

1. Identification

Product identifier	Nukote HAR, A-Side
Other means of identification	None.
Recommended use	Coating.
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Supplier	
Company name	Nukote Coating Systems International
Address	4730 Consulate Plaza Dr. Suite 100 Houston, TX. 77032
Telephone	832-770-7100
Email	SDS@nukoteglobal.com
Emergency Phone Number	Chemtrec: 800-424-9300 (Account: CCN16118) or International: 703-527-3887 (Account: CCN16118)

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Sensitization, respiratory	Category 1
	Sensitization, skin	Category 1
	Carcinogenicity	Category 2
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure	Category 2 (respiratory system)
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger
Hazard statement	Harmful if inhaled. Causes skin irritation. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. Suspected of causing cancer. May cause respiratory irritation. May cause damage to organs (respiratory system) through prolonged or repeated exposure.

Precautionary statement

Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist/vapors. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection.
Response	If exposed or concerned: Get medical advice/attention. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it 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 advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center/doctor.

Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
4,4'-Methylene diphenyl diisocyanate	101-68-8	64 - 100
Propylene carbonate	108-32-7	4 - 7

Composition comments All concentrations are in percent by weight.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If experiencing respiratory symptoms: Call a poison center or doctor/physician.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. If swallowed, seek medical advice immediately and show this container or label. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Coughing. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Dry chemical powder. Foam. Carbon dioxide (CO₂). Sand. Earth.

Unsuitable extinguishing media Water.
If water is used, use large amounts as the reaction between hot Isocyanates and water can be vigorous.

Specific hazards arising from the chemical Vapors may travel considerable distance to a source of ignition and flash back. In a fire, this product may build up pressure and rupture a sealed container. Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may rupture them. During fire, gases hazardous to health may be formed such as: Carbon oxides. Nitrogen oxides. Traces of hydrogen cyanide. Unidentified organic compounds.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions Keep unnecessary personnel away. Cool containers exposed to flames with water until well after the fire is out. Move containers from fire area if you can do so without risk. Use water spray to reduce vapors or divert vapor cloud drift. Caution should be exercised when using water or foam as frothing may occur, especially if directed onto containers of hot or burning material. Control contaminated fire water to minimize release to the environment.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards Vapors may travel considerable distance to a source of ignition and flash back. Due to reaction with water producing CO₂-gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed. Containers may burst if overheated. Reacts violently with water.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Cover container, but do not seal, and remove from work area. Prepare a decontamination solution of 2.0% liquid detergent and 3-8% concentrated ammonium hydroxide in water (5-10% sodium carbonate may be substituted for the ammonium hydroxide). Treat the spill area with the decontamination solution, using about 10 parts of the solution for each part of the spill, and allow it to react for at least 15 minutes. Carbon dioxide will be evolved, leaving insoluble polyureas. Residues from spill cleanup, even when treated as described may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. Slowly stir the isocyanate waste into the decontamination solution described above. Let stand for 48 hours, allowing the evolved carbon dioxide to vent away, residues may still be subject to RCRA storage and disposal requirements. Dispose of in compliance with all relevant local, state, and federal laws and regulations regarding treatment.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist/vapors. Do not eat, drink or smoke when using the product. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Persons susceptible to allergic reactions should not handle this product. Remove contaminated clothing and protective equipment before entering eating areas. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Mechanical ventilation or local exhaust ventilation is required. Use non-sparking hand tools and explosion-proof electrical equipment. Take precautionary measures against static discharges. Do not pressurize, cut, weld, braze, solder, drill, or grind on containers. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Ground container and transfer equipment to eliminate static electric sparks. Keep container(s) tightly closed and properly labeled. Store in a cool, dry, well-ventilated place. Protect from heat and direct sunlight. Store away from incompatible materials (see Section 10 of the SDS). Protect against physical damage. Keep container tightly sealed when not in use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

8. Exposure controls/personal protection

Occupational exposure limits

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

Components	Type	Value
4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8)	Ceiling	0.2 mg/m3
		0.02 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8)	TWA	0.005 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8)	Ceiling	0.2 mg/m3
		0.02 ppm
	TWA	0.05 mg/m3 0.005 ppm

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. Provide eyewash station and safety shower.
Individual protection measures, such as personal protective equipment	
Eye/face protection	When working with liquids wear splash-proof chemical goggles and face shield unless full facepiece respiratory protection is worn.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Nitrile, neoprene, PVC or rubber gloves are recommended. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Contaminated gloves should be replaced. Other suitable gloves can be recommended by the glove supplier.
Skin protection	
Other	Wear appropriate chemical resistant clothing. Use of rubber boots and an impervious apron, rain gear or chemical resistant coveralls is recommended. Impervious body suit, protective clothing should be made of a natural rubber, neoprene, nitrile rubber or PVC.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), wear a NIOSH-approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions or a positive pressure self-contained breathing apparatus (SCBA). Air purifying (cartridge type) respirators are not approved for protection against isocyanates. Check with respiratory protective equipment suppliers.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Observe any medical surveillance requirements. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing must not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Clear liquid.
Color	Clear.
Odor	Mild aromatic.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	302 °F (150 °C)
Flash point	200.0 °F (93.3 °C)
Evaporation rate	Slower than ether.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Heavier than air.
Relative density	1.16 (H2O=1)
Solubility(ies)	
Solubility (water)	Reacts with water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.

Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	9.68 lb/gal
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
VOC	0 lb/gal

10. Stability and reactivity

Reactivity	This product will react with any material containing active hydrogens, such as water, alcohol, ammonia, amines, alkalis and acids, the reaction with water is slow under 50°C, but is accelerated at higher temperature and in the presence of alkalis, tertiary amines, and metal compounds. Reacts violently with strong oxidizers.
Chemical stability	Material is stable under normal temperatures and pressures.
Possibility of hazardous reactions	Will not occur under normal conditions but under high temperatures in the presence of alkalis, tertiary amines, and metal compounds will accelerate polymerization. Possible evolution of carbon dioxide gas may rupture closed containers.
Conditions to avoid	Avoid temperatures exceeding the flash point. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Moisture. Protect against direct sunlight. Contact with incompatible materials in a closed system will cause liberation of carbon dioxide and buildup of pressure. Generation of gas during decomposition can cause pressure in closed systems.
Incompatible materials	Active hydrogen compounds. Water, moisture. Alcohols. Ammonia. Amines. Alkalis. Metal compounds. Strong oxidizing agents.
Hazardous decomposition products	Carbon monoxide. Carbon dioxide. Nitrogen oxides. Trace amounts of: Hydrogen cyanide. Unidentified organic compounds.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause damage to organs through prolonged or repeated exposure by inhalation.
Skin contact	Isocyanates react with skin protein and moisture and can cause irritation. Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and, in some cases, skin sensitization. Individuals who have developed a skin sensitization can develop these symptoms as a result of contact with very small amounts of liquid material or as a result of exposure to vapor.
Eye contact	Liquid, aerosols or vapors are severely irritating and can cause pain, tearing, reddening and swelling. Prolonged vapor contact may cause conjunctivitis. Any level of contact should not be left untreated.
Ingestion	May be harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Coughing. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.
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Information on toxicological effects

Acute toxicity	Harmful if inhaled. May be harmful if swallowed.
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Components	Species	Test Results
4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8)		
Acute		
Inhalation		
<i>Aerosol</i>		
LC50	Rat	0.369 mg/l, 4 Hours
Propylene carbonate (CAS 108-32-7)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Rat	> 5 mg/l

Components	Species	Test Results
Oral LD50	Rat	> 5000 mg/kg
Skin corrosion/irritation	Causes skin irritation.	
Serious eye damage/eye irritation	Causes serious eye irritation.	
Respiratory or skin sensitization		
Respiratory sensitization	May cause allergy or asthma symptoms or breathing difficulties if inhaled.	
Skin sensitization	May cause an allergic skin reaction. Persons already sensitized to diisocyanates may develop allergic reactions when using this product.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	Suspected of causing cancer.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8)	3 Not classifiable as to carcinogenicity to humans.	
NTP Report on Carcinogens		
Not listed.		
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)		
Not listed.		
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	May cause respiratory irritation.	
Specific target organ toxicity - repeated exposure	May cause damage to organs (respiratory system) through prolonged or repeated exposure.	
Aspiration hazard	Not an aspiration hazard.	
Chronic effects	Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure. Persons already sensitized to diisocyanates may develop allergic reactions when using this product.	

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates. 10-day Window: Not applicable Biodegradation: 0 % Exposure time: 28 d Method: OECD Test Guideline 302C or Equivalent.
Bioaccumulative potential	No data available on bioaccumulation.
Mobility in soil	No data available for this product.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. DO NOT pressurize, cut, heat, or weld containers; they may explode and cause injury or death. Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

TSCA Chemical Action Plans, Chemicals of Concern

4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8) Methylene Diphenyl Diisocyanate (MDI) And Related Compounds Action Plan [RIN 2070-ZA15]

CERCLA Hazardous Substance List (40 CFR 302.4)

4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Toxic Substances Control Act (TSCA) Not determined.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
4,4'-Methylene diphenyl diisocyanate	101-68-8	64 - 100

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Contains component(s) regulated under the Safe Drinking Water Act.

US state regulations

US. Massachusetts RTK - Substance List

4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8)

US. New Jersey Worker and Community Right-to-Know Act

4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8)

US. Pennsylvania Worker and Community Right-to-Know Law

4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8)

US. Rhode Island RTK

4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8)

16. Other information, including date of preparation or last revision

Issue date 05-June-2020
Revision date -
Version # 01
HMIS® ratings Health: 3*
Flammability: 1
Physical hazard: 0

NFPA ratings



Disclaimer

NuKote Coating Systems cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

1. Identification

Product identifier Nukote HAR, B-Side
Other means of identification None.
Recommended use Coating.
Recommended restrictions Workers and or users should be aware of the potential presence of respirable crystalline silica and its potential hazards.

Manufacturer/Importer/Supplier/Distributor information

Supplier

Company name Nukote Coating Systems International
Address 4730 Consulate Plaza Dr.
 Suite 100
 Houston, TX. 77032
Telephone 832-770-7100
Email SDS@nukoteglobal.com
Emergency Phone Number Chemtrec: 800-424-9300 (Account: CCN16118) or International: 703-527-3887 (Account: CCN16118)

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Serious eye damage/eye irritation Category 2
 Carcinogenicity (inhalation) Category 1A
 Specific target organ toxicity, repeated exposure Category 2 (Pancreas)
Environmental hazards Hazardous to the aquatic environment, acute hazard Category 2
 Hazardous to the aquatic environment, long-term hazard Category 2
OSHA defined hazards Not classified.

Label elements



Signal word Danger
Hazard statement Causes serious eye irritation. May cause cancer by inhalation. May cause damage to organs through prolonged or repeated exposure. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist/vapors. Wash thoroughly after handling. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.
Response If exposed or concerned: Get medical advice/attention. 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 advice/attention. Collect spillage.
Storage Store locked up.
Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Diethylmethylenediamine	68479-98-1	11 - 20
Titanium dioxide	13463-67-7	2 - 4
Carbon black	1333-86-4	0.3 - 0.6
Crystalline silica (Quartz)	14808-60-7	0.1 - 0.2

Composition comments All concentrations are in percent by weight. The specific chemical identity and/or exact percentage of component(s) have been withheld as a trade secret. Components not listed are either non-hazardous or are below reportable limits.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion If swallowed, seek medical advice immediately and show this container or label. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed such as: Organic vapors.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions In case of fire do not breathe fumes. Move containers from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out. Control contaminated fire water to minimize release to the environment.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid contact with eyes, skin, and clothing. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Prevent product from entering drains.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist/vapors. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Protect from direct sunlight. Store in a cool, dry and well-ventilated place. Protect from moisture. Store in tightly closed container. Keep container tightly sealed when not in use. Store away from incompatible materials (see Section 10 of the SDS). Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Components	Type	Value
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.05 mg/m3

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

Components	Type	Value	Form
Carbon black (CAS 1333-86-4)	PEL	3.5 mg/m3	
Titanium dioxide (CAS 13463-67-7)	PEL	15 mg/m3	Total dust.

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

Components	Type	Value	Form
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.1 mg/m3	Respirable.
		2.4 mppcf	Respirable.
Titanium dioxide (CAS 13463-67-7)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Carbon black (CAS 1333-86-4)	TWA	3 mg/m3	Inhalable fraction.
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Carbon black (CAS 1333-86-4)	TWA	3.5 mg/m3	
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.05 mg/m3	Respirable dust.
Biological limit values	No biological exposure limits noted for the ingredient(s).		
Appropriate engineering controls	Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. Provide eyewash station.		
Individual protection measures, such as personal protective equipment			
Eye/face protection	When working with liquids wear splash-proof chemical goggles and face shield unless full facepiece respiratory protection is worn.		
Skin protection			
Hand protection	Wear appropriate chemical resistant gloves. Nitrile, neoprene, PVC or rubber gloves are recommended. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Contaminated gloves should be replaced. Other suitable gloves can be recommended by the glove supplier.		
Skin protection			
Other	Wear suitable protective clothing. Use of an impervious apron is recommended.		
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), wear a NIOSH-approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions or a positive pressure self-contained breathing apparatus (SCBA). Check with respiratory protective equipment suppliers.		
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.		
General hygiene considerations	Observe any medical surveillance requirements. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.		

9. Physical and chemical properties**Appearance**

Physical state	Liquid.
Form	Liquid.
Color	Amber. Pigmented.

Odor Mild chemical.

Odor threshold Not available.

pH Not available.

Melting point/freezing point Not available.

Initial boiling point and boiling range 586 °F (307.8 °C)

Flash point 275.0 °F (135.0 °C)

Evaporation rate Slower than ether.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Vapor pressure Not available.

Vapor density Heavier than air.

Relative density 1.07 (H2O=1)

Solubility(ies)

Solubility (water) Not available.

Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	8.91 lb/gal
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
VOC	0 lb/gal

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Will not occur.
Conditions to avoid	Keep away from moisture. Heat. High temperatures. Open flame. Contact with incompatible materials.
Incompatible materials	This product will react with any material containing isocyanate. Some reactions can be violent.
Hazardous decomposition products	Organic vapor.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful. Severe overexposure may induce respiratory sensitization with asthma like symptoms. These symptoms may be immediate or delayed up to several hours after exposure. Chronic exposures may result in permanent decreases in lung function.
Skin contact	The product may be absorbed through skin and cause nausea, headache, and general discomfort.
Eye contact	Causes serious eye irritation. Vapors can irritate the eyes. Chemical burns may result due to overexposure. Affects of exposure may be delayed.
Ingestion	If ingested : In humans, irritation or chemical burns of the mouth, pharynx, esophagus and stomach can develop following ingestion, and injury may be severe and cause death.

Symptoms related to the physical, chemical and toxicological characteristics	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Prolonged exposure may cause chronic effects.
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Information on toxicological effects

Acute toxicity	May be harmful if swallowed.
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Components	Species	Test Results
Carbon black (CAS 1333-86-4)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	> 3000 mg/kg
Oral		
LD50	Rat	> 8000 mg/kg

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
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Serious eye damage/eye irritation	Causes serious eye irritation.
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Respiratory or skin sensitization

Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	Skin sensitization may develop after repeated and/or prolonged contact.

Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
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Carcinogenicity	May cause cancer by inhalation.
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IARC Monographs. Overall Evaluation of Carcinogenicity

Carbon black (CAS 1333-86-4)	2B Possibly carcinogenic to humans.
Crystalline silica (Quartz) (CAS 14808-60-7)	1 Carcinogenic to humans.
Titanium dioxide (CAS 13463-67-7)	2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Carbon black (CAS 1333-86-4)	Known To Be Human Carcinogen.
Crystalline silica (Quartz) (CAS 14808-60-7)	Known To Be Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Crystalline silica (Quartz) (CAS 14808-60-7)	Cancer
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Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	May cause damage to organs through prolonged or repeated exposure by inhalation.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure by inhalation. Repeated and prolonged exposure at low levels may result in adverse skin and eye effects, liver and kidney disorders.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

Components	Species	Test Results
Carbon black (CAS 1333-86-4)		
Aquatic		
<i>Acute</i>		
Fish	LC50 Leuciscus idus	>= 1000 mg/l, 96 Hours
Persistence and degradability	Carbon Black's insolubility in water results in it not being biodegradable in any medium or by biota. It is considered persistent in the natural environment.	
Bioaccumulative potential	No data available on bioaccumulation.	
Mobility in soil	No data available for this product.	
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.	

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN3082
UN proper shipping name	Environmentally hazardous substances, liquid, n.o.s. (Diethylmethylbenzenediamine)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Label(s)	9
Packing group	III

Environmental hazards

Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	8, 146, 335, IB3, T4, TP1, TP29
Packaging exceptions	155
Packaging non bulk	203
Packaging bulk	241

IATA

UN number	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Diethylmethylbenzenediamine)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Environmental hazards	Yes
ERG Code	9L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Diethylmethylbenzenediamine)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-F
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Diethylmethylbenzenediamine (CAS 68479-98-1) 1.0 % One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Crystalline silica (Quartz) (CAS 14808-60-7)	Cancer lung effects immune system effects kidney effects
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Toxic Substances Control Act (TSCA) All components of the mixture on the TSCA 8(b) inventory are designated "active".

Superfund Amendments and Reauthorization Act of 1986 (SARA)**SARA 302 Extremely hazardous substance**

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Serious eye damage or eye irritation
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.**US state regulations****US. Massachusetts RTK - Substance List**Carbon black (CAS 1333-86-4)
Crystalline silica (Quartz) (CAS 14808-60-7)
Titanium dioxide (CAS 13463-67-7)**US. New Jersey Worker and Community Right-to-Know Act**Carbon black (CAS 1333-86-4)
Crystalline silica (Quartz) (CAS 14808-60-7)
Titanium dioxide (CAS 13463-67-7)**US. Pennsylvania Worker and Community Right-to-Know Law**Carbon black (CAS 1333-86-4)
Crystalline silica (Quartz) (CAS 14808-60-7)
Titanium dioxide (CAS 13463-67-7)**US. Rhode Island RTK**Carbon black (CAS 1333-86-4)
Crystalline silica (Quartz) (CAS 14808-60-7)
Titanium dioxide (CAS 13463-67-7)**California Proposition 65****WARNING:** This product can expose you to chemicals including Titanium dioxide, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.**California Proposition 65 - CRT: Listed date/Carcinogenic substance**Carbon black (CAS 1333-86-4) Listed: February 21, 2003
Crystalline silica (Quartz) (CAS 14808-60-7) Listed: October 1, 1988
Titanium dioxide (CAS 13463-67-7) Listed: September 2, 2011**US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**Carbon black (CAS 1333-86-4)
Crystalline silica (Quartz) (CAS 14808-60-7)
Diethylmethylenediamine (CAS 68479-98-1)
Titanium dioxide (CAS 13463-67-7)**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	05-June-2020
Revision date	-
Version #	01
HMIS® ratings	Health: 2* Flammability: 0 Physical hazard: 0

NFPA ratings



Disclaimer

NuKote Coating Systems cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.