Diathon® Roof Coating

Product Data Sheet

PRODUCT DESCRIPTION

Diathon® Roof Coating is an advanced acrylic elastomer coating that combines high solids emulsion polymers and potent biocides to provide superior durability, reflectivity, weatherproofing, and mildew resistance. Non-migrating fire retardant chemicals are permanently locked into the cured coating to assure performance. **Diathon® Roof Coating** is unique among acrylic elastomers in that elongation and tensile strength properties are both maintained at lower temperatures.

WARRANTY

See applicable warranties and guarantees for complete coverage and restrictions.

PACKAGING & SHELF LIFE

5 gallon (19 liter) pail
54 gallon (204 liter) drum

Shelf life 24 months if unopened containers stored between 40°F and 70°F (4°C - 21°C).

GAF Liquid-Applied

January 2016, supercedes May 2014

BASIC USES & GENERAL INFORMATION

Diathon® Roof Coating was specifically developed for protecting sprayed polyurethane foam insulation from degradation caused by normal weathering, aging and ultraviolet exposure. Diathon® Roof Coating has the unique property of being an elastomeric coating that is able to uniformly cover the profile of textured substrates. Diathon® Roof Coating is used for protection of sprayed polyurethane foam on new and existing roofs. Diathon® Roof Coating is available in standard White. White and Light Tan also meet California Title 24 requirements.

If a faster drying white topcoat is desired, Diathon® Roof Coating is available in a Quick-Set version (Diathon® Roof Coating QS). The QS formulation provides a more rapid skin-over time than standard Diathon® Roof Coating, which helps to prevent wash-off from a light rain or dew in 30 to 60 minutes, depending upon ambient temperature & humidity. Diathon® Roof Coating is also available in a High-Tensile version (Diathon® Roof Coating HT), which provides approximately twice the tensile strength, tear strength and elongation properties.

PHYSICAL PROPERTIES

DIATHON® ROOF COATING	
Solids by Weight	66% (±2) [ASTM D1644]
Solids by Volume	53% (±3) [ASTM D2697]
Tensile Strength	284 psi (±20) @ 75°F (24°C) [ASTM D2370]
Elongation	258% (±20) @ 75°F (24°C) [ASTM D2370] *Diathon® Roof Coating is unique in that it maintains its elongation values at freezing temperatures, as well as after extended weathering.
Hardness	55-65 Shore A [ASTM D2240]
Permeance	22.5 U.S. Perms @ 20 mils (508 microns) [ASTM D1653]
Permeability	0.11 Perm Inches [ASTM E96]
ASTM D6083	Independently tested and certified to exceed ASTM D6083 standards.
EPA ENERGY STAR® Program	Independently tested and certified to surpass ENERGY STAR and CRRC guidelines for energy efficiency.
High Temperature Stability	Did not age-harden or slump at temperatures up to 200°F (93°C). [ASTM D794]
Elongation Retained After Aging	After 1,000 hours exposure, passed the requirements of ASTM D6083/ ASTM D2370 – minimum 100% @ 73°F (23°C).
Bond Strength	No adhesive failure between the coating and PUF substrate. Diathon® Roof Coating remained totally bonded to the polyurethane foam under all stress conditions. [ASTM C297]
Ponded Water Adhesion	After 30 days of continuous testing, Diathon® Roof Coating showed no significant loss of adhesion. No blistering or other deleterious effects were observed.
VOC	<80 g/L

Dry Time for Foot Traffic Resistance:*	3 hours at 75°F (24°C), 50% R.H. Medium Gray @ 16 wet mils (406 microns) 5 hours at 75°F (24°C), 50% R.H. White @ 16 wet mils (406 microns) *Dry times will increase with lower temperature and/or higher humidity.
Temperature Limits for Normal Service Conditions	-30°F to 200°F (-35°C to 93°C)
Resistance to Accelerated Weathering	After 3,000 hours of continuous exposure, showed no deleterious effects, no surface checking or cracking, no delamination and no color fade. [ASTM D6083, ASTM D4798]
Resistance to Wind Driven Rain	After 40 hours of continuous testing, no apparent moisture penetrated the coating. [Tested in accordance with Federal Specification TTC-555 B]
Resistance to Foot Traffic [Tested in accordance with FM 4470]	No tearing, cracking, rupturing or permanent deformation of the Diathon® Roof Coating coating, or exposure of the polyurethane foam was observed. Test exceeds the stresses of normal roof maintenance traffic.
Low Temperature Flexibility	Capable of withstanding 180° bends over a 3/16" (5 mm) mandrel @ -21°F (-30°C). [Federal Test Method no. 141a-6221]
Cold Temperature Flex after Weathering	After 1,000 hours exposure, retained ability to withstand multiple ½" (1.2 cm) mandrel bends without cracking at -15°F (-18°C). [ASTM D6083, ASTM D522]
Simulated Hail Damage [FM 4470 - Severe]	Coated foam panels passed multiple impacts with no evidence of membrane failure. Test was repeated following 1,000 hours exposure; no changes noted.

APPLICATION INSTRUCTIONS

SUBSTRATE PREPARATION: Polyurethane foam and adjacent surfaces to be coated shall be free of any degraded foam, grease, oil, dirt, or other contaminants that will interfere with proper adhesion. Polyurethane

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APPROVALS	
Underwriters Laboratories (UL) UL 790 Class A*	Over many different types of UL classified spray-applied polyurethane foams. Refer to UL Roofing Materials and Systems Directory or UL website for foam manufacturers and types, foam thicknesses and densities, inclines and coating requirements of rated roof systems.
Factory Mutual (FM)	Approved (a) as a Class 1 Insulated Steel or Concrete Deck Roof System for new construction, and (b) as a Class 1 Re-Cover Application System when installed over existing Class 1 built-up roofing. Subject to the conditions of approval as described in the FM Approval Guide, or job Identification no. 2NIA3.AM.
UL Construction Nos. 74, 136, 181 & 206–U.S. Navy White House Test/UL Standard 1256**	UL fire classification with a variety of polyurethane foams sprayed over metal decking. Refer to UL Roofing Materials and Systems Directory or UL website under Roof Deck Construction for illustration & description of each rated roof system.
California State Fire Marshal	Conforms to Class "A" requirements with various spray-applied polyurethane foam systems.
Building Code acceptance	Diathon® Roof Coating/ Polyurethane Foam Roofing Systems are accepted by all major model building code authorities for Class "A" and Class "B" constructions. These building code authorities also accept UL Construction no.136 as an approved roof system over metal decks without a thermal ignition barrier.
International Code Council (ICC) approval	Approved as a fire-retardant roof coating over many different types of spray-applied polyurethane foam on non-combustible substrates, existing fire-retardant BUR & new wood substrates. See ICC ES reports 2298 and 2489 for specifications and conditions of use concerning material presented in this document.
Miami-Dade County NOA	12-0521.05 Exp April 1, 2019

APPLICATION INSTRUCTIONS

foam shall be completely dry and frost-free before coating. Any physical damage to the polyurethane foam shall be repaired before coating application commences. Any oxidized polyurethane foam shall be repaired or replaced. Do not coat directly over polyurethane foam that has been mechanically scarified or sanded.

MIXING: Thoroughly mix using a power mixer for a minimum of 5 minutes prior to application. For 5-gallon (19 liter) pails, use a 3" (76 mm) minimum diameter mixing blade; for 55-gallon (208 liter) drum, use a 6" (152 mm) minimum diameter blade.

APPLICATION: Apply to polyurethane foam surfaces between 24 and 72 hours after final application, depending on climate and manufacturer (refer to foam manufacturer for more information). Coating should be applied within this time frame to prevent surface oxidation that would interfere with coating adhesion. Apply product with an airless sprayer, covering the surface at an even rate. Use an airless spray pump with a 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 orifice size 0.027"–0.039" (0.69–0.99 mm) and a fan angle of 40° or 50°. Filter screens should be 30 mesh or larger. Use 3/8" (9.5 mm) minimum inside diameter, nylon high pressure-type hose for lengths up to 75 ft. (23 m) from pump. For 75 ft.–200 ft. (23–51 m), use 1/2" (13 mm) inside diameter hose added to pump side of existing 3/8" (1 mm) hose to maintain pressure and delivery. Over 200 ft. (51 m), use 5/8" to 3/4" (1.6 to 1.9 cm) inside diameter hose added to pump side of existing hose. Apply at a minimum rate of 100 ft²/gallon (2.5m²/L) per coat. Coating must be applied in two or more separate coats to ensure proper coverage and cure rate, and to achieve a pinhole-free continuous film. Each coat shall be applied in a direction perpendicular to the previous coat to ensure positive coverage. Each coat of coating must be dry and cured before an additional coat is applied. All surfaces must be uniformly coated and free from voids, pinholes, or blisters.

APPLICATION NOTE: Requires complete evaporation of water to cure. Cool temperatures and high humidity slow cure.

Apply in two coats at a minimum total rate of 1-1.5 gallons per 100 ft² (.4-.6 l /m²). Consult GAF's product specifications for specific film thickness requirements to qualify for GAF's product warranty.

ADVANTAGES & BENEFITS

High Acrylic Resin Content: Percent solids by volume 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. **Diathon® Roof Coating** contains lower filler pigment load and higher levels of acrylic polymer than most coatings. This high ratio of pure acrylic polymer provides long-term durability and weather resistance. **Diathon® Roof Coating**'s superior performance is assured through the use of advanced elastomeric acrylic polymers.

No Plasticizers: There are no migratory plasticizers in **Diathon® Roof Coating**. The purpose of a plasticizer is to give good initial flexibility to the cured film. Plasticizers, however gradually leach from the coating when exposed to sunlight and moisture, causing it to become brittle and exhibit poor flexibility and elongation properties. Surface checking and cracking occur, allowing moisture into the polyurethane foam and underlying substrate. This does not occur with **Diathon® Roof Coating**.

Uniform Film Build: The thixotropic consistency of **Diathon® Roof Coating** gives it excellent vertical hold, allowing uniform build on the highs and lows of the polyurethane foam texture. This quality maximizes the coating's ability to provide prolonged weather resistance.

Long Term Fire Protection: Non-migratory fire retardants are dispersed into the raw material complex during the manufacturing process. These fire retardants become an integral and inseparable part of the **Diathon® Roof Coating** coating. The non-leaching qualities of the specific fire retardants chosen by GAF add another dimension to **Diathon® Roof Coating**'s impressive list of protective qualities.

Abrasive Weather Conditions: Diathon® Roof Coating will take normal abrasive weather conditions of all types. Ice, snow and sand will not penetrate its tough, dense surface under normal conditions.

**Cements and Coatings for Built-Up Roof Coverings Classified by Underwriters Laboratories Inc.® as to an external fire exposure only. See UL Roofing Materials and Systems Directory.*

***Roof Coatings Classified by Underwriters Laboratories Inc.® as roof deck construction material with resistance to an internal fire exposure only for use in Construction nos. 74, 136, 181 & 206. See UL Roofing Materials and Systems Directory*

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ADVANTAGES & BENEFITS, CONT'D.

Diathon® Roof Coating conforms to all federal, state and local air pollution standards and VOC requirements.

Volume Solids: The high volume solids of **Diathon® Roof Coating**, along with its excellent hide and vertical hold characteristics, allows for higher film build in fewer coats. This enables **Diathon® Roof Coating** to uniformly cover the uneven surface texture of polyurethane foam.

Single Package: No catalyzation – **Diathon® Roof Coating** is a ready-to-use material with no pot life limitations.

LIMITATIONS & PRECAUTIONS

Do not apply **Diathon® Roof Coating** at temperatures below 50°F (10°C), or when there is possibility of temperatures falling below 32°F (0°C) within a 24-hour period after application.

Diathon® Roof Coating 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 or freezing temperatures occur. Do not apply in the late afternoon if heavy condensation may appear during the night.

Diathon® Roof Coating will freeze and become unusable at temperatures below 32°F (0°C). Do not ship or store unless protection from freezing is available.

Diathon® Roof Coating should generally not be used over cold storage tanks or buildings unless applied over a vapor barrier coating. **Diathon® Roof Coating** shall not be used for interior applications in place of a thermal barrier.

SAFETY & HANDLING

For specific information regarding safe handling of this material please refer to the Safety Data Sheet (SDS).

CLEAN UP

Use water and **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 **Diathon® Roof Coating** in the pump or hoses.

GAF
1 Campus Drive
Parsippany, NJ 07054
1-800-ROOF-411
gaf.com