



## PRODUCT DESCRIPTION

**UNISIL HS** is an ultra-high volume solids, solvent free, pure elastomeric silicone coating that provides superior weatherproofing, ultraviolet resistance, biological resistance and fire retardancy over polyurethane foam insulation and other appropriate substrates. The pure silicone polymers are naturally fire retardant to provide long-term fire resistance, while the tight surface finish affectively resists the attachment of algae, mildew and mold organisms.

**UNISIL HS** is a sustainable elastomeric coating system that, through periodic recoating, can be maintained throughout the life of the building.

## WARRANTY

OCP's Standard Warranty to the Building Owner is available for 10-, 15- or 20-year periods at no cost. Refer to specification for minimum dry film thicknesses required to qualify for warranty programs. System Warranty Programs are also available for 10-, 15- and 20-year periods at an additional cost.

## PACKAGING & SHELF LIFE

5 gallon (19 liter) bucket

Shelf life 12 months if unopened containers stored between 40°F and 90°F (4°C and 32°C).

Single-component, ready-to-use material. Gently mix all containers with an air-driven power mixer, taking care not to incorporate air into the product. Do not use an electric mixer. Mixed **UNISIL HS** shall be used immediately to avoid reacting in the container with trace amounts of atmospheric moisture. Containers which have been stored for any length of time may develop a skin on top of the coating. Remove this skin prior to mixing. Thinning the material is not recommended.

## BASIC USES

Designed for protecting a wide range of substrates from the effects of moisture intrusion and weathering, **UNISIL HS** is particularly effective as a protective coating over polyurethane foam on new or existing roofs, and hot or ambient storage tanks. It provides a barrier to the effects of degradation caused by normal weathering, aging and ultraviolet exposure. **UNISIL HS** also achieves excellent adhesion to primed concrete, masonry, metal and wood surfaces. **UNISIL HS** is a single component elastomer that exhibits a rapid cure when exposed to ambient conditions. Long term elastomeric properties are retained under all types of weather conditions, from sub-zero temperatures to high heat in excess of 250°F (121°C).

**UNISIL HS** adheres tenaciously to previously applied **UNISIL HS**, as well as all other silicone coatings tested. A test area should be applied to existing silicones to ensure adequate adhesion on recoats. Surface should be washed using a chemical cleaner, such as United Cleaning Concentrate (UCC), rinsed thoroughly, and allowed to dry. Existing coating that exhibits biological growth, such as algae, mold or mildew, should be treated with Stop-It prior to application of **UNISIL HS**. This will kill any residual spores that remain after cleaning and help prevent them from growing up through the new coating. Refer to UCC and Stop-It Technical Data for additional information and complete application instructions.

## PHYSICAL PROPERTIES

UNISIL HS	
Solids by Weight	96% (±2) [ASTM D1644]
Solids by Volume	96% (±2) [ASTM D2697]
Flash Point (CDC)	290°F (143°C) [ASTM D92]
Dry Time to Walk On	2-4 hours @ 75°F (24°C), 50% R.H.
Tensile Strength	330 psi (2.3 MPa) (±25) [ASTM D2370]
Elongation	200% (±10) [ASTM D2370]
Hardness	45-55 Shore A [ASTM C661]
Permeance	5.9 US Perms @ 30mils (762 microns) [ASTM E96, Procedure B]
Resistance to Accelerated Weathering	After 5,000 hours of continuous exposure, UNISIL HS had no deleterious effects, no surface checking or cracking, no delamination and no color fade. [ASTM D6694]
Flexibility After Weathering	After 5,000 hours exposure in the QUV Accelerated Weathering Cabinet, UNISIL HS retains its ability to withstand multiple 1" (2.5 cm) mandrel bends at 2°F (-17°C) without cracking. [ASTM D4338]
Solar Reflective Index (SRI)	110 - Unisil HS White [ASTM E1980]
Emissivity	0.89 - Unisil HS White [ASTM C1371]

VOC	<10 g/L [ASTM D3960]
Specific Gravity	1.29 @ 77°F (25°C) [ASTM D1875]
Water Absorption	0.1% weight gain after 2 weeks immersion at 75°F (24°C) [ASTM C1371 / ASTM D471]
Temperature Limits for Normal Service Conditions	-80°F to 350°F (-62°C to 177°C) Max 185°F (85°C) continuous temperature
High Temperature Stability	Tested in thermostatically controlled heat chamber. Will not age harden or slump at temperatures up to 350°F (177°C). [ASTM D794]
Low Temperature Flexibility	Capable of withstanding 180° bends over a 1" (2.5 cm) mandrel @ 2°F (-17°C). [ASTM C734]
Resistance to Freeze-Thaw	Test panels exposed to freeze-thaw cycles under complete immersion in deionized water. Cycles consisted of 16 hours at 0°F (-18°C) and 8 hours at 70°F (21°C). After 4 complete cycles, the physical integrity of the coating remained unaffected. There was no loss of adhesion and no blistering or softening.
Standard Colors	Available in white, light gray, dark gray, and tan.

## APPLICATION INFORMATION

**UNISIL HS** is best suited for application through airless spray equipment. Utilize a pump with a minimum output of 3 gallons (11 liters) per minute and 3,500 psi (24,138 kPa) pressure capability, fed with 5:1 transfer pumps and ½" and ¾" ID hose, depending on the distance the material is pumped. Use a 30 mesh or larger filter screen at the pump. All others should be removed. Any compatible airless gun is acceptable, with a reversible spray tip having a minimum orifice of .030" (.76 mm) and 50° fan angle. A natural bristle brush or a medium nap roller may be utilized for touch-up

and edging work, or for small areas that are not practical for spray application.

Polyurethane foam and adjacent surfaces to be coated shall be completely dry and free of any degraded foam, grease, oil, dirt or other contaminants that may interfere with proper adhesion. Any physical damage to the polyurethane foam shall be repaired before coating application commences. Each coat of **UNISIL HS** shall be applied in a direction perpendicular to the previous coat. Edges of flat roof areas shall be pre-coated in a "picture frame" configuration. *continued on back*

## PERFORMANCE PROPERTIES

ASTM D6694-08	Meets the requirements contained in ASTM D6694 "Standard Specification for Liquid-Applied Silicone Coating Used in Spray Polyurethane Foam Roofing Systems."
UL 790 Class A Fire Testing	UL-790 Class "A" coating over various polyurethane foam substrates. Refer to <i>UL Building Materials Directory for foam manufacturers and types, foam thicknesses and densities, inclines, and of rated roof systems.</i>
Building Code Acceptance	Accepted by all major model building code authorities for Class "A" construction, including: the Uniform Building Code (UBC), Building Officials and Code Administrators (BOCA), and Southern Building Code Authority (SBCA). Also Miami-Dade County Product Control Approved.
CRRC, LEED, CA Title 24, ENERGY STAR®	<b>UNISIL HS</b> White meets Cool Roof Rating Council (CRRC) and EPA guidelines for ENERGY STAR® compliance. Use of this product will help save energy and reduce electrical costs. <b>UNISIL HS</b> also meets California Title 24 and LEED requirements.

## APPLICATION INFORMATION, CONT'D.

**UNISIL HS** must be applied in two or more separate coats to ensure proper coverage and cure rate, and a pinhole-free continuous film. All surfaces must be uniformly coated and be free from voids, pinholes or blisters. Each coat of **UNISIL HS** must be dry and cured before the next coat is applied. While this will normally require 2 to 4 hours, resistance to wash-off from rain is achieved within a matter of minutes. **UNISIL HS** applied at 1 gallon per 100 ft<sup>2</sup> (.4 l/m<sup>2</sup>) will theoretically yield 14.9 dry mils (378 microns). Refer to product specification for application instructions related to warranty programs.

**UNISIL HS** shall be extended up and over all polyurethane foam on vent pipes and parapets, and terminated a minimum of 2" (5 cm) above the foam, creating a self-terminating flashing. Apply subsequent coats of **UNISIL HS** as soon as the previous coat is completely dry and cured, preferably within 24 hours. If any form of dirt, sand or pollution fallout is detected on the surface of the **UNISIL HS**, it is necessary to remove this material before applying additional coating. Surfaces should be washed using a chemical cleaner, such as UCC, only after the **UNISIL HS** film has fully cured. Rinse thoroughly with clean, fresh water to remove all traces of the chemical cleaner and allow to dry.

In hot temperatures, and upon extended storage, partially full containers of **UNISIL HS** may surface skin. Remove skin prior to mixing, and cover container with polyethylene sheeting after mixing to help prevent further skinning.

**UNISIL HS** should not be applied when the ambient temperature is below 50°F (10°C), or if rain is anticipated

within 30 minutes of application. Store **UNISIL HS** in a warm area for a sufficient length of time to bring material temperature to 70°F (21°C) prior to application. The sprayability of **UNISIL HS** will depend on the combination of proper equipment and temperature of the coating at the time of application.

**Roofing Granules:** Because **UNISIL HS** is impervious to ultraviolet degradation, it does not readily release dirt, dust or other airborne pollutants. It is recommended that ceramic roofing granules be utilized in areas where aesthetics are of prime importance. Application of the granule surface is achieved through the addition of an extra coat of **UNISIL HS** applied over the minimum thickness required for the specified warranty for the project. Broadcast #11 ceramic roofing granules into the wet coating at approximately 45 pounds per 100 sq. ft. (2.2 lg/m<sup>2</sup>), in a manner that ensures uniform coverage over the entire surface without voids. No traffic shall be allowed on the granuled area for a minimum of 24 hours after application. Roofing granules are available in a wide range of colors.

Roofing granules are also recommended in walkway areas that receive regular maintenance traffic, as they provide additional wear and impact resistance. It is recommended procedure to wear flat-soled shoes when walking over foam/silicone roofing systems.

**Clean up:** Use VM & P Naphtha or Mineral Spirits to thoroughly flush equipment. Leave solvent in the lines and equipment until next use. It is not recommended practice to leave **UNISIL HS** in the pump or hoses.

## LIMITATIONS & PRECAUTIONS

**UNISIL HS** is affected by moisture and must be protected from moisture contamination. Keep all containers tightly closed during storage. Containers are factory sealed with an inert gas to prevent contamination. After opening, if all material is not to be used, containers must be purged with nitrogen or dry air and tightly sealed to protect from moisture contamination. Remove any skin prior to mixing the material. Keep cleaning solvents away from all sources of

heat, sparks, flame, lighted smoking materials, or any other ignition source. Use explosion-proof mixing equipment that has been grounded and bonded. If used in cryogenic storage or cold temperature storage applications, a vapor barrier must be applied prior to **UNISIL HS**. Not recommended for immersion conditions. **UNISIL HS** is slippery when wet, as are loose roofing granules. Exercise caution when walking on a roof under these conditions.

## SAFETY & HANDLING

Avoid breathing of vapor or spray mist. For exterior applications, approved MSHA/NIOSH chemical cartridge respirator must be worn by applicator and personnel in vicinity of application. Check filters frequently to ensure proper protection. If used indoors, provide mechanical exhaust ventilation. **UNISIL HS** is not recommended for interior application. Avoid contact with eyes and contact with skin. Adequate precautions must be taken when applying **UNISIL HS** to

occupied buildings to ensure that air conditioners and ventilation units are turned off and covered to prevent solvent vapors from entering the building. Windows should also be kept closed. Signs should be posted around the area to advise building occupants or visitors of the spray activity. For additional information refer to OSHA guidelines and **UNISIL HS** Material Safety Data Sheets.



### Quest Construction Products

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