

**SPECIFICATION FOR
SURFACE SEALING FOR STRUCTURAL CONCRETE**

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TS 9.00.01 SCOPE

This specification covers the work involved in surface sealing of structural concrete to protect it against damage caused by water penetration, deicing chemical penetration and chemical attack.

TS 9.00.02 REFERENCES

This specification refers to the following specifications and publications:

City of Toronto Specification

TS 929 – Amendments to OPSS 929 – Construction Specification for Abrasive Blast Cleaning - Concrete Construction

TS 9.00.03 DEFINITIONS – Not Used

TS 9.00.04 SUBMISSION AND DESIGN REQUIREMENTS

Submissions from the Contractor shall provide at least the following information:

- (i) The source of the concrete sealer, manufacturer's installation guidelines and data, and the samples of the sealer intended for use in the work.
- (ii) Material Data Sheets (MDS)

TS 9.00.05 MATERIALS

Unless otherwise specified, the sealer shall be a two coat system. The primer coat shall be an oligomeric alkoxy silane (alkylalkoxysiloxane) with a minimum 10% suspended solids of silane. The top coat shall be a methylmethacrylate (MMA) based material with a minimum 20% suspended solids of MMA. .

The sealer shall be compatible with the surface over which it is to be applied. The resultant coating shall have the ability to breathe, be water resistant, durable, non-yellowing, and resistant to ultraviolet light and weathering.

All materials shall be delivered in original sealed containers, clearly marked with the manufacturer's name, brand name, type of materials, batch number and date of manufacture.

Delivery, storage, handling, applicable temperature range and environmental restrictions on use shall be in accordance with manufacturer's recommendations.

TS 9.00.06**EQUIPMENT – Not Used****TS 9.00.07****CONSTRUCTION**

Unless specified elsewhere in the Contract Documents, the following locations shall be surface sealed:

- (i) all exposed concrete surfaces in the substructure under an expansion joint including but not limited to the ballast walls, piers and abutment walls
- (ii) the tops, ends and traffic sides of the parapet walls
- (iii) the sidewalks and curb faces
- (iv) the tops of the expansion joint end dams

The surface of the concrete to be sealed must be clean and dry at the time of the sealer application. Relative humidity conditions during time of application shall be per manufacturer's application instructions. The material shall be applied only after the concrete has air cured for a minimum of seven days or as specified on the manufacturer's MDS. Material shall not be applied under any rainy conditions or within seven days after surface becomes wet from rainfall or other moisture. Concrete surface sealer shall not be applied when weather is foggy or overcast.

Asphalt pavement, steel handrail components, joint seals and armouring, and other adjacent bridge components shall be taped or otherwise masked during sealer application.

The surface to be sealed is to be prepared as per the manufacturer's specifications. Existing concrete shall be given a light sandblasting as per TS 929 to remove all dirt and provide a clean sealing surface.

The Contractor shall apply both coats of the sealer using a roller. Each coat shall be free from spills, splatter and rundown. The Contractor shall ensure complete coverage of the area being sealed.

The sealer shall be applied in accordance with the manufacturer's specifications and recommendations with regard to the ambient temperature and moisture content ranges allowable. The minimum rate of application shall be 4 m²/L/coat.

After suitable time lag to allow for sealer penetration, post-wetting of sealed concrete surfaces shall be carried out, strictly in accordance with the manufacturer's recommendations.

The Contractor shall take precautions to ensure that workmen and work areas are adequately protected from fire and health hazards resulting from handling, mixing and application of material, observing all necessary safety precautions required by regulating authorities.

The Contractor shall furnish all scaffolding and necessary equipment to complete the work.

TS 9.00.08 QUALITY ASSURANCE

Spills, over spray, splatter, rundown and insufficient coverage of the concrete sealer shall be repaired at the Contractor's expense.

TS 9.00.09 MEASUREMENT FOR PAYMENT

TS 9.00.09.01 Surface Sealing for Structural Concrete

Measurement shall be in square metres of concrete surface area satisfactorily prepared and sealed with the two coat system of sealer in accordance with this specification.

TS 9.00.10 BASIS OF PAYMENT

TS 9.00.10.01 Surface Sealing for Structural Concrete - Item

Payment shall be made at the unit price and shall be payment in full for all labour, equipment and materials necessary to complete the work.

No payment shall be made for the abrasive blast cleaning of concrete surfaces.