

PRODUCT DATA SHEET

PRODUCT NAME

Raymix – HC16 CONCENTRATED AQUEOUS WATER REPELLENT

MANUFACTURER

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PRODUCT DESCRIPTION

Raymix – HC16 is an aqueous solution of potassium methyl silicate and is used in diluted form for the impregnation of mineral construction materials to make them water-repellent.

Raymix – HC16 develops its water-repellent properties by reaction with atmospheric carbon dioxide (CO₂). The active substance formed from the silicone masonry water repellent is polymethylsilicic acid.

As with all silicates, however, Raymix – HC16 can cause a white deposit on the surface of colored construction materials, or if used outside the application guidelines.

Raymix – HC16 is a penetrating water repellent reactive silane/siloxane resins with crosslinkable side chains. These materials have smaller molecular structures, which enable them to penetrate deeply into the substrate, where they chemically bond with it.

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APPLICATION

Raymix – HC16 is a mixture of PolySiloxane – VOC Compliant, APEO-free, Solvent Free compounds dispersed in water used for the treatment of masonry materials such as:

- Concrete,
- Natural, cast, unpolished stone & agglomerates ,
- Masonry block,
- Brick facings,
- Precast concrete,
- Exposed bricks,
- Quarry Tiles,
- Limestone,
- Stucco,
- Chimney,
- Architectural concrete,
- Sandstone,
- Light fillers such as Isolite, Isolex, Perlite, Vermiculite, aerated concrete & insulating materials,
- Gypsum, gypsum based fiber boards,
- Plaster,
- Mortars,
- Granite,
- Terracota,
- Roof tiles, Floor tiles,
- Flower pots,
- Ceramic Tile & Grout,
- Exposed aggregate products,
- Cement Stuccos,
- Tufo (Volcanic rock)....

Raymix-HC16 is effective on most vertical or horizontal surfaces. Raymix-HC16 diluted contains at minimum 7% solids, on application penetrates soft brick works etc... to a depth of more than 6.5 mm, depending on substrate porosity and the moisture content at the time of application.

PHYSICAL AND CHEMICAL CHARACTERISTICS

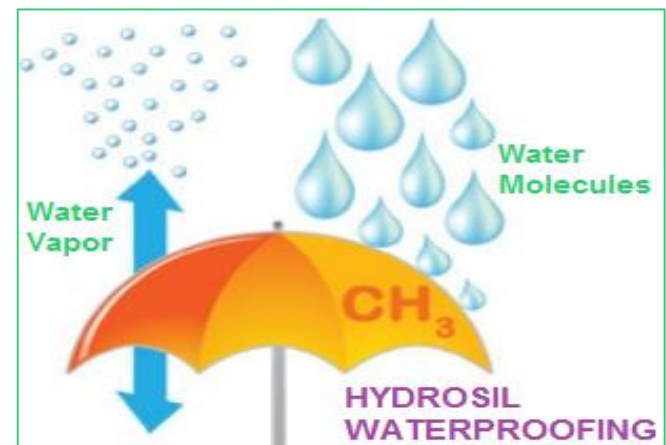
Colour	Clear to hazy - colourless
Density @ 25°C @ 1013 hPa	1.4 gr / cm ³
Solid content 1g/1h/150°C	55%
pH	13 - 14
Active substance	Approx. 34 wt. %
K₂O equivalent	Approx. 20 wt. %
Solvent	Water

The information and data given is to the best of our knowledge reliable, but is given without obligation.

FEATURES

Raymix – HC16 being a mixture of PolySiloxane has low surface tension, which enables it to spread and soak easily into a substrate's pores. It's highly flexible and mobile siloxane backbone enables the water-repelling methyl groups to orient themselves toward the surface, creating a waterproof "umbrella."

Treated surfaces dry to touch in 1 hour. Protect surfaces from rainfall for 6 hours following treatment. Protect from foot and vehicle traffic until visibly dry. Siloxane gains its water repellency properties in 72 hours.



What makes this "umbrella" unique is its ability to breathe. Because siloxanes/silicones have a very open molecular structure, water vapor trapped in the substrate can easily slip through. Water molecules, however, are too large to enter.

Raymix – HC16 (diluted)

*	Improves the façade resistance to the ingress of surface water.
*	Allows the substrate to breathe.
*	Protects construction materials from raining water.
*	Treatment is invisible, not modifying the substrate aspect.
*	Improves the resistance to dirt, and reduce the fungi, lichens growth.
*	Durability, flexibility, mechanical and chemical adhesion
*	Benefits for water repellency and waterproofing.

* High spreading and wetting capabilities – the ability to thoroughly cover a surface or penetrate a porous substrate. Do not modify the substrate porosity.
* Permeability to gas and water vapor
* Resistance to ultraviolet light (UV).
* Resistance to heat & oxidative degeneration.
* Can be coated with various paints.

ADVANTAGES & BENEFITS

* Deeply penetrates substrate allowing the surface to breathe.
* Little to non-glossy substrates treated.
* Excellent resistance to water intrusion.
* Ready-to-use. No on-site dilution required.
* Absolute water vapor permeability.
* Resistance to mildew, fungus and mold growth.
* Efflorescence protection.
* High resistance to alkali attack.
* Freeze thaw protection.
* Substrates can be re-treated with Raymix-HC16.
* Ideal for protecting external walls.
* Anti-fouling barrier ISO 846 : 1999
* Resists UV radiation.
* Does not alter terracotta frost resistance.
* Protects against efflorescence.
* Can be applied to surfaces with residual humidity: drastically reduced application times.
* Water-based formula minimizes explosion and fire hazards compared to solvent-based water repellents.
* Low odor for safer application to occupied buildings.
* Alkaline stable – suitable for new “green” concrete, 14–28 days old.

FEATURES

- ✓ Reduction in freeze thaw cracking and spalling of bricks. Bricks wetted from snow and rains are constantly under pressure from freeze thaw cycles causing internal stress fractures. If water cannot penetrate there is no internal pressure.
- ✓ Improvement in winter fuel efficiency by maintaining the effect heat insulation properties of dry bricks. Wet bricks can transfer heat up to ten times faster than dry bricks. Also the cavity remains dry and any insulation materials used remain as efficient as intended to be.
- ✓ Reduction and elimination of efflorescence. Caused by salts migrating the surface with water transmission and then remaining on the surface after evaporation.
- ✓ Reduction in surface dirt pick-up. Often caused by soluble soot's in rain. These dirty droplets will simply be shed off the bricks with rain.
- ✓ Reduction in mold, fungal and other microbial infestations. The treatment contains a long term film fungicide to assist in preventing fungal attack. Most fungal and algae growth take place on damp or wet substrates.
- ✓ Reduction in acid rain attack. Rain now contains significant levels of acid which attack brick and stonework. This acid also passes into the support structure and attacks metal support beams.

- ✓ Reduction in CO² transmission. Another important factor in protecting concrete structures. CO² assists in the reduction of steel reinforced rods.

SURFACE PREPARATION

- Cleaning of the façade, which is in most cases necessary, should as fast as possible be carried out using a water or steam jet.
- Salt blooming should be previously removed mechanically. Only in few cases cleaning using chemical cleaners is necessary, in order that the cleaning agent does not penetrate too deep into the substrate.
- The aqueous cleaning agent must be extremely carefully rinsed away before impregnation since it has influence on hardening the effective ingredient and may in some cases produce, discoloration (use pH paper) to set a neutral zone.
- It is important that façades are permitted to dry before application of Raymix-HC16 water repellent.

DILUTION

Diluted with water Raymix – HC16 is used for impregnating the surface of masonry materials when a suitable means of achieving an adequate, uniform coating, e. g. dipping, is available. Twofold application is not recommended.

PROCESSING

Raymix – HC16 is supplied as a concentrate and is diluted with water before use. Ordinary tap water may be used. It is best to add the Raymix – HC16 masonry water repellent to the water under vigorous stirring. Preliminary tests are always required for the determination of the correct dilution ratio.

APPLICATION (diluted Raymix-HC16)

- ✓ Raymix-HC16 water repellent is supplied ready to use.
- ✓ It is best to impregnate a façade by means of flooding, i.e. application of sufficient Raymix-HC16 water repellent to the surface of the material, permitting it to penetrate into the façade.
- ✓ Raymix-HC16 water repellent can also be applied by means of spraying (airless system or hand pump). It should be ensured that Raymix-HC16 water repellent is not atomized, spraying distance should therefore be 5 – 15 cm.
- ✓ Brushes or rollers may also be used provided sufficiently high and uniform application of Raymix-HC16 water repellent is insured.
- ✓ Impregnation is correctly completed when the material surface is saturated with Raymix-HC16, i.e. no further quantity is absorbed within a period of one minute. Further impregnation may be necessary in case of severely absorptive substrata.
- ✓ The impregnation is already water repellent and rainproof, few hours after treatment, however the effect is further increased and only achieves the long range effect after weeks, depending on atmospheric humidity.
- ✓ The ideal application temperatures are between + 10°C and 25°C.
- ✓ Before impregnating natural stones, try tests as natural stones react in very different ways.

COVERAGE (diluted Raymix-HC16)

In order to provide protection Raymix-HC16 water repellent should penetrate as deeply as possible in the building material consequently consumption depends on the substrate itself. In some cases, test sections may be necessary to develop a feel for adequate coverage.

The average amount applied per litre, varies relatively to the substrate impregnated, generally from 1.70 to 4.30 m² / litre.

CLEANING OF TOOLS

Tools and equipment may be cleaned with Soap and water. Rinse thoroughly.

PRECAUTIONS & LIMITATIONS

- Do not use Raymix-HC16 over membrane forming sealers. Fresh concrete surface and the joint mortar must have set, i.e. impregnation should be carried out 3-4 weeks after concreting at the earliest.
- Masonry temperature at the time of application should be above 4°C.
- Glass, window, door frames and materials sensitive to solvents must be protected against silicone splashes.
- Plants located in the proximity of the object to be treated must be covered.
- Confirmed or inside areas must be properly ventilated.
- Raymix-HC16 water repellent being a mixture of chemical products, the respective safeguards of individual countries have to be observed.
- When spraying is being carried out, it is advisable to have operatives suitably dressed i.e. face masks, gloves etc...
- Two coat treatment is recommended on all surfaces.
- Will not keep water out of cracks, defects or open joints.
- Not recommended for below-grade application.
- Not suitable for application to synthetic resin paints, gypsum, or other non-masonry surfaces.

SURFACE AND AIR TEMPERATURES

Best surface and air temperatures are 40–95°F (4–35°C) during use and for 8 hours after. If freezing conditions exist before application, let masonry thaw. The water carrier may freeze at low temperatures or evaporate in high temperatures. Both conditions impair penetration and results. Cleanup is more difficult from surfaces hotter than 95°F (35°C).

EQUIPMENT

Apply with brush, roller or low-pressure spray (<50 psi). Fan tips are recommended for sprayers. Avoid atomization of material.

STORAGE AND HANDLING

- ✓ Keep from freezing.
- ✓ Store in a cool, dry place.
- ✓ Always seal container after dispensing.
- ✓ Do not alter or mix with other chemicals.
- ✓ Published shelf life assumes upright storage of factory-sealed containers in a dry place.
- ✓ Maintain temperature of 45 - 100°F (7–38°C).
- ✓ Do not double stack pallets.
- ✓ Dispose of unused product and container in accordance with local, state and federal regulations.

STANDARDS & NORMS

Raymix-HC16 conforms to:
ASTM C 67, ASTM C 140, ASTM C 642, ASTM C 672, ASTM 6490,
ASTM D 6532, ASTM E 303 & ASTM E 514.

QUALITY STANDARDS

Raymix-HC16 conforms to ISO 9001.

TECHNICAL SERVICE

The Technical Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.

Contact:

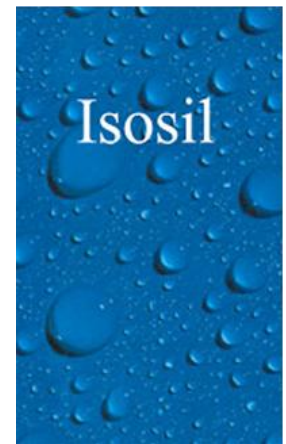
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