Dow Corning Z-6403 Silane

Silane water repellent for mineral based building materials

FEATURES

- Can be used in the formulation of water repellent products
- Produces a hydrophobic treatment that inhibits water absorption

BENEFITS

- Small molecular structure for deep penetration of concrete surfaces.

COMPOSITION

- Silane
- Liquid

APPLICATIONS

- Commercial buildings
- Parking decks/garages
- Highways
- Bridge structures

TYPICAL PROPERTIES

Test	Unit	Result
Colour		Clear
Purity	%	98
Specific Gravity at 25ºC (77ºF)		0.88
Flash point, closed cup	ºC (ºF)	31 (88)
Density	lb/gal	7.34
Volatile Organic Compound (VOC) Content	g/L	423
Solvent (Thinner)		Isopropanol, ethanol or various flash-point spirits

DESCRIPTION

Dow Corning® **Z-6403 Silane** is high purity, undiluted N-Isobutyltriethoxy-silane. When diluted with an appropriate solvent, it can be used in formulation of water repellent products. Upon proper application, the formulated product will penetrate and provide water repellency by chemically reacting with the cementitious substrate. Treated substrates are hydrophobic and retain their original appearance. *Dow Corning*® **Z-6403 Silane** is a small molecule to allow for deep penetration into the cementitious surface. This material reacts with moisture in the air and in the substrate in the presence of an alkaline or acidic environment to produce hydroxyl groups. These hydroxyl groups will bond with the substrate and itself to produce a hydrophobic treatment that inhibits water absorption into the substrate. An alkaline environment, such as new concrete will catalyze the reaction and speed the formulation of the hydrophobic surface.

HOW TO USE

Dilution

Dow Corning® **Z-6403 Silane** should be diluted in solvents such as alcohols, chlorinated solvents, aliphatic solvents and low molecular weight cycle polydimethylsiloxane. Typical dilution levels are 40% and 20% *Dow Corning*® **Z-6403 Silane** in a solvent. Laboratory performance data for 40% dilutions are shown in Table 1.

Blends of the solvents can also be used. The evaporation rate of the diluted material can be modified depending on the type of concentration of the solvent. Select the proper solvent for your application, as some Silane/solvent blends may darken the surface. Refer to the manufacturer's data sheet for proper handling and disposal of solvents.

NOTE : When using any solvent, always provide adequate ventiflation. Follow handling precautions on the solvent container label.

Application

Methods of application include airless sprayer, roller and brush. When a brush or roller is used, repeated applications should be made until the surface remains moist for a few minutes. If an airless sprayer is used, application should continue until the substrate is thoroughly saturated. Sprayers should be fitted with solvent resistant hoses and gaskets.

A test application is necessary on each surface to be treated to ensure compatibility and the desired water repellent result. Surfaces should be free of standing water, surface dirt, dust, oils and other contaminants. Formulated *Dow Corning*® **Z-6403 Silane** may be applied

Table 1 : Laboratory Performance of Dilution – Modified NCHRP 244 Series II on Concrete.[1]

		Reduction Weight **Gain, percent** [2]	Average Depth **of Penetration, mm** [3]
40% in Aliphatic Solvent	(Kwik-Dri)	70.9	3

[1] Water repellent properties of *Dow Corning*® **Z-6403 Silane** when diluted to 40 percent in various solvents.

[2]Modified NCHRP cube test, 2 inch cubes, 21-day immersion in water.

[3] Mortar cubes prepared in accordance with procedures outlined in ASTM 109.

to damp surfaces although dry surfaces are preferred to achieve maximum penetration into the substrate.

Any plants or shrubs should be protected from exposure to the treatment. Any material that should not be exposed to solvents should also be protected.

HANDLING PRECAUTIONS

Dow Corning® **Z-6403 Silane** is combustible and evolves ethanol upon cure. Take safety precautions at all times. Do not store or use near sparks or open flames. Do not smoke in the vicinity of application. Use in a well ventilated area, or wear an air supplied respirator. Always wear protective goggles and gloves. If inhaled, move immediately to fresh air. In case of skin or eye contact, flush immediately with water for 15 minutes. Remove contaminated clothing and shoes, and call a physician. Local, state and federal regulations should be consulted for proper disposal procedures.

USABLE LIFE AND STORAGE

Keep away from heat and open flame. When stored in original, airtight containers at or below 25ºC, *Dow Corning*® **Z-6403 Silane** has a shelf life of 24 months from date of manufacture.

PACKAGING

Dow Corning® **Z-6403 Silane** is supplied in 25 or 200ℓ containers

LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Products formulated using *Dow Corning*® **Z-6403 Silane** provide more protection when applied to highly alkaline new concrete (less than one year old). The degree of protection is not as effective on old concrete or neutral substrates. Do not use on structures under hydrostatic pressure. Do not apply when temperature is at or below 0ºC on extremely windy days when evaporation of the solvent would be too rapid.

SHIPPING LIMITATIONS

Combustable liquid.

HEALTH AND ENVIRONMENTAL INFORMATION

Before considering the use of any chemical, read its Material Safety Data Sheet (MSDS) thoroughly for safety and toxicological data as well as for information on proper transportation, storage and use. The Safety Data Sheet is available upon request from the **abe** sales representative.

IMPORTANT NOTICE

This data sheet is issued as a guide to the use of the product(s) concerned. Whilst **abe Construction Chemicals** endeavours to ensure that any advice, recommendation, specification or information is accurate and correct, the company cannot – because **abe** has no direct or continuous control over where and how **abe** products are applied – accept any liability either directly or indirectly arising from the use of **abe** products, whether or not in accordance with any advice, specification, recommendation, or information given by the company.

FURTHER INFORMATION

Where other products are to be used in conjunction with this material, the relevant technical data sheets should be consulted to determine total requirements. **abe Construction Chemicals** has a wealth of technical and practical experience built up over years in the company's pursuit of excellence in building and construction technology.

LIMITED WARRANTY INFORMATION

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