone style sprayer tip is best for the application of the product. It is highly recommended that separate spray units be used for the application of the waterproofing agent and ACR Crack & void / ACR Accelerating Agent. DO NOT MIX THESE PRODUCTS TOGETHER.

10. Begin by flooding all cracks. This includes cracks less than 5/64" (2.0 mm) and also cracks that have been routed or ground. The purpose of this spraying is to ensure that all cracks have a sufficient amount of waterproofing material within them. In this situation more is always better.

CONCRETE WATERPROOFING & MAINTENANCE PRODUCTS

Crack - larger than 5/64" routed or ground, then cleaned

CretePro ULTRA or ULTRA PLUS Concrete Waterproofing

Duct Tape

11. Once all cracks have been properly flooded, begin applying CretePro ULTRA PLUS Waterproofing Agent to the entire concrete surface area at a rate of 180 - 220 square feet per gallon. As the application of product is being made, add more material to any cracks. This will ensure that the cracks have as much material as possible.

12. Once all surfaces have been sprayed, allow the product to dry. In direct sunlight this process may take as little as 1 hour, in some cases longer. Once the product has dried to touch (if you touch the surface and no wet product comes off on your hand). In case the product does not completely dry to the touch within 5 hours, begin the washing application.

13. Washing is to remove any excess material sitting on the surface. Washing should be done with clean, clear water. Washing should continue until there is no "white foaming" occurring, which is evidence of the presence of the material.

14. Once the washing is complete, allow all surfaces to dry to the touch. Dry time will vary depending on environmental conditions. Once the washed surface is dry begin application of the ACR Crack & Void, followed by the application of the ACR Accelerating Agent.

15. Begin by spraying ACR Crack & Void into all cracks flooding them with product. Once all the cracks have been treated with ACR Crack & Void, then begin spraying all concrete surfaces that were treated with waterproofing with ACR Accelerating Agent. Spray ACR Accelerating Agent at the same rate as the waterproofing material.


16. After spraying allow all surfaces to dry to the touch. Once all surfaces are dry to the touch, beginning washing off excess materials from the surface. Washing should continue until there is no "light white foaming" occurring, which is evidence of the presence of the materials.

17. **IMPORTANT!** If all excess material have not been removed from the surface, once it dries there will be white streaks left on the surface. These white streaks do not effect the performance of the waterproofing materials, but it can be a aesthetic appearance concern. If white streaking occurs once all surfaces are dry, power washing (less than 4000 psi) may be required to remove the white streaks. Once all waterproofing and washing has been completed and the concrete surface is dry begin flashing and sealant application.

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CRACK & JOINT FLASHING DETAIL - OPTIONAL
The following steps are optional and are not required.

18. Once all the waterproofing has been applied, has been properly washed and allowed to dry, work may begin on treating those cracks that are wider then 5/64" (2.0 mm).

19. Cracks from 5/64" to 1/2" in width may be caulked directly without any open cell backer rod. Cracks 1/2" or greater should have open cell backer rod applied to minimize the depth of the sealant application.

20. Place a strong bead of ACR Polyseal Sealant S+ in the crack. Make sure to apply enough material that once it has been screeded it will be level with the surrounding concrete surface. While the sealant is still pliable, use a caulking knife to smooth the surface and ensure that both edges of the sealant are sealed to the clean edges of the crack.

21. **Control Joints** - Use the same technique on control joints as with large cracks, apply a strong bead of ACR Polyseal Sealant S+ to the control joint. If the control joint is wider than 1/2" then place an open cell backer rod into the joint to limit the depth of the caulking. Once the sealant has been placed, screed the sealant using a caulking knife to ensure that the sealant is sealed to the edges of the control joint.
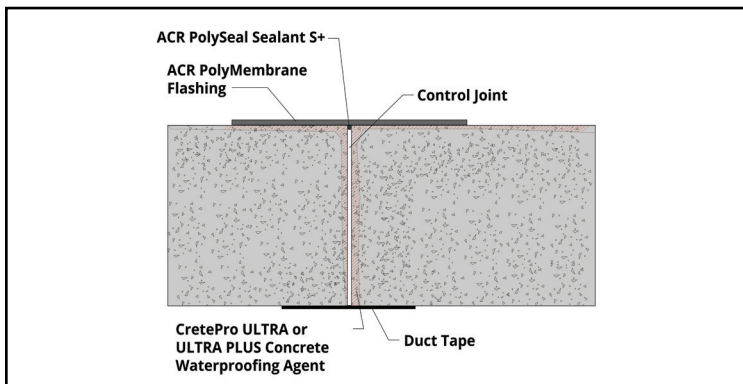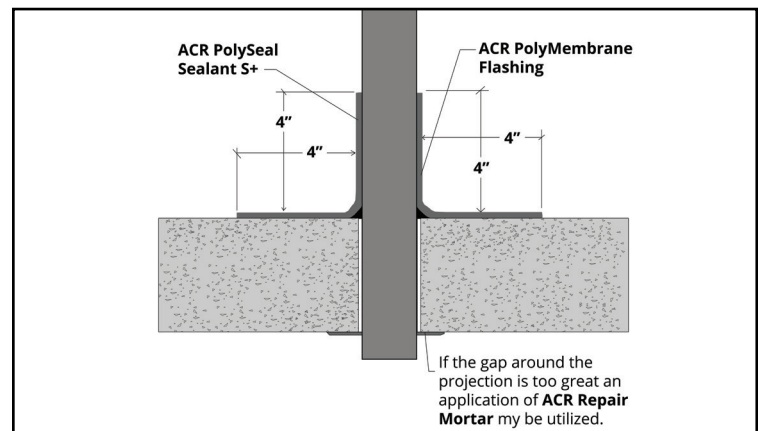

22. Once the sealant has begun to skin over, apply ACR PolyMembrane Flashing over the top of the control joint using a paint roller. Liquid flashing should be applied at least 30 mils dry thickness and at least 4" either side of the control joint.

23. **Cold Joints / New Construction** - On projects where the concrete has been recently poured and DuraTite Admix was utilized, then cold joints may only need to be treated with an application of ACR PolyMembrane Flashing be rolled on with a paint roller over the top of the cold joint. The liquid flashing should extend 4" to either side of the cold joint.

24. **Cold Joints / Existing Construction** - On projects where the concrete is older and some cracking has occurred along the cold joint, then the cold joint may need to be treated in the same manner as any crack, with the exception that ACR PolyMembrane Flashing is applied over the top of the joint using a paint roller. The liquid flashing should extend 4" to either side of the cold joint.

FLASHING AND SEALANT APPLICATION - OPTIONAL
The following steps are optional and are not required.

25. Any projections, such as pipes, drains, steel supports etc., shall be sealed around the base of the protection with a bead of ACR Polyseal Sealant S+. Place a bead of sealant around the projection at the point where the project goes through the concrete surface. Using a caulking knife screed the sealant so as to seal both edges of the sealant to the projection and the concrete surface.

26. Once the sealant has begun to skin over, begin applying ACR PolyMembrane Flashing to all the projections by applying the product with paint roller. Product should be applied at no less than 30 mil dry thickness and should be applied no less than 4" onto the concrete surface and no less than 4" onto the projection. Repeat this process for every projection coming through the surface of the concrete.

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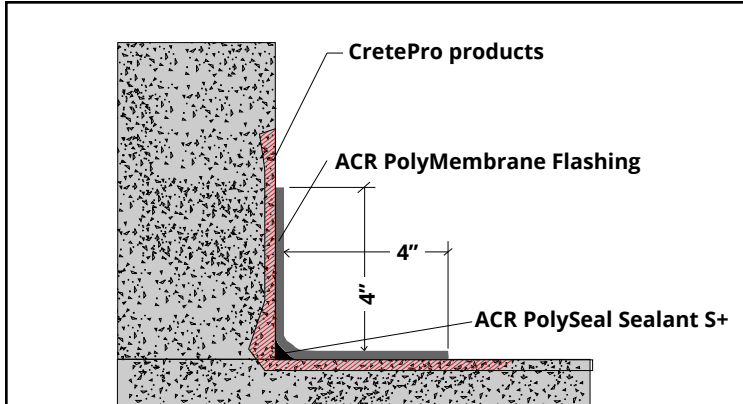
27. The corner created where a horizontal concrete surface meets a vertical concrete surface should be sealed by applying a bead of ACR Polyseal Sealant S+ to the corner made by the vertical meeting the horizontal. Apply a liberal bead of sealant to the corner and then screed with a caulking knife.

28. Once the sealant has begun to skin over, begin applying ACR PolyMembrane Flashing to both the horizontal and vertical surfaces by using a paint roller to apply no less than 30 mil dry thickness, 4" on the vertical surface and 4" onto the horizontal surface.

SLIP RESISTANCE - OPTIONAL
The following steps are optional and are not required.

29. In areas where ACR Polymembrane Flashing may be walked or driven upon, slip resistance may be required. In these areas the ACR Ceramic Granules may be applied to increase the slip resistance of the liquid flashing material. **DO NOT USE STANDARD SILICA SAND!**

30. Immediately after the application of the liquid ACR PolyMembrane Flashing, apply ACR Ceramic Granules into the coating. The recommended coverage rate and method as follows.

31. **Pedestrian Walkway Areas** - Apply ACR PolyMembrane Flashing to the surface at a thickness of 30 mils (2.3 gals /100 square feet) then apply the ACR Ceramic Granules at a rate of 40 lbs./100 square feet).

32. **Vehicular Traffic Areas** - Apply ACR PolyMembrane Flashing to the surface at a thickness of 40 mils (3.1 gals /100 square feet) then apply the ACR Ceramic Granules at a rate of 60 lbs/100 square feet).

RATES OF APPLICATION
CretePro ULTRA PLUS Waterproofing Agent application rates will vary, but under most conditions it will require 1-gallon for every 180-220 square feet of concrete surface (1 liter to 5 square meters).

ACR Accelerating Agent application rates will vary, but under most conditions it will require 1-gallon for every 180-200 square feet of concrete surface (1 liter to 5 square meters).

ACR Crack & Void application rates will vary depending on crack width and depth, but under most conditions it will require 1-gallon for every 140-160 lineal feet of cracks on average.

ACR Polyseal Sealant S+ application rates will vary with the width of the crack, but under most condition the rate will be approximately 18-20 lineal feet per 20 ounces of product applied.

ACR PolyMembrane Flashing application rates will vary, but under most conditions when applying **30 mils dry thickness**, it will require 2.3 gallons per 100 square feet. (8.7 liters per 9.3 square meters) or 217 square feet per 5 gallon bucket. At **40 mils dry thickness**, it will require 3.1 gallons per 100 square feet (11.7 liters per 9.3 square meters) or 163 square feet per 5 gallon bucket.

STORAGE, SHELF LIFE & STORAGE
CretePro ULTRA PLUS Agent has no known limit to shelf life. Keep container sealed and avoid prolonged exposure to direct sunlight. Always agitate drum or container before use.

CONCRETE WATERPROOFING & MAINTENANCE PRODUCTS

LIMITATIONS

CretePro ULTRA PLUS Waterproofing Agent is not suitable for sealing cracks in excess of 5/64" in width, expansion joints, cold joints or control joints. It is recommended that all cracks greater than 5/64" in width, control joints, and cold joints, should be sealed and it is recommended that ACR Polyseal Sealant S+ or an approved equal be utilized.

TESTING

The NSF/ANSI 61 is a set of national standards that relates to water treatment and establishes stringent requirements for all equipment and products that come in contact with either potable (drinking) water or products that support the production of potable water. CretePro ULTRA Waterproofing Agent has been UL Certified NSF/ANSI 61.

TESTING STANDARDS

- ASTM E514 — Water penetration
- ASTM C952 — Bond Strength
- ASTM C672 — Scaling Resistance
- ASHTO T-259 — Chloride Ion Penetration
- ASHTO T-260 — Chloride Ion Content
- ASTM D1644 — Non volatile Content
- NSF 61 — Potable Water Certification
- ASTM C1568-08 — Wind Uplift Approval
- ASTM C1202 — Chloride Ion Resistance
- ASTM C39 — Compressive Strength
- TAS 112 — Permeability
- ASTM D93 — Ignition temp
- ASTM E108 — Non combustible Surface
- ASTM C-42 — Compressive and Flexure Strength
- ASTM-C-666 — Freeze/Thaw
- ASTM D-3960 — Zero VOC's
- ASHTO T-38 — Moisture Vapor Transmission

PACKAGING

CretePro ULTRA PLUS Waterproofing Agent is available in the following sizes;
- 5 gallon pails (18.92 liters)
- 55 gallon drums (208.2 liters)

See specific data sheets for each system accessory item for packaging availability.

AVAILABLE WARRANTIES

A **Limited Liability Material Only Warranty** is available at no additional cost, **if the project is registered with Alchemco**.

- **CretePro ULTRA 10-Year.**

For additional information about the Alchemco system specifications or available warranties, either contact your local Alchemco distributor or Alchemco's Technical Department at technical@alchemco.com or call 800-610-2895.

CONCRETE WATERPROOFING & MAINTENANCE PRODUCTS

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WARNINGS

DANGER! TOXIC IF SWALLOWED

This product contains Sodium Silicate and may be harmful if swallowed. Wash hands, face and any exposed skin thoroughly after handling. Keep container tightly closed. Do not eat, drink or smoke when using this product.

IF SWALLOWED: Immediately call a POISON CONTROL CENTER, doctor/physician. Rinse mouth.

See Safety Data Sheet for further details regarding safe use of this product. Safety Data Sheets for any Alchemco product may be obtained by contacting Alchemco, 3532 Mayland Court, Henrico, VA 23233. 800-610-2895 or emailing technical@alchemco.com or calling
CHEMTREC   800-424-9300 (US)
*   703-741-5970 (International).*

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DRINKING WATER SYSTEM COMPONENT
NSF/ANSI/CAN 61 MH63325

WARRANTY DISCLAIMER
Because of conditions of use which may be beyond our control, Alchemco shall not be held responsible in any manner for any personal injury or property loss resulting to the buyer or any other person from handling, storage, or use of this material not in accordance with directions. The buyer and/or user assumes all risk and liability resulting from improper handling or usage. There is no warranty expressed or implied of any kind, except as supplied in writing.

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