KRYSTOL® LEAK REPAIR SYSTEM

Section 03 & 07 - Hydrophilic Crystalline Waterproofing for Concrete – Leak Repair

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Waterproofing of existing concrete by treatment with hydrophilic crystalline waterproofing materials – Furnish labor, materials, equipment and services as necessary for the supply and installation of Krystol Leak Repair System to concrete structures as indicated on drawings and specifications herein..

B. Provide all written materials and site services necessary to complete the installation as specified herein.

1.2 RELATED SECTIONS

ATTENTION SPECIFIER Delete sections below not relevant to this project; add others if required.

A. Section 03 30 00 – Cast-in-Place Concrete

B. Section 03 40 00 – Precast Concrete

C. Section 03 15 00 – Concrete Accessories

D. Section 07 10 00 – Dampproofing and Waterproofing

1.3 REFERENCES

ATTENTION SPECIFIER Edit references to remove articles not required for the final specification.

A. ASTM E 329 – Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction; 1998a.

B. DIN 1048 Part-5 – Testing of Hardened Concrete (Water Penetration).

C. ASTM 1543-02 – Standard Test Method for Determining the Penetration of Chloride Ion into Concrete by Ponding

D. NSF/ANSI Standard 61 Drinking Water System Components - Health Effects.

1.4 SUBMITTALS

A. Certificates of Conformance or Compliance: Before delivery of the materials a copy of the manufacturer's certificates, attesting that materials meet the requirements specified, shall be submitted to and approved by the contracting officer.

B. Product Literature: Manufacturer's descriptive product literature shall be submitted and shall consist of detailed specifications, available performance test data, surface preparation instructions and application instructions.

C. Certified Laboratory Test Reports: Before delivery of materials, copies of the reports of all tests specified herein or in reference publications shall be submitted to and approved by the contracting officer.

D. Test reports shall be accompanied by certificates from the manufacturer certifying that the previously tested material is of the same type, quality and make as that proposed for this project.

E. References: Product must have a history of over ten years of successful use and must be accompanied by a list of jobsites of a similar nature.

Kryton International Inc.
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1.5 QUALITY ASSURANCE

A. Supply waterproofing and related materials manufactured by Kryton International Inc., 1645 East Kent Avenue, Vancouver BC, Canada V5P 2S8. Tel: +1 (604) 324-8280.

B. Installer/Applicator shall be an experienced installer that has been trained by the manufacturer or trained by an Authorized Distributor of the manufacturer.

C. Prior to installation, hold a meeting of all relevant parties to verify installation methods, warranty requirements, roles and responsibilities. Relevant parties may include the waterproofing contractor, installers of adjacent/connected work, project engineer/architect and project manager/supervisor.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's original, unopened, undamaged packages bearing the manufacturer's name, product identifiers and batch numbers.

B. Store materials in sealed containers in a dry location.

1.7 PROJECT CONDITIONS

A. Install waterproofing products under environmental conditions (temperature, humidity and ventilation) within limits recommended in manufacturer's literature. If project conditions are outside these limits, delay application or take measures to rectify conditions as required.

1.8 WARRANTY

A. Provide manufacturer's standard 10-year limited material warranty document.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Manufacturer: Kryton International Inc. located at: 1645 Kent Avenue East, Vancouver BC Canada V5P 2S8; Toll Free Tel: 800.267.8280; Tel: 604.324.8280; Fax: 604.324.8899; Email: info@kryton.com; Web: www.kryton.com

B. Obtain all crystalline waterproofing products from a single source.

C. Substitutions: Not permitted.

2.2 MATERIALS

A. Krystol Leak Repair System is comprised of two waterproofing materials:

1. Krystol Plug: Rapid-setting hydraulic cement based grout that sets in 60 seconds and will effectively arrest flowing water through a crack or hole in concrete. Arresting the flow of water is essential to allow installation of normal setting time crystalline repair materials
2. Krystol Repair Grout: Hydrophilic and reactive crystalline waterproofing material that will provide a permanently waterproof barrier to water. Material shall consist of dry powder containing Portland cement, quartz silica and active ingredients that when mixed with water will promote by reactive chemical process the growth and penetration of needle-shaped hydration crystals to a depth of at least 10 cm (4 in.) into the concrete mass. Material shall be non-shrinking and crack free.
3. The waterproofing materials shall not contain chlorides.
4. The waterproofing materials shall not provide waterproofing by way of hydrophobic ingredients such as oils,stearates, silanes, silicate salts or other hydrophobic treatment. Manufacturer must certify in writing the absence of these materials.

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5. The waterproofing materials must resist hydrostatic pressure of no less than 50m (164 ft.) of head pressure when tested to DIN 1048 Part-5 direct water penetration test.
6. The waterproofing materials shall be suitable for contact with potable water and certified by NSF International to NSF/ANSI Standard 61 Drinking Water System Components - Health Effects.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

A. Safety precautions shall conform to the manufacturer's safety data sheet and all local regulations.
B. Do not install waterproofing until satisfactory preparation of the concrete has been achieved.
C. Prepare concrete by cleaning and saturating with clean water then removing any water from the surface. Surfaces must be saturated, surface-dry (SSD) prior to installing the waterproofing materials. Soak concrete repeatedly or use a pressure-washer to saturate the capillary pores. Remove all standing water so the surface remains only slightly damp. Re-saturate the concrete before installing each component, or if the concrete dries out during installation.

3.2 CRACKS AND JOINTS:

A. Follow Kryton Application Instruction 5.12 — Waterproofing Cracks, Holes and Joints.
B. Use an electric chisel chase out cracks to 25 mm (1 in.) wide by 38 mm (1.5 in.) deep. Careful attention must be taken to ensure the chase is square and not "V" shaped.
C. Repair the full length of all leaking cracks, even of only a portion of the crack is visually leaking.
D. Fill first 1/3 of the chase with Krystol Plug following the instructions. Ensure all water is stopped. This step may be omitted only if the crack is not actively leaking.
E. Fill the remaining depth of the chase with Krystol Repair Grout following the instructions.
F. Protect the finished application from rapid drying or freezing temperatures for 3 days. After 16 hours, cure the application by repeatedly wetting with clean water. Cure for at least 3 days.

3.3 FORM-TIE HOLES, ROCK POCKETS, HONEYCOMBING, AND OTHER CONCRETE DEFECTS:

A. Repair as per Application Instruction 5.31 — Waterproofing Tie Holes and Defective Concrete.
B. Rout out defective areas to sound concrete. Leave edges square, do not featheredge.
C. Remove loose material and saturate with water.
D. If defect is actively leaking, install Krystol Plug to a maximum depth of 1/3 of the defect.
E. Fill defect with Krystol Repair Grout.

3.4 PIPE PENETRATIONS

A. Repair as per Application Instruction 5.32 — Waterproofing Pipe Penetrations (Existing Construction).
B. Rout out around pipe. 25 mm (1 in.) wide and 38 mm (1.5 in.) deep. Careful attention must be taken to ensure the chase is square shaped and not "V" shaped.
C. If leaking – fill 1/3 of chase with Krystol Plug. Ensure all water is stopped.
D. Prepare the pipe surface:
    1. Steel pipes – clean and roughen pipe. Remove all dirt, oil, corrosion and scale. Sand or sandblast to achieve a coarse profile.
    2. PVC or ABS pipes – coat the pipe with its compatible joint cement, broadcast with silica sand, then remove excess sand after the joint cement has set.
E. Fill the remaining chase with Krystol Repair Grout.

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3.5 FIELD QUALITY CONTROL

A. Manufacturer's written application instructions and safety data sheets shall be kept on site and made available to workers. Contractor shall provide proper supervision at all times to ensure that manufacturer's written instructions and safety precautions are being followed.

ATTENTION SPECIFIER Not all applications will be possible or necessary to water test. Measure change in water level to determine if leaks exist if leaks cannot be directly observed. Delete this section of not required.

B. Where possible, water test by flooding structures capable of holding water for 24 hours after conclusion of curing period. Repair identified leaks and repeat water testing until structure is watertight.

3.6 CLEANING AND PROTECTION

A. Protect waterproofing treatment from damage by others during construction.

B. Do not backfill against waterproofed surfaces for a minimum of 24 hours after installation. Inspect waterproofing treatment for bond and cohesive strength prior to backfilling. When backfilling occurs less than seven days after installation, use moist backfill material.

END OF SECTION

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