

# Krytol® Waterstop System

## Waterproofing Horizontal & Vertical Construction Joints – Internal Swelling Method

### DESCRIPTION

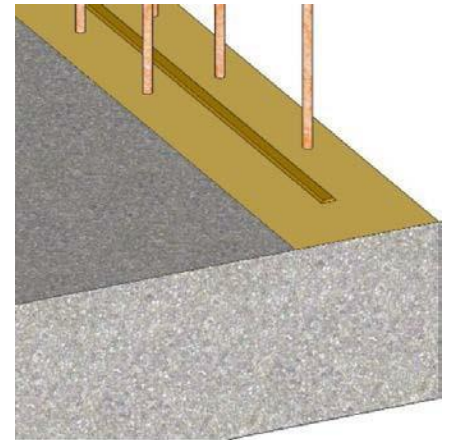
Follow these instructions to waterproof horizontal and vertical construction joints with the Internal Swelling Method, using Krytonite Swelling Waterstop and Krytol Waterstop Treatment.

**NOTE:** Use a high quality, exterior grade construction adhesive based on Polyurethane (PU) or Modified Silane (MS-Hybrid) to install Krytonite Swelling Waterstop.

**NOTE:** Krytonite Swelling Waterstop is available in a standard yellow version and a rain protected blue version. The standard yellow version must be protected from rain until covered in concrete. The blue version can resist heavy rain for at least 24 hours and light rain for longer, but you should still minimize its exposure to wet weather as much as possible.

### Drawings and Specifications:

Visit [www.kryton.com/technical-info/](http://www.kryton.com/technical-info/) or contact your authorized Kryton representative.



### LIMITATIONS

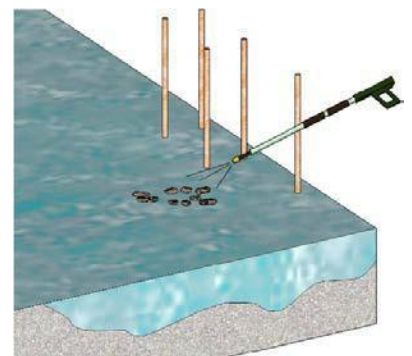
Not for use at expansion joints. The Krytol Waterstop System is effective for rigid structures only and may not reliably seal joints that experience variable loading or repeated movement. Not compatible with stay-in-place metal mesh formwork. Air and surface temperatures at the time of application must be at least 4°C (40°F).

### SAFETY PRECAUTIONS

Read and follow the Safety Data Sheets (SDS) for these products (available at [www.Kryton.com](http://www.Kryton.com)). For professional use only. These products become highly caustic when mixed with water or perspiration. Avoid contact with skin or eyes. Avoid breathing dust. Wear long sleeves, safety goggles and impervious gloves.

### STEP 1: SURFACE PREPARATION

1. Joints must be level and sound. Use a chipping hammer to level areas that are very rough or uneven. Chip out voids or rock pockets using a sharp, flat chisel (ensure edges are square and not feathered). **TIP:** Forming joints so they are sound and level while the concrete is fresh will eliminate the need to do this after it has hardened.
2. Clean joints by high-pressure water blasting, or use a wire brush and rinse until very clean. Remove laitance, oils, curing compounds or anything that may interfere with bonding. Use a de-greaser if needed to remove form release agents. A final ICRI Concrete Surface Profile (CSP) of 1-3 is adequate.
3. If voids or rock pockets were chiseled out, fill them with Krytol Waterstop Grout as follows: Mix grout to a sag free but workable putty (approximately 4.5 parts powder to 1 part clean water by volume), install to damp concrete and allow to harden (approx. 1 hour at 20°C).



# APPLICATION INSTRUCTION

## Construction Joints & Details

4.15



### STEP 2: APPLY KRYSTOL WATERSTOP TREATMENT

1. Bring the concrete to a saturated surface-dry (SSD) condition. This means the concrete is saturated with water, but no free water remains at the surface. Thoroughly soak the surface with water; then remove excess water with a sponge just before applying Krystol Waterstop Treatment.

**TIP:** Water blasting is effective at cleaning and saturating the joint in one-step.

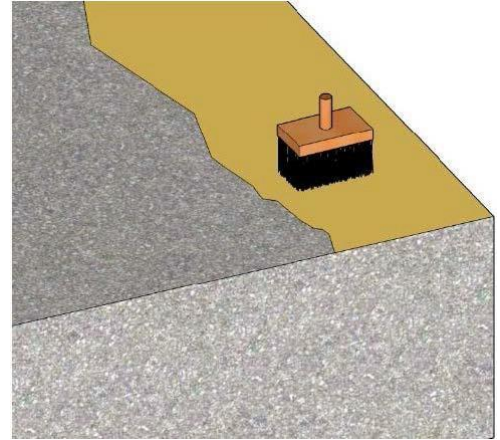
**SHOTCRETE TIP:** You can apply Treatment to end-of-day shotcrete joints before the shotcrete fully hardens. Cut back and shape the joint, then lightly dampen the surface and apply Treatment.

2. Mix Krystol Waterstop Treatment to a thick but flowing paste (approximately 3 parts powder to 1 part clean water by volume). The paste will seem very stiff at first, but will become thinner when fully mixed. Mix only as much as you can apply within 30 minutes.

**NOTE:** After mixing, the material may thicken in the pail. Do not add more water. Remixing will make the material easy to spread again.

3. Use a concrete brush to coat the entire joint. Ensure Treatment fills all surface voids and is at about 1 mm (40 mil) thick. Work around reinforcement; Treatment touching the rebar is not harmful and helps protect against corrosion, but avoid heavy build-up on the bar.

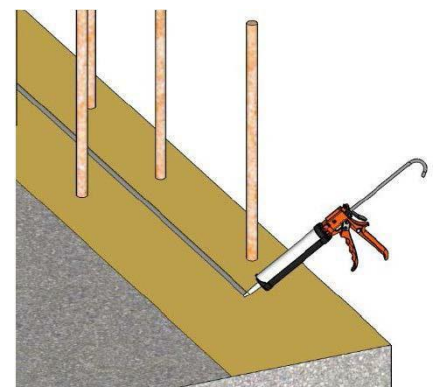
**IMPORTANT:** Protect the joint from rain and rapid drying. Use plastic sheeting to protect from rain, sun and wind until the Treatment has hardened (approx. 2.5 hours at 20°C). Once hardened, protect from freezing for 24 hours, and keep damp for 24 hours or until Krytonite Swelling Waterstop is installed. Do not use curing compounds.



### STEP 3: INSTALL KRYTONITE SWELLING WATERSTOP

**IMPORTANT:** Install Krytonite after the Treatment has hardened. Ensure 65 mm (2.5 inches) of concrete cover in all directions. Installing too close to the outside edge may damage to the concrete. Leave about 25 mm (1 inch) between the Krytonite and rebar to prevent void spaces.

1. Use a high quality, exterior grade construction adhesive based on Polyurethane (PU) or Modified Silane (MS-Hybrid) to install Krytonite Swelling Waterstop. Apply a 6 mm (1/4 in.) bead of adhesive at or near the center of the joint and press the Krytonite strip into it. Do not allow time for the adhesive to form a skin. Use enough adhesive so it squeezes out the sides when Krytonite is pressed down. Rough surfaces will require more adhesive. Alternatively (or in addition), nails can be used to secure the waterstop (approx. three nails per meter; one nail per foot).



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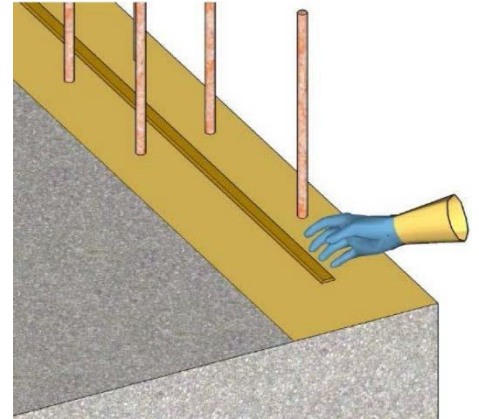
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2. Cut Krytonite to length using scissors. Butt ends tightly together (do not overlap). Mitre corners by cutting both strips at an angle. Allow adhesive to cure before pouring concrete.

**IMPORTANT:** Contact with water may cause the strip to swell and lose bond with the adhesive. If this occurs, the material can be recovered by allowing it to dry until it returns to its original size before reinstalling.



### STEP 4: PLACE AND CONSOLIDATE CONCRETE

Place concrete over the joint as normal, taking care not to dislodge Krytonite during placement. Allow concrete to fall directly over the joint, and avoid shooting shotcrete directly at the side of the Krytonite strip. To achieve a waterproof joint:

1. Remove debris and water from the joint before placing concrete.
2. Do not let form release oil contaminate the joint.
3. Remove form spreaders (if present) as the concrete is placed.
4. Place and vibrate concrete following ACI 309R - Guide for Consolidation of Concrete.
5. Place shotcrete using an ACI certified nozzle crew following ACI 506R – Guide to Shotcrete.
6. Cure following ACI 308.1 (Specification for Curing Concrete) taking measures to prevent rapid drying.

### COVERAGE

Material	Coverage										
Construction Adhesive	Most construction adhesives yield 8-10 m (26-32 ft.) per tube for a 6 mm (1/4 inch) bead.										
Krytonite Swelling Waterstop	50 m (164 ft.) per/box; 5 rolls @ 10 m (33 ft.) per/roll										
Krystol Waterstop Treatment (Applied at 1 kg/m <sup>2</sup> (0.2 lb. /sq. ft.))	One 25 kg (55 lb. pail) will cover approximately 25 m <sup>2</sup> (270 square feet) Approximate lineal coverage:  <table border="1"><thead><tr><th>Joint Width:</th><th>Coverage per Pail</th></tr></thead><tbody><tr><td>150 mm (6 inches)</td><td>164 m (540 feet)</td></tr><tr><td>200 mm (8 inches)</td><td>125 m (405 feet)</td></tr><tr><td>250 mm (10 inches)</td><td>100 m (325 feet)</td></tr><tr><td>300 mm (12 inches)</td><td>82 m (270 feet)</td></tr></tbody></table>	Joint Width:	Coverage per Pail	150 mm (6 inches)	164 m (540 feet)	200 mm (8 inches)	125 m (405 feet)	250 mm (10 inches)	100 m (325 feet)	300 mm (12 inches)	82 m (270 feet)
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### TOOLS & MATERIALS

- Clean water supply
- Mixing bucket, drill and mortar paddle
- Natural bristle concrete brush
- Water spray and towel/sponge
- High pressure water blaster
- Measuring cups
- Caulking gun
- Construction Adhesive