

SECTION 924

APPLICATION OF CONCRETE SEALER

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924.01 SCOPE

Concrete sealer shall be applied to all new structures as outlined in this specification. For rehabilitation projects, sealer shall be applied only if detailed in the Contract Documents.

In this section, exposed concrete shall refer to concrete which will be exposed to air after paving and landscaping is completed.

If concrete that will be buried is to be sealed, the application of sealer shall be completed before the component is buried and the sealer shall be given sufficient time to cure as per the manufacturer's direction. If the area requiring sealer is buried before sealer is applied or has properly cured, the area shall be re-excavated and sealer properly applied at the Contractor's expense.

If concrete sealer is to be applied after paving has been completed, the Contractor shall take precautions to protect the asphalt and other materials from the sealer as required. Damage to any materials due to exposure to the sealer shall be repaired to the satisfaction of the Engineer at the Contractor's expense which may include the complete removal and replacement of the damaged material.

Concrete sealer shall be applied to the following concrete superstructure and substructure surfaces:

- a) all exposed faces of end blocks, curbs, sidewalks, and decks including the underside of bridge soffit
- b) outside faces and bottom flanges of exterior girders

- c) outside faces of abutment stems, frame legs, and wingwalls including areas which will be buried but are not covered by water at normal flow or normal low tide*,
- d) the back wall face including areas behind any concrete members,
- e) expansion joint dams
- f) bearing seat and pedestals/plinths,
- g) exposed piers and column surfaces
- h) exposed surfaces of retaining walls

924.02 MATERIALS

Materials, surface preparation and application procedure shall be a silane coating with at least 100% silanes by weight. Siloxane based coatings shall not be used.

The durability and abrasion resistance of penetrating sealer shall make it suitable for protecting exposed horizontal and vertical surfaces. Penetrating sealer shall have excellent breathability, i.e. be permeable to water vapour, and provide protection against chloride-laden water.

The sealer shall be suitable for the age of the concrete at the time of application. Sealer shall not be applied to concrete within 28 days of pouring

The sealer and application procedure shall suit the requirements for severe/extreme environmental conditions.

Penetrating sealer shall exceed the performance criteria of the National Cooperative Highway Research Program (NCHRP) Report # 244 for protection of concrete against the intrusion of chlorides. In accordance with NCHRP Report # 244, the concrete sealer should provide a minimum 75% reduction in weight gain and chloride ion content.

Penetrating sealer shall comply with ASTM C672 "Standard Test Method of Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals" reflecting a rating of 0, i.e. no scaling after 50 cycles, the highest rating.

The VOC must comply with all federal and provincial regulations.

The material should not significantly darken or discolour concrete. The Contractor shall take special care to ensure runs or stains are not created which would be noticeable at a distance of 3 metres or more.

The Department's pre-approved products are:

- PENTREAT 244-100 by W.R. Meadows

- Sikagard SN-100 by Sika

924.03 APPLICATION

924.03.01 Surface Preparation

All surfaces to be treated with penetrating sealer must be clean and structurally sound. New concrete and/or restoration work should be allowed to reach full 28 day cure strength prior to application.

Any other surface preparation called for by the manufacturer shall be carried out.

924.03.02 Application Procedure

Sealer shall be applied strictly in accordance with the manufacturer's instructions and guidelines as accepted by the Owner's Representative.

Surface cleanliness is critical to final appearance of penetrating sealer treated walls. All oil, grease, form release, parting agents, air pollution deposits and graffiti must be removed from substrate.

Any joint sealants shall be put in place and cured before application of the penetrating sealer unless accepted otherwise by the Department. The sealant shall be covered during the application of the penetrating sealer.

Alternatively, where sealants or caulk must be installed following application of the concrete sealer, the sealant or caulk must be compatible with the concrete sealer used.

Application of sealer shall be by means of a pressure spray unless the Contractor can demonstrate a superior method of application. The Contractor shall overlap all adjoining concrete surfaces with a 50 mm wide application of sealer.

Where holes are drilled, cuts are made, or the concrete surface is damaged after the sealer has been applied, the Contractor shall make good any damage and apply a fresh coat of penetrating sealer.

924.04 MEASUREMENT FOR PAYMENT

Measurement for payment purposes will not be made.

924.05 BASIS OF PAYMENT

The basis of payment for this work and items directly related shall be considered incidental to the concrete work pay items.