NANOTECH MATERIALS

Wildfire Shield

Application & Technical Manual

CONTENTS

Last Updated: October, 2024

1.0 Safety Precautions

NanoTech Materials, Inc. at its core values the safety of all the lives that our company touches.

As a material science company, we have a relentless commitment to safety, from our R&D protocols through our day-to-day production operations to our training materials for our end users. Safety for us, however, is not just physical. We strive for a culture of tolerance and respect across our operations. We are an inclusive and diverse team, where all talented individuals are welcome and respected.

The purpose of this manual is to ensure your safety and to provide installation instructions for proper adhesion and performance in accordance with manufacturer specifications. Installation of NanoTech Wildfire Shield coating may require the use of ladders, ramps, scaffolding, stairs, and/or other equipment that will allow the installer to scale heights required to install the product on timber laggings, abutments, walls, etc. Professional installation with harnesses and fall protection measures is highly recommended. The purchase and use of this product implies understanding and the acceptance of these risks. Buyer agrees to hold NanoTech Materials, Inc. harmless and indemnify NanoTech Materials, Inc. against any and all accidents, damages, claims, or death, resulting from improper use or lack of safety considerations when using or installing our products. To ensure proper application and application longevity, NanoTech Wildfire Shield must be mixed and applied in accordance with the application instructions for successful adhesion and maximum insulation capability. The mixing process should take place at ground level on a flat even surface. NanoTech Materials, Inc. recommends placing a tarp, cardboard, plastic sheet, or other similar protective covering under the bucket to mitigate splashing and minimize the chance of product sticking to undesired surfaces.

NanoTech strongly recommends that all involved in the application of the coating follow OSHA (latest edition) standards.

For product-specific safety guidelines, refer to the Safety Data Sheet (SDS) in the Appendix.

1.1 Product Description

NanoTech Wildfire Shield is a water based acrylic polymer coating system. As with other acrylics, the application is best performed above 40°F (4°C). Do not allow products to freeze. Store in a cool dry place. Surface temperature of substrate should be between 40°F and 120°F for proper adhesion. In instances where NanoTech Wildfire Shield is exposed to temperatures below 40°F (4°C) it is vitally important that all containers of the NanoTech Wildfire Shield be thoroughly mixed to ensure proper adhesion and performance longevity.

2.0 Equipment Needed

The following equipment may be needed, but not limited to, in order to ensure proper application of this Wildfire Shield:

- Gloves
- Eye protection
- Industrial scissors
- Flat or serrated squeegee
- Utility knife
- Measuring tape
- Rags
- Writing/marking instruments
- T-square/straight edge
- Stir sticks
- Rollers and brushes
- Protective sheeting
- Masking/painters tape
- Wire brush
- Trowels
- Caliper
- Humidity tester

2.1 Recommended Equipment for Application (Sprayer):

1. Graco Gas/Electric Pneumatic Sprayer Texturizer with 2.5 GPM minimum intake
2. Tested Models:
   a. GTX 2500 or larger texturizer models.
   b. Consult NanoTech on different brands and model texturizer application sprayers.

2.2 Cleaning and Usage

Clean the spraying machine immediately after use to avoid the resin from curing inside the pump and the hose. Follow the manufacturer's standards on cleaning procedures.

Use and service the spraying machine following the manufacturer's recommendations.

3.0 Manufacturer's Specifications

The NanoTech Wildfire Shield is a high-performance, elastomeric coating formulated with NanoTech's patented additive used to strengthen the fire resistance of assets against wildfires or brush fires. As a result of this product's high reflectance and high emissivity values as well as its low thermal conductivity constant, the product acts to directly protect the substrates and reduce the heat absorbed from structures exposed to impingent flames and radiant heat caused by wildfires and brushfires. With the triple properties acting as a high temperature thermal barrier, this product is highly efficient. Ultimately reducing the degradation caused by impinging flames or radiant heat onto coated materials.

Thoroughly review The Safety Data Sheet (SDS) that can be found in the Appendix. The SDS contains important information regarding:

- Safety information for personnel and the environment
- First aid measures
- Chemical composition and classification
- Material handling and storage
- Regulatory and legal information
- Other relevant information

The NanoTech Wildfire Shield coating has been tested to the following standards:

1. ASTM E84 – Standard test method for assessing the surface burning characteristics of building products, including flammability and smoke density.
2. ASTM E119 – Standard test method for fire test of building construction and materials intended to rate the building materials to a prescribed temperature and time of exposure and heat transfer.
3. ASTM E162 – Standard test method for fire test response that describes measurement of surface flammability under a flame front and heat liberated by a radiant panel index.
4. ASTM E662 – Standard test method for determining optical smoke density of the smoke generated by the specimen and sampling of the off-gassing material.
5. AST G124 – Standard test method for the effects of Ultraviolet radiation on test specimen.

The NanoTech Wildfire Shield coating has been tested and sampled for volatile organic compounds (VOC), resulting in non-reportable VOCs.

The NanoTech Wildfire Shield coating has been tested by Caltrans personnel as applied to a timber lagging and subjected to an impingent propane torch flame for a duration of 20 min.

3.1 Wildfire Shield Maintenance

The properties that allow this coating to be effective are a combination of high emissivity, high reflectivity, and low thermal conductivity.

Emissivity and reflectivity are surface phenomena that are mostly effective if the coating is directly exposed to the source of heat flux and or impingent flame and unobstructed by dirt, debris, trash, or any other material on top of the coating that may block the heat source or become a source of fuel or a flammable products such as solvents, gasoline etc.

NanoTech recommends yearly inspections that will check for:

1. **Wear, Abrasion, or Tears**
   This can be caused by repeated and or extensive abrasion of hard materials striking against the coating. An example is gravel or construction debris falling from higher elevations hitting the coating. Lifting equipment or material handling may cause damage to the coating if work is being conducted in the area and the equipment or cargo brush or strike against the coating.

2. **Cracking**
   This coating is manufactured with a flexible resin that will elongate with the substrates or the coated structure. Inform NanoTech of the expected movement or give for the structure being coated to ensure the elongation is within the coating's expected parameters.

   The coating may crack (insert picture) in the case the structure settles or moves beyond the elastic properties of the coating. Contact a NanoTech representative for remediation procedures. Typically, the damaged area can be easily fixed with additional application of the coating. The product allows for over-layering and filling into affected areas, however, contact a representative for proper guidance and procedures.

3. **Water swelling**
   The product is water resistant, however prolonged water submersion (more than 48 hours) can cause water swelling and damage the product. They may occur during a flood event, for example.

4. **Vandalism**
   As the coating is exposed to areas that are not closely monitored and accessible to the public, it is possible that vandalism can occur.

In case one or more of the events above is uncovered during inspection, or if in doubt, contact a NanoTech representative for evaluation. If possible, take detailed photos of the damage and measurements. Evaluation of the damage may require a technician to be physically present and take sample coupons for lab testing.

If so desired, the coating can be cleaned with soapy water and or a power washer. Please make sure the tip of the power washer is at least one (1) foot away from the coating with a wide opening for the tip. Test in a small area first to ensure the coating will not be stripped by a concentrated water jet.

3.2 Product Preparation Guidelines

This is a high-solids, acrylic emulsion formulation that is a non-Newtonian fluid. This means that the product must be thoroughly agitated to lower its viscosity from a solid state to a liquid state. If the product is left standing in the packaging, in the application hopper machine, or in any container after agitation for more than 45 minutes, it must be agitated again to prevent its viscosity from increasing back to a solid state from a liquid state.

Follow these simple guidelines:

1. Agitate the product using a helicoidal paddle and a mixer with high rpm capability for at least 10 minutes.
2. Agitate the product for at least 5 minutes and up to 10 minutes for a product that has been left standing in a bucket/drum/tote for more than 45 minutes.

3.3 Substrate Qualification and Preparation

3.3.1 Examination

Note this qualification procedure has been written for pressure-treated timber laggings. In case the product needs to be applied to other substrates, consult a NanoTech representative.

Before applying the NanoTech Wildfire Shield coating, examine the surface area that will be coated, which is the product's substrate. A thorough walk through to look for visually apparent areas of concern that may cause application issues, followed by an inspection of the entire substrate, is required.

Substrate checks and preparation:

Accumulation of dirt and/or debris on the substrate:

1. Applying the coating over excessive dirt and construction debris accumulated on the surface of the substrate form a layer in between the substrate and coating, which will result in poor adhesion and debonding. In a fire event, these pockets of poorly adhered product and/or de-bonded areas will serve as weak points for fire or heat penetration and should be addressed with the utmost scrutiny.
2. Identifying if the substrate is excessively dirty for proper coating adhesion is covered in the next section: Adhesion Test.
3. NanoTech recommends proper cleaning of all the sprayable surface areas, even if successful adhesion tests were conducted before the cleaning process. Adhesion tests are samples taken to ensure the coating will bond properly to the surface of the timber. As such, samples are indications and should not be used as substitute for a proper substrate surface preparation, mainly cleaning and checking for moisture.
4. Proper cleaning will encompass:
    a. Sandblasting for removal of all dirt/debris from the substrate's surface or;
    b. Power washing for removal of all dirt/debris from the substrate's surface. If the surface is power washed, allow the substrate to dry and follow the guidance on moisture content in the following section.
    c. In the case the timber lagging has been recently cleaned, an air pressure gun can be used to remove dust and light dirt.

Surface Moisture Content is an important factor to consider ahead of the application of the coating. The NanoTech Fire Resistance Coating is a water-based product. The curing process consists of water evaporation in the coating to form a specified Dry Film Thickness (DTF). If the substrate is wet or contains excessive moisture, the coating will absorb the water or moisture in the substrate, and the curing time will be delayed, or in extreme cases, the coating may be damaged and not fit for purpose.

Water and humidity verification:

a. The coating should NOT be applied to a wet substrate. For example, right after a rain event or right after a power wash.
b. Check the weather in advance and ensure you will have ample dry weather for application. The topic of favorable weather conditions is discussed in more detail in the Coating Application section.
c. With your humidity tester, verify the following conditions are met:
    i. Humidity is less than 10% or
    ii. Humidity is less than 19% AND the timber will not be exposed to water. In other words, the timber lagging is not currently serving as a water drainage and will be able to dry during the application day(s) and subsequent curing days.
    iii. Do not apply the product if the humidity tester indicates 20% or more
    iv. Do not apply the product if the humidity tester indicates 19% AND the timber will be subject to water ingress and not allowed to dry.

3.3.2 Adhesion Test

It is extremely important that the NanoTech Wildfire Shield coating adheres well to the substrate. You can test the adhesion beforehand. Perform a peel test in test patches on all membrane substrates before applying any coating. This tests whether the substrate:

1. Is clean or has been cleaned properly for the coating application and
2. The humidity content is appropriate to conduct the work

This adhesion test is a modified version of the ASTM D 903 standard and should your team should perform one adhesion test for every 1,000 sq. ft. using the following steps:

1. In no case take fewer than two samples.
2. Clean an area at least 12 inches by 12 inches.
3. Apply 0.5 mm of the coating to the specific test area.
4. While the coating is still wet, embed a 2-inch-wide polyester fabric across a test patch, leaving a 6-inch-long dry section outside of the test patch.
5. Apply a second coat to totally encapsulate flashing fabric and let it cure for at least two (2) days. The coating should be completely dry.
6. Pull the dry end of the flashing fabric at a 180-degree angle with a calibrated scale to failure of adhesion.

Passing criteria: Two(2) pounds minimum resistance prior to failure. Typical resistance in timber lagging is eight (8) pounds of resistance. If the adhesion test fails, the substrate may need additional cleaning and/or removal of excessive moisture.

3.3.3 Work Area Preparation

Before applying the NanoTech Wildfire Shield coating, there are several tasks that must be performed:

1. Mask off areas with tape and protective film that are not intended to receive a coating.
2. Surface Preparation:
   a. Cleaning of the substrate, as discussed in the previous section
   b. Check for humidity content, as discussed in the previous section

Check for environmental conditions and prepare accordingly

Weather: ensure you have a window of a few dry days for the application of the product, which should include at least one dry day after the product is applied. Ambient humidity and dew point will increase curing time, which must be taken into consideration during the project planning process.

Have all lifting equipment required and ancillary equipment for the project, such as compressors, generators, tarps, etc.

Plan to have available clean water and empty drums for equipment cleaning and product deject disposal. Check city and state ordinances on disposal of acrylic water-based paints.

3.4 Use of Primers, Topcoats, or Fiber Reinforcement

NanoTech does not recommend the use of primers or topcoats, as these products may increase the flammability of the fire-resistant coated assembly. In certain conditions the use of primers or topcoats may be required. These conditions can range from constantly humid substrates; areas with ponding water, or other special unforeseen needs that require fiber reinforcement. Please discuss with a NanoTech representative before the use of any primer.

3.5 Coating Application

The overall weather conditions, substrate temperature, surface moisture, ambient temperature, relative humidity, and wind velocity affect the curing time of this product.

This product cures by water evaporation only. The application requires a minimum temperature of 41°F and rising. Do not apply at temperatures greater than 120°F. Do not apply if the dew point is within 5 degrees of the substrate temperature.

Under no condition is the application of this product to be exposed to rain or freezing temperatures for a period of no less than 48 hours.

Apply the product in layers at 50 to 75 wet mils, building up the total dry film thickness designated by your NanoTech representative. Ensure that the applied layer is cured (dry) to the touch before applying subsequent layers.

For reference, each sprayed layer will be a minimum of 20 to 50 wet mils depending on the speed of the pass. Please check with a mil gauge. There is an approximate shrinkage of 25% (according to solids content value) during curing.

Before applying NanoTech Fire Mitigation Coating, ensure that all environmental conditions strictly adhere to the parameters outlined in this manual. Application outside the recommended temperature, humidity, or substrate conditions may adversely affect coating performance and safety. Any planned deviation from these specifications requires prior consultation with a certified NanoTech representative to evaluate potential risks and recommend adjustments. Adherence to this guideline is essential to achieve optimal fire-resistant properties and ensure the coating's long-term effectiveness.

4.0 Additional Product Details

4.1 Qualification for Contractors

The Contractor shall be applicators trained by NanoTech, Inc or a NanoTech representative be on site for supervision. Discuss in more detail with Caltrans.

4.2 Material Testing and Labeling

The NanoTech Wildfire Shield coatings produced in NanoTech facilities using stringent ISO9001:2015 quality control framework. Routine in-house and third-party laboratory testing is performed, and full traceability of all product components is maintained. Any questions or concerns related to the product and or its application should be directed to info@nanotechmaterails.com. Please include the LOT # information from the product label.

4.3 Product Warranty

Discuss Warranty with NanoTech Representative.

4.4 Product Handling and Storage

For safe handling of this product read the SDS and follow these guidelines:

Avoid contacting and breathing the material. Apply coating material in only well-ventilated areas. As with all chemicals, good industrial hygiene practices should be followed when handling this material. Do not get into eyes, on skin, or on clothing. Wash thoroughly after handling it. For additional information, please reference the NanoTech Wildfire Shield safety data sheet (SDS).

Before use, NanoTech Wildfire Shield must be stored in a cool, dry place, and not exposed to the elements. While in storage conditions, the containers must be protected from direct exposure to sunlight, locked up and kept in a well-ventilated area. Maintain storage area temperature between 41°F (5°C) and 100°F (38°C). The product must not be stored at or below freezing temperatures.

5.0 Appendix

5.1 Safety Data Sheet

Nanotech Materials – Wildfire Shield

According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)
Date of issue: 05/14/2021 Revision date: n/a Printed: 05/25/2021

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Identifier

Product Name	Wildfire Shield
Product code	2019-005
Trade name	Wildfire Shield
Chemical family	White Elastomeric Coating

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s)	Fire protection
Uses Advised Against	Not Known.

1.3 Details of the supplier of the safety data sheet

Manufacturer	
Company Identification	Nanotech Materials, Inc.
Address of Manufacture	21401 Park Row Drive #360, Katy, TX 77449
Telephone:	1-713-670-4294
Email:	john@thenanoshield.com

1.4 Emergency telephone number

Emergency Phone No.	1-713-670-4294, Mon. to Fri. 8 am - 6 pm (PST)

Section 2: Hazards Identification

2.1 Classification of the substance or mixture

US CFR 1910.1200	Not classified as dangerous for supply/use.

2.2 Label elements

	According to US CFR 1910.1200
Hazard Pictogram(s)	None.
Signal Word(s)	None.
Hazard Statement(s)	None.
Precautionary Statement(s)	None.

2.3 Other hazards

Hazards not otherwise classified	Irritation to eyes: Irritant by mechanical action. Causes mild skin irritation.

2.4 Additional Information

None.

Section 3: Composition/Information on Ingredients

3.1 Substances

Not applicable.

ICSDS Page: 1-8 Revision: 1

3.2 Mixtures

No Hazardous Substance(s) or Complex Substance(s) required for disclosure.

The specific chemical component identifies and/or he exact component percentages of this material may be withheld as trade secrets.

This information is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of 29 CFR 1910.1200

(I)(1). Trace ingredients (if any) are present in < 1% concentration, (<0.1% for potential carcinogens, mutagen, and reproductive toxicant, respiratory tract and skin sensitizers in addition to oral/inhalation acute toxicant in category 1 and 2). None of the trace ingredients contribute significant additional hazards at the concentrations that may be present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents.

Section 4: First Aid Measures

4.1 Description of first aid measures

Inhalation	Unlikely route of exposure. Seek medical advice if necessary.
Skin Contact	Wash skin with water. Wash contaminated clothing before reuse.
Eye Contact	Flush eyes for at least 15 minutes. Seek medical advice if necessary.
Ingestion	Wash out mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

None anticipated. Treat symptomatically.

4.3 Indication of any immediate medical attention and special treatment needed

Unlikely to be required but if necessary treat symptomatically.

Section 5: Fire-Fighting Measures

5.1 Extinguishing Media

Suitable Extinguishing Media	As appropriate for surrounding fire.
Unsuitable Extinguishing Media	None known.

5.2 Special hazards arising from the substance or mixture

Non anticipated. Heating may cause decomposition.

5.3 Advice for firefighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation. Wear suitable gloves if prolonged skin contact is likely.

6.2 Environmental precautions

Do not release large quantities into the surface waterways or into drains.

6.3 Methods and material for containment and cleaning up

Adsorb spillages onto sand, earth or any suitable adsorbent material. Collect as much as possible in clean container for reuse or disposal.

6.4 Reference to other sections

See Also Section 8, 13.

Section 7: Handling and Storage

7.1 Precautions for safe handling

Keep container closed when not in use. Avoid contact with skin and eyes.

7.2 Conditions for safe storage, including any incompatibilities

Do not store or carry the substance in direct sunlight. Keep container/package tightly closed in a cool, well-ventilated place. Keep away from direct sunlight. Maximum allowed stacking: 3 drums.

Storage temperature	Ambient.
Storage life	Stable under normal conditions.
Incompatible materials	None known.

7.3 Specific end use(s)

Not known.

Section 8: Exposure Controls/Personal Protection

8.1 Control parameters

8.1.1 Occupational Exposure Limits

SUBSTANCE.	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m3)	STEL (ppm)	STEL (mg/m3)	Note:
Amorphous, including natural diatomaceous earth (Total dust)	7631-86-9		6			CAL-OSHA PEL_Table Z-3
Amorphous, including natural diatomaceous earth (Respirable)	7631-86-9		3			CAL-OSHA PEL_Table Z-3
Amorphous, including natural diatomaceous earth	7631-86-9		6			NIOSH REL Z-3
Amorphous, including natural diatomaceous earth	7631-86-9		80			OSHA PEL_Table Z-3, (3a), (3e)
Silica, amorphous, precipitated and gel	112926-00-8					OSHA PEL Z-1, (n1)
Aluminum, metal and insoluble compounds	1344-28-1		1			ACGIH TLV, R, A4
apha-Aluminum (Total dust)	1344-28-1		10			OSHA PEL
apha-Aluminum (Respirable fraction)	1344-28-1		5			OSHA PEL
Aluminum, metal and insoluble compounds (as Al) (Total dust)	1344-28-1		10			NIOSH REL Z-1
Aluminum, metal and insoluble compounds (as Al) (Respirable fraction)	1344-28-1		5			NIOSH REL Z-1
Aluminum Oxide (Total dust)	1344-28-1		15			OSHA PEL Z-1
Aluminum Oxide (Respirable fraction)	1344-28-1		5			OSHA PEL Z-1
Aluminum, metal and insoluble compounds (as Al) (Total dust)	1344-28-1		15			OSHA PEL Z-1
Aluminum, metal and insoluble compounds (as Al) (Respirable fraction)	1344-28-1		5			OSHA PEL Z-1

Synthetic vitreous fibers, continuous filament glass fibers	65997-17-3		5	ACGIH TLV, I, A4
Synthetic vitreous fibers, continuous filament glass fibers	65997-17-3	1		ACGIH TLV, f/cc (a), F, A4
Synthetic vitreous fibers, rock wool fibers	65997-17-3	1		ACGIH TLV, f/cc (a), F, A3
Mineral wool fiber	65997-17-3		5	NIOSH REL Z-1, (p)
Synthetic vitreous fibers, continuous filament glass fibers	65997-17-3		5	NIOSH REL Z-1, (v)

Remark	Notes
CAL-OSHA PEL_Table Z-3	California Division of Occupational Safety and Health (CAL-OSHA) Permissible Exposure Limits (PELs) Table Z-3 Mineral Dusts, 2019
NIOSH REL Z-3	National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs) from the NIOSH Pocket Guide to Chemical Hazards table Z-3 Mineral Dusts, 2019
OSHA PEL_Table Z-3	Occupational Safety and Health (OSHA) Permissible Exposure Limits (PELs) Table Z-3 Mineral Dusts, 2019
(3a)	20 mppcf (Millions of particles per cubit foot of air, based on impinger samples counted by light-field techniques. Conversion factors - mppcf x 35.3 = million particles per cubic meter = particles per c.c.)
(3e)	The PEL in mg/m3 is calculated by dividing by the percentage SiO2 + 2
OSHA PEL Z-1	Occupational Safety and Health (OSHA) Permissible Exposure Limit (PEL) from 29 CFR 1910.1000 Z-1 Table, 2021
(n1)	20 mppcf (million particles per cubic foot) or 80 mg/m3 / %SiO2
ACGIH TLV	The American Conference of Government Industrial Hygienists (ACGIH®) Threshold Limit Values (TLVs®), 2021
R	Measured as respirable fraction of the aerosol
A4	Not Classifiable as a human Carcinogen
OSHA PEL	Occupational Safety and Health (OSHA) Permissible Exposure Limits (PELs), 2019
NIOSH REL Z-1	National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs) from the NIOSH Pocket Guide to Chemical Hazards table Z-1: Up to 10-hour time weighted average (TWA) during a 40-hour work week, 2021
I	Measured as Inhalable fraction of the aerosol
f/cc (a)	fiber per cubic centimeter
F	Respirable fibers: length > 5 µm, aspect ration ≥ 3:1, as determined by the membrane filter method at 400-450X magnification (4-mm objective), using phase contrast illumination
A3	Confirmed Animal Carcinogen with Unknown Relevance to Humans
(p)	Total Mineral wool dust or 3 f/cc TWA (fibers ≤3.5 µm diam, ≥ 10 µm length)
(v)	Total fibrous glass or 3 (fib ≤3.5 µm diam, ≥ 10 µm length)

8.2 Exposure controls

8.2.1 Appropriate engineering controls.

Ensure adequate ventilation.

8.2.2 Personal protection equipment

Eye Protection Wear eye protection with side protection.

Skin protection — Wear suitable protective clothing, boots and gloves.

Respiratory protection — Normally no personal respiratory protection is necessary. Wear respiratory protection if necessary.

Thermal hazards — None known.

8.2.3 Environmental Exposure Controls.

Do not release large quantities into the surface water or into drains.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Liquid. (High thickness emulsion) Color : White or slightly beige, pigmented versions available
Odor	Odorless.
Odor Threshold	Not applicable.
pH	Not known.
Freezing Point	32°F
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation Rate	Not known.
Flammability (solid, gas)	Non-flammable.
Upper/lower flammability or explosive limits	Not applicable.
Lower / Upper Flammability and Explosive Limits	Not applicable
Vapor pressure	45 - 90 kPa at 122 °F
Vapor density	3 - 4 Vapour Density (Air=1)
Density	Not known.
Relative density	1 - 1.25 Density (water=1)
Solubility(ies)	Solubility (Water) : Insoluble. Solubility (Other) : Not known.
Partition coefficient: n-octanol/water	Not known.
Auto-ignition temperature	Not known.
Decomposition Temperature (°F)	> 2640 °F
Viscosity	< 7 cSt at 40 °C
Explosive properties	Not known.
Oxidizing properties	Not known.

9.2 Other Information

None.

Section 10: Stability and Reactivity

10.1 Reactivity

Reacts at ambient temperatures and above 212 °F

10.2 Chemical Stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

No hazardous reaction known if used for ins intended purpose.

10.4 Conditions to avoid

Keep away from heat and direct sunlight.

10.5 Incompatible materials

Not known.

10.6 Hazardous decomposition products

No hazardous decomposition products known.

Section 11: Toxicological Information

11.1 Information on toxicological effects

Acute toxicity - Ingestion	Not classified.
Acute toxicity - Skin Contact	Not classified.
Acute toxicity - Inhalation	Not classified.
Skin corrosion/irritation	Not classified./Causes mild skin irritation.
Serious eye damage/irritation	Not classified. Irritation to eyes: Irritant by mechanical action.
Skin sensitization data	Not classified.
Respiratory sensitization data	Not classified.
Germ cell mutagenicity	Not classified. No evidence of mutagenic effects.
Carcinogenicity	Not classified. No evidence of carcinogenic effects.
Reproductive toxicity	Self classification: No evidence of reproductive effects.
Lactation	Not classified.
STOT - single exposure	Not classified.
STOT - repeated exposure	Not classified.
Aspiration hazard	Not classified.

11.2 Other Information

Not known.

Section 12: Ecological Information

12.1 Toxicity

Toxicity - Aquatic invertebrates	Low toxicity to invertebrates.
Toxicity - Fish	Low toxicity to fish.
Toxicity - Algae	Low toxicity to algae.
Toxicity - Sediment Compartment	Not classified.
Toxicity - Terrestrial Compartment	Not classified.

12.2 Persistence and degradability

Not known.

12.3 Bioaccumulative potential

Not known.

12.4 Mobility in soil

Not known.

12.5 Other adverse effects

Not known.

Section 13: Disposal Considerations

13.1 Waste treatment methods

Dispose at suitable refuse site. Dispose of contents in accordance with local, state and national legislation.

13.2 Additional Information

No special precautions are required for this product.

Section 14: Transport Information

14.1 UN Number

Not applicable

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not classified as a Marine Pollutant.

14.6 Special precautions for user

Not known

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not known

Section 15: Regulatory Information

15.1 US Federal Regulations

Toxic and hazardous substances (29 CFR 1910; Subpart Z)	Listed : 112926-00-8, 1344-28-1
National emission standards for hazardous air pollutants (40 CFR 61.01)	Not listed
SARA Title III Section 313	Not listed
TSCA (Toxic Substance Control Act)	Listed : 7631-86-9 (Active), 7732-18-5 (Active), 1344-28-1 (Active), 65997-17-3 (Active)
CAA 602 - Ozone Depleting Substances (ODS)	Not listed

15.2 US State Regulations

State Right to Know Lists	
Proposition 65 (California)	Listed : 7631-86-9, 65997-17-3
Minnesota	Listed : 7631-86-9, 112926-00-8, 1344-28-1, 65997-17-3

New Jersey	Listed : 112926-00-8, 1344-28-1
Pennsylvania	Listed : 7631-86-9, 112926-00-8, 1344-28-1, 65997-17-3
Rhode Island	Listed : 1344-28-1, 65997-17-3

15.3 Other

OSPAR List of Chemicals for Priority Action	Not listed
OSHA (List of Highly Hazardous Chemicals, Toxics and Reactives)	Not listed
NTP (National Toxicology Program)	Listed : 7631-86-9, 65997-17-3
IARC (International Agency for Research on Cancer)	Listed : 7631-86-9, 65997-17-3

Section 16: Other Information

The following sections contain revisions or new statements:

LEGEND

Hazard Pictogram(s)	None.
Precautionary Statement(s)	None.
Acronyms	ATE: Acute Toxicity Estimate CAS: Chemical Abstracts Service LTEL: Long term exposure limit STEL: Short term exposure limit STOT: Specific Target Organ Toxicity
Key literature references and sources for data used to compile the SDS	US CFR 1910.1200
Disclaimers	Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. Gives no warranty as to the fitness f the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. Accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. freedom under Patents, Copyright and Designs cannot be assumed.

5.2 Quick Spec – Wood Timber Lagging

Necessary Actions:

- Ensure spray equipment has been cleaned from previous use and free of contamination and or dry resin in the pump and hoses. Follow manufacture's standards for cleaning procedures.
- Complete a substrate examination and look for any visually apparent areas of concern that may cause application issues.
- Check for environmental conditions and prepare accordingly. Application should occur at a minimum of 41F and rising, ensuring no rain, dew, fog, or freezing temperatures are forecasted for the next 8 hours.

Guidelines:

- Consult the Technical Data Sheet for detailed instructions on product application and temperature constraints.
- Application conditions: Surface Temperature 41F minimum, 120F maximum.
- Product temperature: 41F Minimum, 100F Maximum
- Relative Humidity: Humidity conditions will drastically affect the drying times and recoat window of product.

Installation Steps:

- Conduct an application test area and an adhesion test as per ASTM D 903.
- Power-wash and/or blow off substrate with compressed air to remove contaminants that could negatively affect adhesion. Allow wood timber lagging to dry.
- Apply coating up to 2 mm per coat. See chart below.

Treatment	Product	Total (sqft/gal)	Dry Film Thickness (mm)	Wet Film Thickness (mils)
Douglas Fir, Grade No.1 or better Wood Timber Lagging	Wildfire Shield	22-32	8	56

Disclaimer: This application guide is intended specifically for wood timber lagging. For information on applications involving other materials, please contact us directly to ensure optimal performance and compatibility with NanoTech's products.

NANOTECH MATERIALS

Our Mission

NanoTech Materials is the global name for **heat control in the built environment, logistics, and industrial sectors.**

Our environmentally adaptive materials play across the heat mitigation spectrum from extreme fire and refractory applications to passive solar radiation protection.

info@nanotechmaterials.com

(888) 296-6266

NanoTechMaterials.com