



SAFETY DATA SHEET FORTICOAT MS

SECTION 1. IDENTIFICATION

Product Name	Forticoat MS
Chemical Family	Water-based Acrylic Coating
Recommended Use/Restrictions	Coating for Roofing Applications
Manufacturer	FortiSystems 16601 Central Green Blvd. Ste. 100 Houston, TX 77032
24-Hour Emergency Phone	832.922.2926
Information Only	833.840.2777

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Eye irritation:	Category 2A
Skin sensitization:	Category 1
Carcinogenicity:	Category 1A

GHS Label Elements

Hazard pictograms:



Signal word:

Danger

Hazard statements:

May cause an allergic skin reaction.
Causes serious eye irritation.
May cause cancer.

Precautionary statements:

Prevention:

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood
Avoid breathing dust, mist, gas, vapors or spray.
Wash skin and face thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace
Wear permeation resistant protective gloves and clothing. Wear eye and face protection.

Response:

IF exposed or concerned: Get medical attention. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical attention. Wash contaminated clothing before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage:

Store locked up.

Disposal:

Dispose of contents and container in accordance with existing federal, state, and local environmental control laws.

The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 24 %

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components

<u>Weight Percent</u>	<u>Components</u>	<u>CAS-No.</u>	<u>Classification</u>
10 - 20%	Aluminum hydroxide	21645-51-2	Eye irritation Category 2B.
5 - 10%	Titanium dioxide (Rutile)	13463-67-7	Carcinogenicity Category 2 Inhalation. Specific target organ toxicity – single exposure Category 3 Respiratory system.
0.1 - 1%	Biocide	Trade Secret	Acute toxicity Category 2 Inhalation. Serious eye damage Category 1. Skin sensitization Category 1. Carcinogenicity Category 2.
0.1 - 1%	Ammonium Hydroxide	1336-21-6	Acute toxicity Category 4 Oral. Acute toxicity Category 3 Inhalation. Skin corrosion Category 1A. Serious eye damage Category 1.
0.1 - 1%	Crystalline Quartz Silica	14808-60-7	Acute toxicity Category 4 Oral. Carcinogenicity Category 1A. Specific target organ toxicity - repeated exposure Category 1 Lungs.

The specific chemical identity and/or exact percentage of component(s) have been withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

Most Important Symptom(s)/Effect(s)

Acute: Causes serious eye irritation with symptoms of reddening, tearing, swelling, and burning., May cause allergic skin reaction with symptoms of reddening, itching, swelling, and rash.

Eye Contact

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact

In case of skin contact, wash affected areas with soap and water. Immediately remove contaminated clothing and shoes. Get medical attention if irritation develops and persists.

Inhalation

If inhaled, remove to fresh air. Get medical attention if irritation develops.

Ingestion

If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

SECTION 5. FIREFIGHTING MEASURES

Suitable Extinguishing Media: All extinguishing media are suitable.

Unsuitable Extinguishing Media No Data Available

Fire Fighting Procedure

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture.

Hazardous Decomposition Products

By Thermal Decomposition: carbon monoxide, carbon dioxide, Acrylic monomers, other potentially toxic fumes

Unusual Fire/Explosion Hazards

Toxic and irritating gases/fumes may be given off during burning or thermal decomposition.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill and Leak Procedures

Cleanup personnel must use appropriate personal protective equipment. Cover spill with inert material (e. g., dry sand or earth) and collect for proper disposal.

SECTION 7. HANDLING AND STORAGE

Handling/Storage Precautions

Avoid breathing dust, vapor, or mist. Avoid contact with skin or clothing. Avoid contact with eyes. Use only with adequate ventilation/personal protection. Wash thoroughly after handling. Keep container closed when not in use. Protect from freezing.

Storage Period:

12 Months

Storage Temperature

Minimum: 1 °C (33.8 °F)

Maximum: 49 °C (120.2 °F)

Storage Conditions

None known

Substances to Avoid

None known

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Aluminum hydroxide (21645-51-2)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 1 mg/m³ (Respirable fraction.)

US. ACGIH Threshold Limit Values

Hazard Designation: Group A4 Not classifiable as a human carcinogen.

Titanium dioxide (Rutile) (13463-67-7)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 10 mg/m³

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Permissible exposure limit: 15 mg/m³ (Total dust.)

US. ACGIH Threshold Limit Values

Hazard Designation: Group A4 Not classifiable as a human carcinogen.

Ammonium Hydroxide (1336-21-6)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 25 ppm

US. ACGIH Threshold Limit Values

Short Term Exposure Limit (STEL): 35 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Permissible exposure limit: 50 ppm, 35 mg/m³

Crystalline Quartz Silica (14808-60-7)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 0.025 mg/m³ (Respirable fraction.)

US. OSHA Table Z-3 (29 CFR 1910.1000)

Time Weighted Average (TWA): 2.4 millions of particles per cubic foot of air (Respirable). The exposure limit is calculated from the equation, $250/(\%SiO_2+5)$, using a value of 100% SiO₂. Lower percentages of SiO₂ will yield higher exposure limits.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Time Weighted Average (TWA): 0.1 mg/m³ (Respirable). The exposure limit is calculated from the equation, $10/(\%SiO_2+2)$, using a value of 100% SiO₂. Lower percentages of SiO₂ will yield higher exposure limits.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Time Weighted Average (TWA): 0.3 mg/m³ (Total dust). The exposure limit is calculated from the equation, $30/(\%SiO_2+2)$, using a value of 100% SiO₂. Lower values of % SiO₂ will give higher exposure limits.

US. ACGIH Threshold Limit Values

Hazard Designation: Group A2 Suspected human carcinogen.

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

Industrial Hygiene/Ventilation Measures

General dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines.

Respiratory Protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Hand Protection

Permeation resistant gloves.

Eye Protection

Splash proof goggles.

Skin Protection

Wear cloth work clothing including long pants and long-sleeved shirts.

Additional Protective Measures

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers and eye wash stations should be available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

State of Matter:	liquid
Color:	Various
Odor:	Mild, Amine
Odor Threshold:	No Data Available
pH:	No Data Available
Freezing Point:	0 °C (32 °F) similar to water
Boiling Point:	100 °C (212 °F) similar to water
Flash Point:	Not applicable (water based product), however, solid material will support combustion if water has been evaporated.
Evaporation Rate:	No Data Available
Lower Explosion Limit:	No Data Available
Upper Explosion Limit:	No Data Available
Vapor Pressure:	17 mmHg @ 20 °C (68 °F) similar to water
Vapor Density:	No Data Available
Density:	No Data Available
Relative Vapor Density:	No Data Available
Specific Gravity:	1.2 – 1.5
Solubility in Water:	No Data Available
Partition Coefficient: n-octanol/water:	No Data Available
Auto-ignition Temperature:	No Data Available
Decomposition Temperature:	No Data Available
Dynamic Viscosity:	No Data Available
Kinematic Viscosity:	No Data Available

SECTION 10. STABILITY AND REACTIVITY**Hazardous Reactions**

Hazardous polymerization does not occur.

Stability

Stable

Materials to Avoid

None known.

Hazardous Decomposition Products

By Thermal Decomposition: carbon monoxide, carbon dioxide, Acrylic monomers, other potentially toxic fumes

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Skin Contact
Eye Contact
Ingestion
Inhalation

Health Effects and Symptoms

Acute: Causes serious eye irritation with symptoms of reddening, tearing, swelling, and burning., May cause allergic skin reaction with symptoms of reddening, itching, swelling, and rash.

Chronic: May cause cancer.

Toxicity Data for FORTICOAT MS

No data available for this product.

Toxicity Data for Aluminum hydroxide

Acute Oral Toxicity

LD50: > 2000 mg/kg (rat, female) (OECD Test Guideline 423)

Skin Irritation

rabbit, OECD Test Guideline 404, Non-irritating

Eye Irritation

rabbit, OECD Test Guideline 405, Slightly irritating

Sensitization

Respiratory sensitization: negative (mouse)
Studies of a comparable product.

Skin sensitization according to Magnusson/Kligmann (maximizing test): negative (guinea pig, OECD Test Guideline 406)

Repeated Dose Toxicity

28 Days, Oral: NOAEL: 14,470 ppm, (rat, male)

Mutagenicity

Genetic Toxicity in Vitro:

Mammalian cell - gene mutation assay: negative (Mouse lymphoma cells (L5178Y/TK), Metabolic Activation: with/without)

Genetic Toxicity in Vivo:

Micronucleus Assay: negative (rat, male/female, Oral) negative

Developmental Toxicity/Teratogenicity

rat, female, oral, NOAEL (teratogenicity): 1,000 mg/kg, No Teratogenic effects observed at doses tested. No fetotoxicity observed at doses tested. rat, female, oral, GD 6-15, daily, NOAEL (teratogenicity): 266 mg/kg, No Teratogenic effects observed at doses tested. No fetotoxicity observed at doses tested.

Toxicity Data for Titanium dioxide (Rutile)

Acute Oral Toxicity

LD50: > 5000 mg/kg (rat, female) (OECD Test Guideline 425)

Acute Inhalation Toxicity

LC50: > 6.82 mg/l, 4 h (rat, male)

Acute Dermal Toxicity

LD50: > 10000 mg/kg (rabbit)

Skin Irritation

rabbit, OECD Test Guideline 404, Exposure Time: 24 h, Non-irritating

Eye Irritation

rabbit, OECD Test Guideline 405, Non-irritating

Sensitization

dermal: non-sensitizer (Guinea pig, Maximization Test)

dermal: non-sensitizer (Human, Patch Test)

Skin sensitization (local lymph node assay (LLNA)):: negative (mouse, OECD Test Guideline 429)

Repeated Dose Toxicity

28 Days, inhalation: NOAEL: 35 mg/m³, (Rat)

29 days, Oral: NOAEL: 24,000 mg/kg, (rat, male, daily)

up to 2 years, inhalation: NOAEL: 0.01 mg/l, (Rat, male/female, 6 hrs/day 5 days/week)

Mutagenicity

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Mammalian cell - gene mutation assay: negative (Mouse lymphoma cells (L5178Y/TK), Metabolic Activation: with/without)

Chromosome aberration test: negative (Chinese hamster ovary (CHO) cells, Metabolic Activation: with/without)

Genetic Toxicity in Vivo:

Drosophila SLRL test: negative (Drosophila melanogaster) negative

Cytogenetic assay: negative (mouse, male, intraperitoneal) negative

Carcinogenicity

Rat, Male/Female, inhalation, according to IARC, several rat inhalation and intratracheal installation studies using titanium dioxide have shown increases in benign and malignant lung tumors. Reviewed human exposure data did not suggest an association between occupational exposure to titanium dioxide and risk for cancer. Additionally, the IARC working group determined that, "No significant exposure to titanium dioxide is thought to occur during the use of products in which titanium dioxide is bound to other material, such as in paints."

Other Relevant Toxicity Information

May cause irritation of respiratory tract.

Toxicity Data for 1,3-Benzenedicarbonitrile, 2,4,5,6-tetrachloro-**Acute Oral Toxicity**

LD50: > 10000 mg/kg (rat)

Acute Inhalation Toxicity

LC50: 0.217 mg/l, 4 h (rat) (OECD Test Guideline 403)

Acute Dermal Toxicity

LD50: > 10000 mg/kg (rabbit)

Skin Irritation

rabbit, Draize, Non-irritating

Eye Irritation severe

irritant

Sensitization

Skin sensitization: sensitizer (Human)

Toxicity Data for Ammonium Hydroxide**Acute Oral Toxicity**

LD50: 350 mg/kg (rat)

Acute Inhalation Toxicity

LC50: 2.87 mg/l, 4 h (rat)

Skin Irritation

Corrosive

Eye Irritation

Human, Severely irritating

Sensitization

Skin sensitization: negative

Mutagenicity

Genetic Toxicity in Vitro:

Ames: negative (E. coli, Metabolic Activation: without)

Toxicity Data for Crystalline Quartz Silica**Acute Oral Toxicity**

LD50: 500 mg/kg (rat)

Mutagenicity

Genetic Toxicity in Vitro:

Ames: Negative results were reported in various in vitro studies. (Salmonella typhimurium, Metabolic Activation: with/without)

Genetic Toxicity in Vivo:

Sister Chromatid Exchange: ambiguous (hamster) ambiguous

Carcinogenicity

rat, Male/Female, inhalation, 2 years, 6 hrs/day 5 days/week, positive

Carcinogenicity:

Titanium dioxide (Rutile)	IARC -	Overall evaluation:	2B Possibly carcinogenic to humans.
1,3-Benzenedicarbonitrile,	IARC -	Overall evaluation:	2B Possibly carcinogenic to humans.
2,4,5,6-tetrachloro-			
Crystalline Quartz Silica	NTP -	Hazard Designation:	Known to be Human Carcinogen.
	IARC -	Overall evaluation:	1 Carcinogenic to humans.

SECTION 12. ECOLOGICAL INFORMATION

Ecological Data for Titanium dioxide (Rutile)

Acute and Prolonged Toxicity to Fish

LC0: > 1,000 mg/l (Golden orfe (Leuciscus idus), 48 h)

Acute Toxicity to Aquatic Invertebrates

EC0: > 3 mg/l (Water flea (Daphnia magna))

Toxicity to Microorganisms

EC0: > 10,000 mg/l, (Pseudomonas fluorescens, 24 h)

Ecological Data for Biocide

Acute and Prolonged Toxicity to Fish

LC50: 0.049 mg/l (Other fish)

LC50: 0.076 mg/l (Rainbow (Donaldson) Trout (Oncorhynchus mykiss), 96 h)

Acute Toxicity to Aquatic Invertebrates

EC50: 0.2 mg/l (Water flea (Daphnia magna))

Ecological Data for Ammonium Hydroxide

Additional Ecotoxicological Remarks

No data available for this component.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal Method

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Container Precautions

Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse empty container without proper cleaning.

SECTION 14. TRANSPORT INFORMATION

Non-Regulated

SECTION 15. REGULATORY INFORMATION

United States Federal Regulations

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302) Components:

None

SARA Section 311/312 Hazard Categories:

Acute Health Hazard

Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302

Extremely Hazardous Substance (40 CFR 355, Appendix A) Components:

None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required Components:

1,3-Benzenedicarbonitrile, 2,4,5,6-tetrachloro-

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

State Right-To-Know Information

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

<u>Weight percent</u>	<u>Components</u>	<u>CAS-No.</u>
>=1%	Water	7732-18-5
>=1%	Acrylic Polymer	
20 - 30%	Limestone	1317-65-3
10 - 20%	Aluminum hydroxide	21645-51-2
0.1 - 1%	Crystalline Quartz Silica	14808-60-7

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:

<u>Weight percent</u>	<u>Components</u>	<u>CAS-No.</u>
0.1 - 1%	Zinc Oxide	1314-13-2
0.1 - 1%	Ammonium Hydroxide	1336-21-6
0.1 - 1%	Crystalline Quartz Silica	14808-60-7

Massachusetts Right to Know Extraordinarily Hazardous Substance List:

<u>Weight percent</u>	<u>Components</u>	<u>CAS-No.</u>
0.1 - 1%	Crystalline Quartz Silica	14808-60-7

California Prop. 65:

Warning! This product contains chemical(s) known to the State of California to be Carcinogenic. Developmental toxin. Female reproductive toxin. Male reproductive toxin.

<u>Weight percent</u>	<u>Components</u>	<u>CAS-No.</u>
5 - 10%	Titanium dioxide (Rutile)	13463-67-7
0.1 - 1%	Crystalline Quartz Silica	14808-60-7

Based on information provided by our suppliers, this product is considered "DRC Conflict Free" as defined by the SEC Conflict Minerals Final Rule (Release No. 34-67716; File No. S7-40-10; Date: 2012-08-22).

SECTION 16. OTHER INFORMATION

The method of hazard communication for FortiSystems is comprised of Product Labels and Safety Data Sheets.

Contact: Product Safety Department
Telephone: 832.922.2926
Version Date: 06/30/2016
SDS Version: 1.1

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of FortiSystems. The information in this SDS relates only to the specific material designated herein. FortiSystems assumes no legal responsibility for use of or reliance upon the information in this SDS.