

ROOF MATE HT

HIGH TENSILE/ELONGATION ACRYLIC ELASTOMER
Exceeds ASTM D6083 Standards

UNITED COATINGS
June 2009
(Supersedes April 2008)

7 HIGH TENSILE/ELONGATION ADVANCED ACRYLIC ELASTOMER
Technical Data & Application Instructions

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PRODUCT DESCRIPTION

ROOF MATE HT is a unique water-based elastomer coating utilizing the latest advances in acrylic technology for roof areas subject to heavy maintenance traffic, severe weather conditions, chemical fallout, etc. High tensile emulsion polymers are combined with reinforcing laminar pigments and non-migrating fire retardants for superior physical properties, durability, weatherproofing, dirt and mildew resistance, ultraviolet resistance and fire retardancy. The fire retardant chemicals are permanently locked into the cured coating and will not leach out upon extended weathering. ROOF MATE HT is a “breathing” coating, allowing moisture vapor to pass through the film while remaining impervious to mass water penetration.

BASIC USES

ROOF MATE HT was especially developed as a superior coating for extending the life of metal, conventional built-up, modified bitumen, single-ply, concrete, board-stock and sprayed-in-place polyurethane foam, and composite shingle roofs. Once applied, the substrate is protected from further degradation caused by normal weathering, aging and ultraviolet exposure. ROOF MATE HT forms a waterproof elastomeric seal, uniformly covering the textured profile of various substrates. Its dense, tight finish repels dirt and pollutants while the elastomeric membrane remains permanently flexible. ROOF MATE HT also withstands normal ponding water conditions and performs equally well over flat or sloped roofs.

COLORS

ROOF MATE HT is available in standard **White**, **Tan**, **Light Tan** and **Solar Gray** colors, which are certified to meet ENERGY STAR®, Cool Roof Rating Council (CRRC) and LEED reflectance and emissivity criteria. **White** and **Light Tan** also meet California Title 24 requirements. All other colors are custom matched by UNITED for the specific application. Color chips or samples must be furnished to UNITED for all custom colors. It is recommended that dark colors be tinted in **KYMAX** topcoat only.

TYPICAL PROPERTIES

- Solids By Weight:**
62% (± 2) [ASTM D1644]
- Solids By Volume:**
52% (± 2) [ASTM D2697]
- Dry Time For Foot Traffic Resistance:***
3 hours – Light Gray @ 16 wet mils (406 microns)
5 hours – White @ 16 wet mils (406 microns)
@ 75°F (24 C), 50% R.H. [ASTM D1640]
*Dry times will increase with higher humidity &/or lower temperature
- Ultimate Tensile Strength:**
550 psi (± 50) (4.0 MPa) @ 70°F (21°C)
[ASTM D412]
- Elongation at Break:**
500% (± 50) @ 70°F (21°C) [ASTM D412]
- Hardness:**
75 to 80 Shore A [ASTM D626]
- Permeance:**
2.5 U.S. Perms @ 20 mils [ASTM D1653]
- High Temperature Stability:**
No age hardening or slump up to 250°F (121°C)
- Temperature Limits For Normal Service Conditions:**
-30°F to 200°F (-35°C to 93°C)
- Bond Strength:**
Exceeds cohesive strength of coating
[ASTM C794]
- Code Approvals:**
Factory Mutual Class I System
UL 790 Class A classified

WARRANTY

UNITED’S Standard Warranty, issued to the Building Owner, is available for 5-year, 10-year and 15-year periods at no cost. ROOF MATE HT also qualifies for UNITED’S System Warranties, available for 5-year, 10-year and 15-year periods. The System Warranties require additional fees as well as a final inspection. Refer to section entitled Application Instructions as well as individual Warranty Explanation Forms for additional details.



THIRD PARTY APPROVALS & ADVANTAGES

Fire Testing: ROOF MATE HT is a UL 790 Class "A" classified coating over various non-combustible substrates. It also achieved a Class I rating in the FMRC fire test for Insulated Steel Deck Construction. Ratings are subject to the conditions of approval as described in the Factory Mutual Approval Guide or Job Identification #J.I.0Z3Q4.AM, and UL Building Materials Directory, which describes requirements of rated roof systems.

Spread Of Flame Fire Test: Tests were conducted in accordance with ASTM E 108 Fire Tests of Roof Coverings for Class A non-combustible deck test procedures. ROOF MATE HT achieved a Class A rating over a variety of polyurethane foams. At no time during the Spread of Flame Tests were flying brands developed or excessive lateral flame spreads observed. Refer to Factory Mutual Approval Guide for listing details.

Simulated Windstorm Classification Pull Tests: Wind uplift tests were conducted to evaluate the ability of the deck components to resist a simulated wind uplift force without failure of the assembly. ROOF MATE HT passed the Class 1-180 wind uplift requirements over a variety of polyurethane foams. Refer to Factory Mutual Approval Guide or Job Identification #J.I.0Z3Q4.AM.

Simulated Hail Damage Tests: Simulated hail damage tests were conducted to evaluate the ability of the roof cover/insulation combinations to withstand a hailstorm without damage to the covering. After 10 drops of the impactor apparatus, the ROOF MATE HT showed no sign of cracking, splitting, internal separation, delamination or rupture. Refer to Factory Mutual Approval Guide or Job Identification #J.I.0B9A2.AM.

Resistance To Foot Traffic: Tests were conducted to determine the ability of the roof cover/insulation combination to resist foot traffic. After completion of the testing, the samples showed no sign of tearing or cracking. Refer to Factory Mutual Approval Guide or Job Identification #J.I.0B9A2.AM.

Susceptibility To Leakage Test: Tests were conducted to determine the resistance of the roof cover/insulation assembly to water intrusion when subjected to a 6" (15 cm) head of water above the sample as well as air pressure below the sample. After 7 days exposure, the ROOF MATE HT showed no signs of water leakage. Refer to Factory Mutual Approval Guide or Job Identification #J.I.0B9A2.AM.

Low Temperature Flexibility: ROOF MATE HT is capable of withstanding 180° mandrel bends over a 3/16" (5 mm) mandrel @ -25°F (-30°C). Federal Test Method No. 141a-6221/ASTM D522

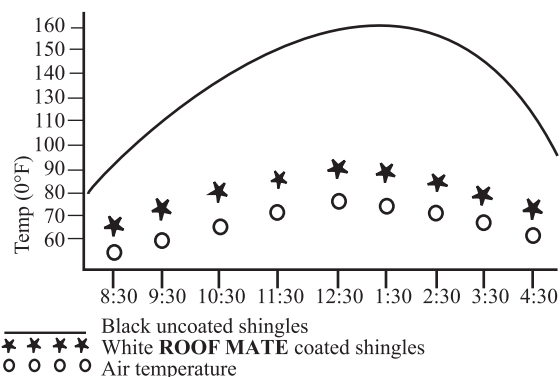
Resists Abusive Weather: ROOF MATE HT will take abusive weather conditions of all types. Ice, snow, wind driven rain and sand do not penetrate its tough, dense surface under normal conditions.

High Tensile Strength & Elongation Properties: ROOF MATE HT achieves outstanding elongation, tensile strength and tear resistance properties, which are carefully balanced to provide optimum long-term performance. The cured film provides excellent abrasion and impact resistance to withstand extreme weather conditions and maintenance traffic. Its tight finish also exhibits excellent chemical, dirt pickup and mildew resistance.

Bond Strength: ROOF MATE HT achieved a 50 to 60 lb./sq. inch (.34 to .41 MPa) breaking strength when tested in the Instron Universal Testing Instrument. ASTM C297

High Acrylic Resin Content: Solids by volume percentage is only one measure of a coating's quality. Another basis for determining longevity of a coating is the ratio of filler pigment to polymer content. ROOF MATE HT contains lower filler pigment load and higher levels of acrylic polymer than most coatings. This high ratio of pure acrylic polymer provides long-term weather resistance. ROOF MATE HT'S overall high performance is achieved through the use of elastomer acrylic polymers.

Reduced Energy Cost: ROOF MATE HT White stays clean to reflect the sun's heat, unlike dark colored roof substrates that retain heat and are subject to UV degradation. Roof temperatures can be reduced in excess of 50°F (28°C). ROOF MATE HT is certified to exceed Energy Star® and CRRC requirements.



Easy Application and Repair: A smaller crew can do the work that used to require many, at a fraction of the cost of other roofing systems. With a ROOF MATE HT roof there is no asphalt to degrade, metal to corrode or seams to come apart and leak. It is formulated to remain flexible to -30°F (-35°C) without cracking, and is impervious to the minor ponding water associated with most roofs. When maintenance is required, the repair is easily accomplished with the use of an acrylic caulk or touch-up with additional ROOF MATE HT.

Colorfast: The acrylic resins utilized in ROOF MATE HT cross-link under exterior exposure to lock in color and lock out dirt. The topcoat color remains true through years of weathering, while the tight, cross-linked surface repels dirt to remain clean and highly reflective.

PACKAGING & MIXING

ROOF MATE HT is a single-component, ready-to-use material available in 5-gallon (19 liter) pails and 55-gallon (208 liter) drums. **ROOF MATE HT** may appear well mixed, but upon extended standing will settle into a two-stage suspension. Use a $\frac{3}{4}$ horsepower or larger mixer with a blade capable of uniformly mixing the entire container. For 5-gallon (19 liter) pails, use 3" (7.5 cm) minimum diameter mixing blades. For 55-gallon (208 liter) drums, use 6" (15 cm) minimum diameter mixing blades.

ROOF MATE HT, properly mixed, is easily pumped and sprayed at material temperatures of 60°F (16°C) or greater. **Thinning or reducing the mixture is not recommended.** Addition of water reduces the rich thixotropic nature of **ROOF MATE HT** and decreases its ability to achieve a heavy film build with excellent vertical hold and hide.

SURFACE PREPARATION

All surfaces must be clean and dry, and free of any dirt, dust, oil, surface chemicals, or other contaminants that may interfere with optimum adhesion. All loose gravel, if present, shall be removed by power sweeping and/or vacuuming. Remaining gravel shall be power spud to achieve the smoothest surface possible. Any unsound areas in the roof, i.e. blisters, delamination, deterioration, moisture saturation, severe corrosion, sharp projections, ridges, etc. shall be repaired or replaced. New asphalt shall be exposed to ambient conditions for 45 to 60 days before coating.

Deteriorated or badly corroded metal shall be replaced. Rusted areas shall be mechanically abraded to remove all loose rust and then primed with **UNITED'S Acrylex 400** rust-inhibitive metal primer for light to medium rust, or **Primer 302 LV** for heavy rust. New metal roofs exhibiting any type of surface film shall be washed with a vinegar or muriatic acid solution, or equivalent, to totally remove this film.

Low areas that hold excessive ponding water must be brought into conformance by installing additional drains or adding additional slope to existing drains. Excessive ponding is any area that holds in excess of $\frac{1}{2}$ " (5 cm) of water as measured 24 hours after a rainfall.

Surfaces that are contaminated with oil, grease, embedded dirt, loose paint or coating, etc. shall be cleaned using **United Cleaning Concentrate (UCC)**, a biodegradable chemical cleaner, and water. High-pressure power washing and/or mechanical scrubbers may be necessary to remove tightly adhering contaminants. Rinse thoroughly with clean water to remove all traces of the **UCC** cleaner. If roof does not require chemical cleaning, thoroughly sweep, vacuum, or blow down roof to remove any dirt, dust or other loose contaminants.

Refer to separate **Roof Mate Master Guide Specifications** for the specific substrate being coated for complete surface preparation procedures.

COATING APPLICATION

Prior to applying **ROOF MATE HT** to the roof surface, all detail work on seams, splits, protrusions, drains, flashings, fasteners, etc. utilizing **Roof Mate Butter Grade, Uni-Tape, Roof Mate Fabric** and/or **Mesh**, and **Uni-Caps** shall have been completed. Any primers, if necessary, shall also have been applied and allowed to dry.

ROOF MATE HT may be applied by conventional or airless spray equipment. Brush or roller may be used for touch-up and edging work, or for small areas that are not practical for spray application. Airless spray is best suited for field application. Use a pump with a minimum 1-gallon per minute (3.8 l/minute) output and 2,000 psi (13,790 kPa) pressure capability. Use a reversible, self-cleaning tip with an orifice size of .027" to .039" (.69 to .99 mm).

ROOF MATE HT must be applied in two or more separate coats to ensure proper coverage and cure rate, and to achieve a pinhole-free continuous film. It is recommended that Gray be used for the first coat(s), thus making it easier to visually control the application of the final coat in White or specified custom color. **ROOF MATE HT** applied at the rate of one gallon per 100 sq. ft. (.4 l/m²) will theoretically yield 8.3 dry mils (211 microns).

Each coat of **ROOF MATE HT** shall be applied in a direction perpendicular to the previous coat except when coating metal roof panels. On metal roofs, each coat of **ROOF MATE HT** shall be applied parallel to the vertical ribs, taking care to coat both sides of each rib. Edges of flat roof areas shall be pre-coated in a "picture frame" configuration.

ROOF MATE HT shall extend up and over all roof substrates on vent pipes, walls, parapets and other protrusions to terminate a minimum of 3" (7.5 cm) above the substrate, creating a self-terminating flashing. Extend coating up and under all counter-flashings where utilized.

All surfaces must be uniformly coated and free from voids, pinholes or blisters. Adequate curing of detail work must take place prior to applying **ROOF MATE HT** base coat. Subsequent coats of **ROOF MATE HT** shall be applied only after allowing adequate cure time for the preceding coat(s). Initial cure or dry time to achieve resistance to rain or overnight dew will normally require several hours. Total cure to achieve long term resistance to ponded water will usually take 24 to 72 hours depending on ambient conditions.

Consult separate **ROOF MATE Master Guide Specifications** for Board-Stock Insulation, Built-Up, Modified Bitumen, EPDM, Hypalon, Metal and Concrete roof substrates for specific film thickness requirements to qualify for UNITED'S 5, 10 and 15-Year Standard and System Warranties.

COATING APPLICATION (Cont.)

If any form of dirt, sand, pollution fallout, etc. is detected on the surface of **ROOF MATE HT** it is necessary to remove this material before applying an additional coat of **ROOF MATE HT**. Surfaces should be washed using a biodegradable cleaner such as **UNITED'S United Cleaning Concentrate (UCC)** only after the **ROOF MATE HT** film has fully cured. Rinse thoroughly with clean, fresh water to remove all traces of the chemical cleaner and allow to dry. It is the responsibility of the applicator to ensure that the roof is sound and sloped properly, and that the expansion joints, vents and flashings have been installed as specified or required.

As work proceeds, the applicator must periodically check the number of gallons used compared to the square feet coated. If adequate gallonage has not been used according to **UNITED'S** published warranty requirements and/or project specifications, adjust accordingly and apply additional material to previously coated area(s).

In hot temperatures, partially full containers of **ROOF MATE HT** may surface-skin. Examine before mixing and remove skin (if present) prior to mixing. To prevent skinning in hot weather during application or in partially full containers, cover container with polyethylene sheeting **after** mixing.

ROOF MATE HT, properly mixed, is easily pumped and sprayed at temperatures of 60°F (16°C) or greater. Thinning or reducing the mixture is not recommended. Addition of water reduces the rich thixotropic nature of **ROOF MATE HT** and decreases its ability to achieve a heavy film build with excellent vertical hold.

ROOF MATE HT has excellent dirt releasing ability. Its smooth, low sheen surface resists penetration of soil and contamination, allowing the surface to be readily cleaned.

Use water and **United Cleaning Concentrate (UCC)** or other similar detergent to thoroughly flush equipment. Purge the water from the system using Mineral Spirits or Glycol Ether. Leave the solvent in the lines and equipment until next use. It is not recommended practice to leave **ROOF MATE HT** in the pump or hoses.

LIMITATIONS & PRECAUTIONS

ROOF MATE HT should generally not be used over cold storage tanks or buildings where a vapor barrier is required. **ROOF MATE HT** will freeze and become unusable at temperatures below 32°F (0°C), or when there is a possibility of temperatures falling below 32°F (0°C) within a 24-hour period after application.

ROOF MATE HT requires complete evaporation of water to cure. Cool temperatures and high humidity retard cure. **Do not apply if weather conditions will not permit complete cure before rain, dew, fog or freezing temperatures occur.** Do not apply in the late afternoon if heavy moisture condensation may appear during the night.

ROOF MATE HT may be applied to a wide range of clean, dry and structurally sound substrates. Slope for positive drainage is recommended for any roofing application.

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. During indoor spray operations, air line masks or positive pressure hose masks must be worn. Avoid contact with eyes and contact with skin.

Adequate precautions must be taken when applying **ROOF MATE HT** to occupied buildings to ensure that air conditioners and ventilation units are turned off and covered to prevent 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.

It is good roofing practice to schedule an annual cleaning of the roof surface. This will eliminate the accumulation of leaves, dirt, debris and other contamination. It will also alert the Owner as to any mechanical damage or other problems that may compromise the integrity of the roofing system. Roofs subject to a high degree of traffic or pollution fallout may require more frequent cleanings.

For specific information on safety requirements. Refer to OSHA guidelines and **ROOF MATE HT** Material Safety Data Sheet.

