



VEXCON
CHEMICALS, INC.

Concrete solutions for architects, engineers and builders since 1974
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SECTION 07 19 16 Silane Water Repellents

SPECIFIER NOTE: The purpose of this guide specification is to assist the Specifier in developing a project specification for the use of Vexcon Construction products. Edit guide specification in accordance with project requirements. Delete, modify, or add text as required. Coordinate with other sections for general requirements and related work. Obtain current copies of manufacturer's technical data sheet and other product literature before editing.

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes:
1. Certi-Vex Penseal 244 40 AIM water repellent sealer for exterior and interior vertical and horizontal above grade applications.

SPECIFIER NOTE: Delete Sections not applicable.

- B. Related Sections:
1. Section 03 30 00 – Cast-in-Place Concrete
 2. Section 03 41 00 – Precast Structural Concrete
 3. Section 03 47 00 – Site Cast Concrete
 4. Section 04 21 00 – Clay Unit Masonry
 5. Section 04 22 00 – Concrete Unit Masonry
 6. Section 09 24 00 – Portland Cement Plastering

1.2 SUBMITTALS

- A. Comply with Section [01 33 00] [____].
- B. Product Data: Submit manufacturer's product data sheet. Include generic description, surface preparation, and application instructions.
- C. MSD Sheets indicating VOC content and safety precautions.
- D. Manufacturer's Quality Assurance: Submit manufacturer's certification that sealer complies with specified requirements and is suitable for intended application.
- E. Warranty: Submit manufacturer's standard warranty.
- F. Applicator Qualifications: Submit list of projects referenced as documented in this Specification under Quality Assurance Section.
- G. Quality Control Submittals:
1. Provide protection plan of surrounding areas and non-work surfaces.

1.3 QUALITY ASSURANCE

- A. Comply with Sections [01400] [__ __ __].
- B. Manufacturer Qualifications: Manufacturer shall demonstrate that they have manufactured specified products for a minimum of ten years.
- C. Applicator Qualifications: Company shall have a minimum of five years experience in the application of specified products on projects of similar size and scope and is acceptable to the product manufacturer.

SPECIFIER NOTE: A test application is recommended to determine coverage rate, performance. Allow a minimum of 14 days prior to testing permitting the product to react fully. If a test application is not required, delete this Section.

- D. Field Test Sample:
- E.
 - 1. Install at a project site a field sample following manufacturer's instructions on the structure accessible to all parties as directed by the architect.
 - 2. Furnish written certification that the surface preparation method and final condition has manufacturer's approval and complies with warranty.
 - 3. Mock up shall be a minimum of 50 square feet (4.6 m²) applied at the specified rate and include surface preparation allowing for evaluation of water-repellent performance.
 - 4. Conduct absorption testing on the cured field sample. If required, adjust application to achieve required water-repellency.
 - a. Filled to 0.0 mL graduation, after 20 minutes, the water level should be no lower than the 1.0 mL graduation.
 - 5. Architect shall provide written approval of field sample prior to the application of the specified products.
 - 6. Maintain mock-up during construction for workmanship standard.
 - 7. Mock-up may be incorporated into final construction upon architect's approval.
 - 8. Field sample will be standard for judging workmanship on remainder of project.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section [01 60 00].
- B. Deliver materials in manufacturer's original, unopened, sealed containers with all label identification intact.
- C. Store materials in unopened containers in dry, clean area between 35°F (2°C) and 100°F (37.8°C).

1.5 PROJECT CONDITIONS

A. Environmental Requirements:

1. Do not apply unless substrate and ambient temperature are 20°F (-6°C) and rising at installation time and remain above 40°F (4°C) for at least 4 hours after installation.
2. Do not apply above 90°F (32°C) or below 20°F (-6°C).
3. Weather Conditions: In accordance with manufacturer's instruction, do not apply sealer in snow, rain, or mist or when such conditions are expected. Allow surface to attain temperature ranges and conditions recommended by manufacturer before proceeding with installation.
4. Do not apply on windy days
5. Protect from spillage or overspray with specialty coated glass, plastic windows, bituminous roofing products and asphalt. Check compatibility before application.
6. Check the compatibility of all caulking, patching and traffic marking materials to be used with the penetrating sealer.
7. Sealants, patching materials and expansion joints shall have been installed and approved by the engineer.
8. Do not apply in rain or when rain is expected within 4 hours before or after application.
9. After rain, do not apply until surface is no longer wet.
10. Compliance: Follow manufacturer's instructions with regard to safety, health, and state and local environmental regulations.

B Ventilation: Provide adequate ventilation and airflow during and after application. Building air intakes should be protected from allowing vapors to enter the building.

C. Protection:

1. Wear protective goggles, gloves, and clothing during the application of the material.
2. Warn personnel against breathing vapors and contact of materials with skin or eyes.
3. In confined areas workmen shall wear approved chemical-cartridge type masks.
4. Keep products away from heat, sparks and flames. Do not allow the use of spark producing equipment during application and until vapors are gone.
5. Post "No Smoking" signs.

1.6 WARRANTY

- A. Provide manufacturer's limited warranty, co-signed by contractor and applicator, under provisions of section (01700), (01740). Warranty should state that structurally sound treated surfaces shall retain water and salt repellent properties for ten (10) years from date of application. Comply with manufacturer's warranty registration procedures.

PART 2 – PRODUCTS

2.1 MANUFACTURER

- A. Vexcon Chemicals.
7240 State Road
Philadelphia, PA 19135
Phone: 215.332.7709
Fax: 215.332.9997
Email: techservice@vexcon.com
www.vexcon.com
- B. Substitutions: Comply with Section [01 60 00]

2.2 MATERIAL

- A. Clear, breathable 40% low VOC solvent based solid silane penetrating sealer protecting against moisture penetration, chloride intrusion, and freeze-thaw cycles.
 1. Product as basis of design: Certi-Vex Penseal 244 40 AIM by Vexcon Chemicals.

SPECIFIER NOTE: For line stripping add Certi-Vex Traffic Marking Paint by Vexcon Chemicals

- B. Water-repellent sealer shall have the following minimum performance properties:
 1. NCHRP 244 Series II and IV
 - Reduction of Chloride Penetration into Concrete
 - Series II – 93%
 - Series IV – 94%
 2. ASTM C-642 – Water Absorption Reduction % by Weight
 - Series II – 87%
 3. Resistance to chloride – ion penetration, AASHTO T259 and T260
 - 1/16” – 1/2” : .63# per cubic yard
 - 1/2” – 1” : .35# per cubic yard
 4. Scaling resistance rating, 100 cycles treated concrete, ASTM C672 - 0; no scaling.
 5. Penetration - 0.26” depending on substrate
 6. Water Absorption Reduction in Hardened Concrete, ASTM C642 - >98%
 7. Silane content by weight, ASTM D5095 - 40%
 8. Permeability, ASTM E96 – 95%
 9. Coefficient of friction, ASTM D2047 - .84 average

10. VOC content <250 grams/liter

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify substrate conditions are acceptable for sealer installation in accordance with manufacturer's instructions. Do not proceed with work until any unsatisfactory conditions are corrected.
 - 1. General: Determine acceptable removal techniques for contaminants harmful to sealers performance, such as dust, dirt, grease, oils, curing compounds, form release agents, laitance, efflorescence, existing films and other water repellent coatings.
 - 2. Concrete: Verify concrete substrate has cured to full load bearing capacity (14-28 days).

3.2 SURFACE PREPERATION

- A. Protect plant life and all surfaces not to be treated as directed by manufacturer.
- B. Repair cracks in substrate.
- C. Clean surface to be treated of all dirt, oil, grease, efflorescence, laitance, dust, and other contaminants according to manufacturer's instructions.
- D. Do not apply water repellent sealer if standing water or frost is visible.
- E. Surfaces shall be capable of absorbing water repellent.

3.3 APPLICATION

- A. Apply water repellent sealer according to manufacturer's instructions.
- B. Do not dilute material. Material should be agitated before and during application.
- C. Close air-intake louvers, windows and other openings.
- D. Apply water repellent to saturation.
- E. Do not apply when rain is anticipated within 4 hours or during windy conditions.

3.4 SCHEDULE

- A. Apply water repellent as directed on drawings.

END OF SECTION