

## Siloxane Impregnation for Concrete & Masonry Water Repellents

**Type:** Solvent Base, Liquid Form Siloxane/Silane

### Characteristics

**Top Gard WR 290**, is a solvent base silicone concentrate that is based on silane /siloxane and is organic solvents.

**Top Gard WR 290**, in organic solvents serve as high-quality general purposes water repellents (hydrophobic) for impregnating and priming mineral and highly alkaline substrates.

### Features

- \* Good Depth of Penetration & Stop Diffusion of Vapour
- \* Marine Environment
- \* Excellent Protect of Chloride Attack
- \* Excellent Protect of Freeze Thaw Cycles
- \* Excellent Protect of High Alkaline Resistance
- \* Tack-Free Drying
- \* Effective even on Damp Substrates
- \* Water Repellency Develops Fast

After application **Top Gard WR 290** reacts with the atmosphere moisture or pore water in the substrate, thereby generating the active ingredient while liberating alcohol. The active ingredient greatly lowers the water absorbency of the substrate. Since neither pores nor capillaries are clogged, the substrate retains a very high degree of water vapour permeability.

### Uses

**Top Gard WR 290** is suitable for imparting water repellency to absorbent, porous, mineral construction materials,

- \* All kinds of concrete for Buildings, Reservoirs, Jetties & Bridges
- \* Brickwork Surfaces
- \* Mineral-based natural and artificial stone
- \* Aerated concrete
- \* Sand-lime brickwork
- \* Cement fiberboards
- \* Mineral paints
- \* Cement sand or mineral plasters

**Top Gard WR 290** is also suitable as primer for exterior paints.

**Top Gard WR 290** is not suitable for rendering gypsum water repellent.

### Surface Preparation

The surface to be applied with **Top Gard WR 290** shall be free of dust and dirt. Lime efflorescence, salt and paint remnants, etc must be removed, preferably by high pressure water-jet, hot water or pressurized steam. Detergent cleaning is not recommended as if detergents are not removed completely, they can adversely affect the water repellency effect. Acid or alkali cleaning is also not recommended because of the risk of damaging the mortar joint or formation of salts which would lead to efflorescence.

The best impregnation effect is achieved on a dry, very absorbent surface, although **Top Gard WR 290** can also be successfully employed on a slightly damp surfaces (moisture content should not be more than 10 % by volume).

If there are joints to be filled on concrete surfaces which have been impregnated with **Top Gard WR 290** for example precast concrete elements, adhesion to these penetrable surfaces will not be impaired. The relevant primers must always be used, followed on with suitable sealants, for example Flex Joint V or Flex Joint H.

**Technical Specification (2 Grades)**

<b>Product Data</b>		<b>Top Gard WR 290 SB</b>	<b>Top Gard WR 290 SJ</b>
Appearance		Colorless	Colorless
Silane / siloxane content ,approx	(%)	6.7	9.1
Specific Gravity at 25 °C, approx	g/cm <sup>3</sup>	0.80 (±0.01)	0.80 (±0.01)
Viscosity at 25°C, approx	(mm <sup>2</sup> /s)	70 (±10)	67 (±10)
Flash point, (DIN EN ISO 2719) approx	(°C)	80	65
Reduction of water absorption	(%)	76.50	87.00
Water absorption	(%)	<0.20	<0.14
Reduction of chloride ion content	(%)	81.00 (no corrosion)	85.00 (no corrosion)
Water vapour transmission	(%)	>100	>110
Penetration Depth (Concrete G 30)	(mm)	>1.01 (±0.4)	>1.75(±0.2)
Salt Scaling (Concrete G 30)	(g/m <sup>2</sup> )	12.2 (±0.3)	12.2 (±0.1)

**Consumption of Material / Coverage**

Concrete	(liter/m <sup>2</sup> )	0.15 – 0.25
Cement Plaster	(liter/m <sup>2</sup> )	0.25 – 0.50
Sand-Lime or Clay Brick	(liter/m <sup>2</sup> )	0.40 – 0.70
Aerated Concrete	(liter/m <sup>2</sup> )	0.50 – 0.75
Cement Fiberboard	(liter/m <sup>2</sup> )	0.10 – 0.30
Natural Stone	(liter/m <sup>2</sup> )	0.05 – 0.75

*These figures are intended as a guide and should not be used in preparing specifications.*

<b>Packaging</b>	<b>Top Grad WR 290 SB</b>	20 liter Pail, 5 liter Tin or 1 Liter Tin
	<b>Top Grad WR 290 SJ</b>	20 liter Pail, 5 liter Tin or 1 Liter Tin

**Safety Information** Detailed safety information is contained in each material safety data safety sheet, which can be obtained from our sales offices

**Storage** **Top Gard WR 290** has a shelf life of at least 12 months when stored between 0 °C and 30 °C in the lightly closed original container. The containers must be protected against direct sunlight. The “Best use before end” date of each batch appears on the product label.

Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

**Approvals**

**In the USA, the following test have been performed on "Top Gard WR 290"**

<p>DL Laboratories, New York, April 30, 1992</p>	<p><b>Building. Jetty &amp; Bridge Structures</b>  <b>External Surfaces</b></p>	<p>Federal Specification SS-W-110C "Water Repellent, Colorless Silicone Resin Base" Result: Water absorption: 0.2% (After 30 days)</p>
<p>Wiss, Janney ,Elstner Associates, Inc., Northbrook, Illinois DL Laboratories, New York, April 30, 1992</p>	<p><b>Building. Jetty &amp; Bridge Structures</b>  <b>External Surfaces</b></p>	<p>Reduction of water absorption: 87% Reduction of chloride ion content: 89% Water vapor transmission: &gt; 100% (within 7 days) Average penetration depth: 0.20 in.</p>
<p>Law Engineering, Atlanta, Georgia Wiss, Janney ,Elstner Associates, Inc., Northbrook, Illinois DL Laboratories, New York, Jan, 1989</p>	<p><b>Building. Jetty &amp; Bridge Structures</b>  <b>External Surfaces</b></p>	<p><b>Northern climate:</b> very slight scaling, 97.5% chloride reduction, no corrosion</p> <hr/> <p><b>Southern climate:</b> very slight scaling, 97.6% chloride reduction, no corrosion</p>
<p>Law Engineering, Atlanta, Georgia Wiss, Janney ,Elstner Associates, Inc., Northbrook, Illinois DL Laboratories, New York, April 12, 1988</p>	<p><b>Building. Jetty &amp; Bridge Structures</b>  <b>External Surfaces</b></p>	<p>Reduction of water absorption: 85.1% Reduction of chloride ion content: 92.1% Water vapor transmission: 120.1%</p>
<p>Law Engineering, Atlanta, Georgia Wiss, Janney ,Elstner Associates, Inc., Northbrook, Illinois DL Laboratories, New York, April 2, 1988</p>	<p><b>Building. Jetty &amp; Bridge Structures</b>  <b>External Surfaces</b></p>	<p>@ "Resistance ° concrete to Rapid Freezing and Thawing" (April 2, 1988)</p> <p>Result: Slight degree of scaling; durability factor 139%</p> <hr/> <p>@ "Scaling Resistance of Concrete Surfaces" (May 6, 1988)</p> <p>Result: Slight degree of scaling</p> <hr/> <p><b>Ontario Provincial Standard 1351.08.01</b> @ "Salt Scaling Acceptance Test" (December 14, 1988)</p> <p>12.2.g/m<sup>2</sup> (allowed max. 800g/m<sup>2</sup>) visually no scaling detected</p>
<p>EBA Engineering Consultants Ltd., Edmonton, Alberta, Canada, September 20, 1988</p>	<p><b>Building. Jetty &amp; Bridge Structures</b>  <b>External Surfaces</b></p>	<p>Alberta DOT Specifications B388-90 "Evaluations of Sealers Used on Concrete Bridge Elements"</p> <p>Result: Initial Reduction of water absorption: 89.9%</p> <p>Reduction of water absorption after sandblasting: 82.6%</p>

**Approvals**

The efficacy of "Top Gard WR 290" is borne out in the following laboratory report and test certificates. From Europe:

Centre Scientifique et Technique de la Construction, Brussels, Belgium	<b>Commercial Building External Surfaces</b>	Excellent Water Repellent of <b>Top Gard WR 290</b> in organic solvents
Eidgenossische Material prüfungs- und Versuchsanstalt, Dubendorf, Switzerland. Test report no. 245/376, January 10 1985	<b>Highway/Express Way Concrete Reinforced Road &amp; Bridges External Area</b>	Resistance to frost and road salt of concrete surfaces impregnated
Labor fur Preparation und Methodik, Bein am See, Switzerland Test Report No. A-4729, February 13, 1985	<b>Jetty – Passenger, Marine &amp; Commercial External Surfaces</b>	Concerning the penetrative effectiveness of "impregnations with <b>Top Gard WR 290</b> and BS 44"
Bureau Veritas, Gennevilliers, France Test Report No. CN 53B950305E01, July 17, 1995:	<b>Jetty – Passenger, Marine &amp; Commercial External Surfaces</b>	Concerning the penetrative effectiveness of impregnations with <b>Top Gard WR 290</b> and BS 44" Bureau Veritas, Gennevilliers, France

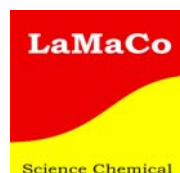
**Handling Precautions**

Wash off any silicone concentrate on the skin with plenty of water before it dries. During mixing and application ensure adequate ventilation since the silicone component contains active ingredient which is volatile and may cause eye watering in confined spaces. Avoid generation of airborne dust during mixing. Top Gard WR 290 silicone contains more than 10% Silane/siloxane and, therefore, in line with current legislation, is classified as irritating to eyes and skin. For this reason the following precautions should be observed: -  
Avoid contact with the skin and eyes; in case of contact with the eyes, rinse immediately with plenty of water and seek medical advice; wear suitable gloves and keep the product out of the reach of children.

**The General Term & Conditions**

All recommendations for use of our product, whether given by us in writing, verbally, or to be implied from the results of tests carried out by us are based on the current state of our knowledge. Notwithstanding any such recommendations the Buyer shall remain responsible for satisfying himself that the products as supplied by us are suitable for this intended process or purpose. Since we cannot control the application, use or processing of the products, we cannot accept responsibility therefore. The Buyer shall ensure that the intended use of the products will not infringe any third party's intellectual property rights. We warrant that our products are free from defects in accordance with and subject to our general conditions of supply.

The above mentioned details Specified key data are individually checked throughout, guarantee, and included in the certificates of Analysis (CoAs). & Typical key data are spot checked, the value are typical for the product and are indicated for information only. The values are not guaranteed or included in the CoAs.

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