Product Information

Water Repellents

DOW CORNING

Dow Corning® 520 Dilutable Water Repellent Emulsion

FEATURES

- Can be used diluted or as supplied in the formulation of water repellent products
- Produces a hydrophobic treatment that inhibits water absorption
- Excellent performance and stability at low (5-10%) active solids levels

BENEFITS

- Deep penetration of absorbent surfaces due to small molecular structure provides added repellency
- Reduction in water absorption reduces spalling due to freeze-thaw and efflorescence, thereby increasing the life of the substrate
- Penetrating treatment will not change appearance of substrate
- Low VOC – less than 300 g/L allows nationwide product use
- Performs and is stable at low solids level allowing higher dilution rates

COMPOSITION

- Water-dilutable silane/siloxane emulsion
- Milky white
- 40% active

Active component for formulating penetrating water repellent treatments

APPLICATIONS

- For use on mineral substrates such as brick, stone, concrete and mortar that require water repellency

TYPICAL PROPERTIES

Specification Writers: Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Test	Unit	Result
Color		Milky white
Non-Volatile Content	percent	40
pH		4.5
Specific Gravity at 25°C (77°F)		0.985
Flash Point, closed cup	°C (°F)	>100 (212)
Density	lb/ gal	8.216
Volatile Organic Compound (VOC) Content	g/L	<300
Solvent (Thinner)		Water

DESCRIPTION

Dow Corning® 520 Dilutable Water Repellent Emulsion is a 40 percent active silane/siloxane emulsion. It can be used at 40 percent actives or can be diluted in water to formulate a water repellent. As with any other common water repellent, upon proper application, the formulated product will penetrate and provide water repellency by chemically reacting with the substrate. Treated substrates are hydrophobic and retain their original appearance.

The active ingredients in *Dow Corning* 520 Dilutable Water Repellent Emulsion are small molecules to allow for deep penetration into the surface. After the emulsion breaks, the active ingredients react with moisture to produce hydroxy groups. These hydroxy groups bond with the substrate and each other to produce a hydrophobic treatment that inhibits water absorption into the substrate. However, in the emulsion form, surfactants protect the reactive molecules from the water, providing emulsion stability.

HOW TO USE

Dilution

Dow Corning 520 Dilutable Water Repellent Emulsion can be diluted in water before use or can be used as supplied. Deionized water is recommended for dilution. To prevent mold growth within the package, additional preservative may be required; *Bioban*® DXN is recommended.

Laboratory performance data for 5, 10 and 20 percent *Dow Corning* 520 Dilutable Water Repellent Emulsion active solids on various substrates are shown in Table 1. Laboratory results of modified NCHRP 244 testing are in Table 2, and laboratory results of a

modified ASTM E-514 test can be found in Table 3. The performance may vary depending on the active solids applied to different substrates. Optimization of the dilution level may be required to obtain maximum performance on your selected substrates.

Application

Methods of application include airless sprayer, roller and brush. When a brush or roller is used, repeat application until the surface remains moist for a few minutes. If an airless sprayer is used, apply until the substrate is thoroughly saturated. On vertical applications, apply the material from the bottom up achieving a 152-203 mm (6-8 inch) rundown.

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* 520 Dilutable Water Repellent Emulsion may be applied to damp or wet surfaces.

As with most repellents, plants or shrubs should be protected from exposure to the treatment. Mask windows and any other material that should not be treated. If applied by spraying, control overspray and drift to prevent contamination of nearby substrates and areas, especially windows, vehicles, etc. Cleaning with solvents may be necessary to remove extraneous treatment.

Packaging after Formulation

For packaging in drum or pails, the use of vented caps is required. For 3.8-L

Table 1: Performance of *Dow Corning* 520 Dilutable Water Repellent Emulsion on Various Substrates

	% Water Exclusion[1] vs. Control after 24 hours Immersion	
Substrate / %Active Solids	ASTM C 642[2]	ASTM C 67[3]
Alkaline Substrates		
Mortar Cubes		
5% active solids	92	
10% active solids	94.8	
20% active solids	93.9	
Permcon Cement Brick		
5% active solids		63.9
10% active solids		77
20% active solids		82.5
Neutral Substrates		
Belden Belcrest 350 Brick		
5% active solids		80.3
10% active solids		69.8
20% active solids		41.1
Glen Gary Salem Brick		
5% active solids		77.7
10% active solids		48.3
20% active solids		43.3

[1]Calculation is based on weight gain of control.
[2]ASTM C 642 used 50.8-mm x 50.8-m x 50.8-mm (2-in x 2-in x 2-in) mortar cubes.
[3]ASTM C 67 modified to use one eighth of a brick instead of one half of a brick with 3 specimens instead of 5.

Table 2: Performance of *Dow Corning* 520 Dilutable Water Repellent Emulsion versus a Solvent-Based Silane on Mortar Cubes

	%Water Exclusion vs. Control after 21 days Immersion	
2-inch Mortar Cubes	(NCHRP 244)[1]	Penetration, mm
Dow Corning 520 Dilutable Water Repellent Emulsion, 40% active solids	74.0	4-5
40% silane in solvent	74.2	5

[1]NCHRP 244 (National Cooperative Highway Research Program) was modified to use 50.8-mm (2-inch) mortar cubes instead of 102-mm (4-inch) concrete cubes.

Table 3: Performance of *Dow Corning* 520 Dilutable Water Repellent Emulsion – Modified ASTM E-514[1]

Lightweight Concrete Block	% Reduction in Leak Rate[2]	Penetration, mm
Dow Corning 520 Dilutable Water Repellent Emulsion, 5% active solids	76	15

[1]Modified ASTM E-514 – 3 blocks were mounted to a chamber and sprayed with water under 50.8 millimeters (2 inches) of water pressure for 4 hours.
[2]Percent reduction in leak rate – treated blocks compared with untreated blocks.

(1-gal) containers, the use of high-density polyethylene is recommended.

HANDLING PRECAUTIONS

Dow Corning 520 Dilutable Water Repellent Emulsion evolves flammable hydrogen gas upon cure. Store in vented storage containers in an upright position.

When the material comes in contact with acids, bases, amines and heavy metals or their compounds, the rate of hydrogen evolution increases. Do not store material in the presence of these contaminants, as hydrogen evolution will occur. 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 this material in a well-ventilated area away from sparks and open flames. Always wear protective goggles and gloves. Local, state and federal regulations should be consulted for proper disposal procedures.

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE FROM YOUR DOW CORNING REPRESENTATIVE, OR DISTRIBUTOR, OR BY CALLING YOUR GLOBAL DOW CORNING CONNECTION.

USABLE LIFE AND STORAGE

When stored in original, airtight containers at or below 25°C (77°F) and above 0°C (32°F), *Dow Corning* 520 Dilutable Water Repellent Emulsion has a shelf life of 2 years from date of manufacture. Refer to product packaging for “Use By” date.

Keep away from heat and open flame and protect from freezing.

PACKAGING

Dow Corning 520 Dilutable Water Repellent Emulsion is supplied in 1-, 20- and 190-kg (2.2-, 44.1- and 418.9-lb) containers, net weight.

LIMITATIONS

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

Do not use in consumer applications.

Do not use on structures under hydrostatic pressure. Do not apply when temperature is at or below 4°C (40°F).

SHIPPING LIMITATIONS

DOT Classification: Not subject to DOT.

HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Health, Environment and Regulatory Affairs specialists available in each area. For further information, please consult your local Dow Corning representative.

WARRANTY INFORMATION

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer’s tests to ensure that Dow Corning’s products are safe, effective, and fully satisfactory for the intended end use. Dow Corning’s sole warranty is that the product will meet the Dow Corning sales specifications in effect at the time of shipment. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. Dow Corning specifically disclaims any other express or implied warranty of fitness for a particular purpose or merchantability, unless Dow Corning provides you with a specific, duly signed endorsement of fitness for use. Dow Corning disclaims liability for any incidental or consequential damages. Suggestions of use shall not be taken as inducements to infringe any patent.

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