
Safety Data Sheet

OR42D, Part A

Section 1 – Identification

Oak Ridge Foam & Coating Systems, Inc
575 Commercial Ave
Green Lake, WI 54941

Emergency Telephone: (800) 424-9300 Chemtrec
800-625-9577 Oak Ridge Foam & Coating Systems, Inc
BOTH NUMBERS ARE AVAILABLE DAYS, NIGHTS, WEEKENDS, & HOLIDAYS

Section 2 – Hazards Identification

GHS Classification

Specific Target Organ Toxicity – Single Exposure (Respiratory Tract Irritation)	Category 3
Skin Irritation	Category 2
Eye Irritation	Category 2A
Respiratory Sensitizer (Solid/Liquid)	Category 1
Skin Sensitizer	Category 1
Chronic aquatic toxicity	Category 2
Acute aquatic toxicity	Category 2
Acute toxicity Dermal	Category 3
Acute toxicity Oral	Category 4

GHS Label Elements

Hazard pictograms:



Signal word: Danger

Hazard Statements: May cause respiratory irritation
 Causes skin irritation
 Causes serious eye irritation
 May cause allergy or asthma symptoms or breathing difficulties if inhaled
 May cause an allergic skin reaction
 Harmful if swallowed
 Toxic in contact with skin
 Toxic to aquatic life
 Toxic to aquatic life with long lasting effects

Precautionary Statements:

Prevention:

If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Keep container tightly closed.
Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
[In case of inadequate ventilation] wear respiratory protection.
Contaminated work clothing should not be allowed out of the workplace.
Avoid release to the environment.
Do not eat, drink or smoke when using this product.

Response:

IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor if you feel unwell.
IF ON SKIN: Wash with plenty of water.
Specific treatment (see section 4 on this SDS).
If skin irritation 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 experiencing respiratory symptoms: Call a POISON CENTER/doctor.
If skin irritation or a rash occurs: Get medical advice/attention.
Collect spillage.
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
Rinse mouth.
Take off immediately all contaminated clothing. And wash it before reuse.

Storage:

Store in a well-ventilated place. Store locked up.
Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Section 3 – Hazards Identification

CAS	Chemical Name	% By Weight
0053880-05-0	POLYURETHANE PREPOLYMER	38-71%
0004098-71-9	ISOPHORONE DIISOCYANATE	22-40%
0000108-32-7	4-METHYL-1,3-DIOXOLAN-2-ONE	6-10%
0028182-81-2	HOMOPOLYMER OF HDI	4-7%

Section 4 – First Aid Measures

Inhalation:

If exposed/feel unwell/concerned: Call a POISON CENTER/doctor.

Remove source of exposure or move person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by the POISON CENTER/doctor.

Skin Contact:

Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Wash with plenty of lukewarm, gently flowing water for a duration of 15-20 minutes. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before re-use.

If exposed or concerned: Get medical advice/attention.

Eye Contact:

Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for a duration of 15-20 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. If eye irritation persists: Get medical advice/attention.

Ingestion:

DO NOT induce vomiting. Give 1 or 2 glasses of milk or water to drink and refer person to medical personnel. Do not give anything by mouth to an unconscious person.

If vomiting occurs naturally, lie on your side, in the recovery position.

Section 5 – Fire Fighting Measures

Suitable Extinguishing Media:

If water is used, use very large quantities of cold water.

Dry chemical, alcohol-resistant foam, carbon dioxide is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Sand or earth may be used for small fires only.

Specific Hazards in Case of Fire:

Excessive pressure or temperature may cause explosive rupture of containers.

Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may rupture them.

Fire-fighting Procedures:

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water may be ineffective but can be used to cool containers exposed to heat or flame. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid.

Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Special Protective Actions:

Wear NIOSH approved self-contained breathing apparatus in positive pressure mode with full-face piece. Boots, gloves (neoprene), goggles, and full protective clothing are also required.

Section 6 – Accidental Release Measures

Emergency Procedure:

Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Clean up immediately.

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Treat the spill area with the decontamination solution, using about 10 parts of solution for each part of the spill, and allow it to react for at least 15 minutes.

Recommended Equipment:

Positive pressure, full-face piece self-contained breathing apparatus(SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved).

Personal Precautions:

Avoid breathing vapors. Avoid contact with skin, eyes or clothing. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing.

Environmental Precautions:

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers.

Methods and Materials for Containment and Cleaning up:

Soak up material with absorbent and shovel into a chemical waste container. Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, call CHEMTREC (Chemical Transportation Emergency Center) at 800-424-9300.

Section 7 – Storage and Handling

General:

Wash hands after use.

Do not get in eyes, on skin or on clothing.

Do not breathe vapors or mists.

Use good personal hygiene practices.

Eating, drinking and smoking in work areas is prohibited.

Remove contaminated clothing and protective equipment before entering eating areas.

Workers should shower and change to fresh clothing after each shift. A sensitized individual should not be exposed to the product that caused the sensitization

Employee education and training in safe handling of this material is required under OSHA hazard communication standard. Individuals with existing respiratory disease such as chronic bronchitis, emphysema, or asthma should not be exposed to isocyanates.

Ventilation Requirements:

Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source.

Storage Room Requirements:

Keep container(s) tightly closed and properly labeled. Store in cool, dry, well-ventilated areas away from heat, direct sunlight and incompatibilities. Store in approved containers and protect against physical damage. Keep containers securely sealed when not in use.

Indoor storage should meet OSHA standards and appropriate fire codes. Containers that have been opened must be carefully resealed to prevent leakage. Empty container retain residue and may be dangerous.

Do not cut, drill, grind, weld, or perform similar operations on or near containers.

Section 8 – Exposure Controls/Personal Protection

Eye Protection:

Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids. If additional protection is needed for entire face, use in combination with a face shield.

Skin Protection:

Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. 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. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use of an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Launder soiled clothes or properly disposed of contaminated material, which cannot be recontaminated.

Respiratory Protection:

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed. Check with respiratory protective equipment suppliers.

When airborne concentrations exceed or are expected to exceed the TLV, use MSHA/NIOSH approved positive pressure supplied air respirator with a full-face piece or an air supplied hood. For emergencies, use a positive pressure self-container breathing apparatus.

Air purifying (cartridge type) respirators are not approved for protection against isocyanates.

Appropriate Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Eyewash stations and showers should be available in areas where this material is used and stored.

Chemical Name	OSHA TWA (ppm)	OSHA TWA (mg/m ³)	OSHA STEL (ppm)	OSHA Tables (Z1, Z2, Z3)	OSHA Carcinogen	OSHA Skin designation	NIOSH TWA (ppm)	NIOSH TWA (mg/m ³)
ISOPHORONE DIISOCYANATE							0.005	0.045

Chemical Name	NIOSH STEL (ppm)	NIOSH STEL (mg/m ³)	NIOSH Carcinogen	ACGIH TWA (ppm)	ACGIH TWA (mg/m ³)	ACGIH STEL (ppm)	ACGIH STEL (mg/m ³)
ISOPHRONE DIISOCYANTATE	0.02	0.180		0.005	0.045		

Section 9 – Physical Properties

Density	8.67 lb/gal
Specific Gravity	1.04
VOC Regulatory	0.00 lb/gal
VOC Part A & B Combined	N.A.
Appearance	Thin Pale Yellow Viscous Liquid
Odor Threshold	N.A.
Odor Description	Mild Chemical
pH	N.A.
Water Solubility	Reacts with Water
Flammability	N/A
Flash Point Symbol	N.A.
Flash Point	200 °F
Viscosity	N.A.
Lower Explosion Level	N.A.
Upper Explosion Level	N.A.
Vapor Pressure	N.A.
Vapor Density	Heavier than air
Freezing Point	N.A.
Melting Point	N.A.
Low Boiling Point	316 °F
High Boiling Point	N.A.
Auto Ignition Temp	N.A.
Decomposition Pt	N.A.
Evaporation Rate	Slower than ether
Coefficient Water/Oil	N.A.

Section 10 – Stability and Reactivity

Stability:

Material is stable at standard temperature and pressure.

Conditions to Avoid:

Heat, high temperature, open flame, sparks, and moisture.

Hazardous Reactions/Polymerization:

May occur. High temperatures, above 204 °C (400 °F) in the presence of moisture, alkalis, tertiary amines, and metal compounds will accelerate polymerization. Possible evolution of carbon dioxide gas may rupture closed containers.

Incompatible Materials:

Strong oxidizing agents, Strong acids, Alcohols.

Hazardous Decomposition Products:

Carbon dioxide, carbon monoxide, nitrogen oxides.

Section 11 – Toxicological Information

Skin Corrosion/Irritation:

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.

Causes skin irritation

Serious Eye Damage/Irritation:

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.

Causes serious eye irritation

Carcinogenicity:

No data available

Respiratory/Skin Sensitization:

Vapors irritate nose and respiratory passages. Severe overexposure may induce respiratory sensitization with asthma like symptoms.

Symptoms include chronic cough, tightness of chest with difficulty in breathing.

May cause allergy or asthma symptoms or breathing difficulties if inhaled

May cause an allergic skin reaction

Germ Cell Mutagenicity:

No data available

Reproductive Toxicity:

No data available

Specific Target Organ Toxicity - Single Exposure:

IPDI vapors or mist at concentrations above the TLV can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). High vapor concentrations may cause central nervous system (CNS) depression as evidenced by giddiness, headache, dizziness, and nausea. Persons with a preexisting, nonspecific bronchial hyperactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs).

May cause respiratory irritation

Specific Target Organ Toxicity - Repeated Exposure:

Repeated inhalation may cause lung damage.

Aspiration Hazard:

No data available

Acute Toxicity:

Exposure may cause mucous membrane and respiratory tract irritation, tightness of chest, headache, shortness of breath, and a dry cough. At concentrations exceeding current occupational limits and for sensitized individuals at levels less than or greater than current occupational limits, asthma-like symptoms may occur. These symptoms may include coughing, wheezing, and shortness of breath. A hypersensitive pneumonitis may also occur if the person is sensitized. Fever, nonproductive cough, wheezing, chills, and shortness of breath characterize this syndrome. Central nervous system (CNS) depression may also result. The effects of acute exposure may be delayed in onset up to 12-24 hours.

0004098-71-9

ISOPHORONE DIISOCYANATE

LC50 (rat): 123-160 mg/m³ (13.6-17.6 ppm) (4-hour exposure) (aerosol) (1,2)

LD50 (oral, male rat): greater than 2,500 mg/kg (1)

LD50 (oral, male mouse): greater than 2,500 mg/kg (1)

LD50 (dermal, male rat): approx. 1,000 mg/kg (4-hour exposure); approx. 500 mg/kg (4-day exposure) (1)

Potential Health Effects - Miscellaneous

0028182-81-2

HOMOPOLYMER OF HDI

Overexposure may cause asthma-like reactions with shortness of breath, wheezing, cough, which may be permanent; or permanent lung sensitization. This effect may be delayed for several hours after exposure. The following medical conditions may be aggravated by exposure: asthma, skin disorders, respiratory disorders. Potential skin sensitizer that may cause allergic reactions and contact dermatitis resulting in severe irritation, dryness, and cracking of the skin. Skin or eye contact may cause any of the following: irritation.

Section 12 – Ecological Information

Toxicity:

No data available

Toxic to aquatic life

Toxic to aquatic life with long lasting effects

Persistence and Degradability:

No data available.

Bioaccumulative Potential:

No data available.

Mobility in Soil:

No data available.

Other Adverse Effects:

No data available.

Section 13 – Disposal Consideration

Waste Disposal Method:

Under RCRA, it is the responsibility of the user of the product, to determine a the time of disposal whether the product meets RCRA criteria for hazardous waste. Waste management should be in full compliance with federal, state, and local laws.

Slowly stir the isocyanate waste into the decontamination solution described in section 6. Let stand for 48 hours, allowing the evolved carbon dioxide to vent away. Residues may still be subject to RCRA storage and disposal requirements.

Empty containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.

Section 14 – Transportation Information

U.S. DOT Information:

UN/NA #: 2810

UN Proper Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S. (ISOPHORONE DIISOCYANATE)

Hazard Class: 6.1

Packing Group: III

Placard: Toxic

IMDG Information:

UN/NA #: 2810

UN Proper Shipping Name: TOXIC, LIQUID, ORGANIC, N.O.S. (ISOPHORONE DIISOCYANATE)

Hazard Class 6.1

Packing Group: III

Placard: Toxic

Marine Pollutant: Yes

IATA Information:

UN/NA #: 2810

UN Proper Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S. (ISOPHORONE DIISOCYANATE)

Hazard Class: 6.1

Packing Group: III

Placard: Toxic

Section 15 – Regulatory Information

CAS	Chemical Name	% By Weight	Regulation List
0053880-05-0	POLYURETHANE PREPOLYMER	38-71%	DSL, SARA312, TSCA
0004098-71-9	ISOPHORONE DIISOCYANATE	22-40%	DSL, SARA312, SARA313, VOC, TSCA
0000108-32-7	4-METHYL-1,3- DIOXOLAN-2-ONE	6-10%	DSL, SARA312, TSCA
0028182-81-2	HOMOPOLYMER OF HDI	4-7%	DSL, SARA312, TSCA

OTHER INFORMATION:

A bulletin such as this cannot be expected to cover all possible individual situations. As the user has the responsibility to provide a safe workplace, all aspects of an individual operation should be examined to determine if, or where, precautions, in addition to those described herein, are required. Any health hazard and safety information herein should be passed on to your customers or employees, as the case may be.

GLOSSARY:

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; Canadian TDG Canadian Transportation of Dangerous Goods; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center (US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC- Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL- Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self-Contained Breathing Apparatus; STEL- Short Term Exposure Limit; TCEQ - Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA- Toxic Substances Control Act Public Law 94-469; TWA - Time Weighted Value; US DOT- US Department of Transportation; WHMIS- Workplace Hazardous Materials Information System.

DISCLAIMER

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Manufacturer of High Performance Foam/Coatings & Application Equipment

800-625-9577 920-294-6800 920-294-6830 Fax
575 Commercial Ave., Green Lake, WI 54941 www.oakridgepoly.com

Safety Data Sheet

OR42D, Part B

Section 1 – Identification

Oak Ridge Foam & Coating Systems, Inc
575 Commercial Ave
Green Lake, WI 54941

Emergency Telephone: (800) 424-9300 Chemtrec
800-625-9577 Oak Ridge Foam & Coating Systems, Inc
BOTH NUMBERS ARE AVAILABLE DAYS, NIGHTS, WEEKENDS, & HOLIDAYS

Section 2 – Hazards Identification

GHS Classification

Skin Corrosion	Category 1B
Serious Eye Damage	Category 1
Skin Sensitizer	Category 1
Carcinogenicity	Category 2
Acute aquatic toxicity	Category 3
Chronic aquatic toxicity	Category 3
Acute toxicity Dermal	Category 5
Acute toxicity Oral	Category 4

GHS Label Elements

Hazard pictograms:



Signal word: Danger

Hazard Statements: Causes severe skin burns and eye damage
 Causes serious eye damage
 May cause an allergic skin reaction
 Suspected of causing cancer.
 Harmful if swallowed
 May be harmful in contact with skin
 Harmful to aquatic life
 Harmful to aquatic life with long lasting effects

Precautionary Statements:

Prevention:

If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Keep container tightly closed.
Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
[In case of inadequate ventilation] wear respiratory protection.
Contaminated work clothing should not be allowed out of the workplace.
Avoid release to the environment.
Do not eat, drink or smoke when using this product.

Response:

IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor if you feel unwell.
IF ON SKIN: Wash with plenty of water.
Specific treatment (see section 4 on this SDS).
If skin irritation 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 experiencing respiratory symptoms: Call a POISON CENTER/doctor.
If skin irritation or a rash occurs: Get medical advice/attention.
Collect spillage.
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
Rinse mouth.
Take off immediately all contaminated clothing. And wash it before reuse.

Storage:

Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Section 3 – Hazards Identification

CAS	Chemical Name	% By Weight
0009046-10-0	POLYOXYPROPYLENEDIAMINE	31-55%
0154279-60-4	CYCLOHEXANAMINE, 4,4'-METHYLENEBIS[N-(1-METHYLPROPYL)-	19-33%
0013463-67-7	TITANIUM DIOXIDE	7-14%
0002855-13-2	ISOPHORONEDIAMINE	6-11%
0014808-60-7	SILICA, CRYSTALLINE	0.2-0.3%
0001333-86-4	CARBON BLACK	Trace

Section 4 – First Aid Measures

Inhalation:

If exposed/feel unwell/concerned: Call a POISON CENTER/doctor.

Remove source of exposure or move person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by the POISON CENTER/doctor.

Skin Contact:

Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Wash with plenty of lukewarm, gently flowing water for a duration of 15-20 minutes. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before re-use.

IF exposed or concerned: Get medical advice/attention.

Eye Contact:

Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for a duration of 15-20 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. If eye irritation persists: Get medical advice/attention.

Ingestion:

DO NOT induce vomiting. Give 1 or 2 glasses of milk or water to drink and refer person to medical personnel. Do not give anything by mouth to an unconscious person.

If vomiting occurs naturally, lie on your side, in the recovery position.

Section 5 – Fire Fighting Measures

Suitable Extinguishing Media:

Dry chemical, foam, carbon dioxide water spray or fog is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Sand or earth may be used for small fires only.

Specific Hazards in Case of Fire:

Sudden reaction and fire may result when the product is exposed to oxidizing agents.

Fire-fighting Procedures:

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water may be ineffective but can be used to cool containers exposed to heat or flame. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid.

Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Special Protective Actions:

Wear NIOSH approved self-contained breathing apparatus in positive pressure mode with full-face piece. Boots, gloves (neoprene), goggles, and full protective clothing are also required.

Care should always be exercised in dust/mist areas.

Section 6 – Accidental Release Measures

Emergency Procedure:

Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Clean up immediately.

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Recommended Equipment:

Positive pressure, full-face piece self-contained breathing apparatus(SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved).

Personal Precautions:

Avoid breathing vapors. Avoid contact with skin, eyes or clothing. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing.

Environmental Precautions:

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers.

Methods and Materials for Containment and Cleaning up:

Soak up material with absorbent and shovel into a chemical waste container. Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, call CHEMTREC (Chemical Transportation Emergency Center) at 800-424-9300.

Section 7 – Storage and Handling

General:

Wash hands after use.

Do not get in eyes, on skin or on clothing.

Do not breathe vapors or mists.

Use good personal hygiene practices.

Eating, drinking and smoking in work areas is prohibited.

Remove contaminated clothing and protective equipment before entering eating areas.

Workers should shower and change to fresh clothing after each shift. A sensitized individual should not be exposed to the product that caused the sensitization

Employee education and training in safe handling of this material is required under OSHA hazard communication standard. Individuals with existing respiratory disease such as chronic bronchitis, emphysema, or asthma should not be exposed to isocyanates.

Ventilation Requirements:

Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source.

Storage Room Requirements:

Keep container(s) tightly closed and properly labeled. Store in cool, dry, well-ventilated areas away from heat, direct sunlight, strong oxidizers and any incompatibilities. Store in approved containers and protect against physical damage. Keep containers securely sealed when not in use. Indoor storage should meet OSHA standards and appropriate fire codes. Containers that have been opened must be carefully resealed to prevent leakage. Empty container retain residue and may be dangerous.

Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored.

Store in tightly sealed containers to protect from atmospheric moisture. Store in a cool dry area. Store liquid in containers above ground and surround by dikes to contain spills or leaks.

Ground and bond containers and receiving equipment. Avoid static electricity by grounding.

Section 8 – Exposure Controls/Personal Protection

Eye Protection:

Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids. If additional protection is needed for entire face, use in combination with a face shield.

Skin Protection:

Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. 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. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use of an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Launder soiled clothes or properly disposed of contaminated material, which cannot be decontaminated.

Respiratory Protection:

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed. Check with respiratory protective equipment suppliers.

When airborne concentrations exceed or are expected to exceed the TLV, use MSHA/NIOSH approved positive pressure supplied air respirator with a full-face piece or an air supplied hood. For emergencies, use a positive pressure self-container breathing apparatus.

Appropriate Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Chemical Name	OSHA TWA (ppm)	OSHA TWA (mg/m ³)	OSHA STEL (ppm)	OSHA Tables (Z1, Z2, Z3)	OSHA Carcinogen	OSHA Skin designation	NIOSH TWA (ppm)	NIOSH TWA (mg/m ³)
CARBON BLACK		3.5		1				3.5a
SILICA, CRYSTALLINE	A	[10 mg/m ³ percent SiO ₂ +2/250 percent SiO+5 mppcf]; [30 mg/m ³ percent SiO ₂ +2],		[1,3]; [3];				0.05e
TITANIUM DIOXIDE		15		1			B	

Chemical Name	NIOSH STEL (ppm)	NIOSH STEL (mg/m3)	NIOSH Carcinogen	ACGIH TWA (ppm)	ACGIH TWA (mg/m3)	ACGIH STEL (ppm)	ACGIH STEL (mg/m3)
CARBON BLACK			1		3 (I)		
SILICA, CRYSTALLINE			1		0.025 (R)		
TITANIUM DIOXIDE			1		10		

Section 9 – Physical Properties

Density	8.44 lb/gal
Specific Gravity	1.01
VOC Regulatory	0.00 lb/gal
VOC Part A & B Combined	N.A.
Appearance	Pigmented Thin Liquid
Odor Threshold	N.A.
Odor Description	Ammonia-like
pH	N.A.
Water Solubility	N.A.
Flammability	N/A
Flash Point Symbol	N.A.
Flash Point	95 °C
Viscosity	N.A.
Lower Explosion Level	N.A.
Upper Explosion Level	N.A.
Vapor Pressure	N.A.
Vapor Density	Heavier than air
Freezing Point	N.A.
Melting Point	N.A.
Low Boiling Point	586 °F
High Boiling Point	N.A.
Auto Ignition Temp	N.A.
Decomposition Pt	0
Evaporation Rate	Slower than ether
Coefficient Water/Oil	N.A.

Section 10 – Stability and Reactivity

Stability:

Material is stable at standard temperature and pressure.

Conditions to Avoid:

Heat, high temperature, open flame, and moisture. Avoid contact with incompatible materials.

Hazardous Reactions/Polymerization:

Will not occur.

Incompatible Materials:

This product will react with any material containing isocyanate. Some reactions can be violent.

Hazardous Decomposition Products:

Combustion products: organic vapors and thermal decomposition fragments.

Skin Corrosion/Irritation:

Product may be absorbed through skin and cause nausea, headache, and general discomfort.
Causes severe skin burns and eye damage

Serious Eye Damage/Irritation:

Vapors can irritate the eyes. Chemical burns may result due to overexposure. Affects of exposure may be delayed.
Causes serious eye damage

Respiratory/Skin Sensitization:

Inhalation : 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 sensitization may develop after repeated and/or prolonged contact.
May cause an allergic skin reaction

Carcinogenicity:

Suspected of causing cancer.

Germ Cell Mutagenicity:

No data available

Reproductive Toxicity:

No data available

Specific Target Organ Toxicity - Single Exposure:

No data available

Specific Target Organ Toxicity - Repeated Exposure:

No data available

Aspiration Hazard:

No data available

Acute Toxicity:

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.
Repeated and prolonged exposure at low levels may result in adverse skin and eye effects, liver and kidney disorders.

0001333-86-4 CARBON BLACK

LC50 (rat): 6750 mg/m³ (4-hour exposure); cited as 27000 mg/m³ (27 mg/L) (1-hour exposure) (3)

0009046-10-0 POLYOXYPROPYLENEDIAMINE

LD50 (dermal,rabbit): 2090 mg/kg (based on raw material SDS)

LD50 (oral, rat): 480 mg/kg (based on raw material SDS)

0002855-13-2 ISOPHORONEDIAMINE

LD50 (rat,oral): 1,030 mg/kg (based on raw material SDS)

Chronic Exposure

0001333-86-4 CARBON BLACK

CARCINOGENIC EFFECTS: In 1996, the IARC reevaluated Carbon Black as a Group 2B carcinogen. This evaluation is given to carbon black for which there is inadequate human evidence, but sufficient animal evidence.

Prolonged inhalation of Carbon black can result in lung disease. Symptoms include coughing, shortness of breath, wheezing and reduced pulmonary function.

0014808-60-7 SILICA, CRYSTALLINE

Prolonged inhalation of respirable crystalline silica dust can result in lung disease (i.e. silicosis and/or lung cancer). Symptoms include coughing, shortness of breath, wheezing and reduced pulmonary function.

Potential Health Effects - Miscellaneous

0001333-86-4 CARBON BLACK

Is an IARC, NTP or OSHA carcinogen. Has shown carcinogenic activity in laboratory animals at high doses. Significance to man is unknown. The following medical conditions may be aggravated by exposure: asthma, respiratory disease. **WARNING:** This chemical is known to the State of California to cause cancer.

0013463-67-7 TITANIUM DIOXIDE

Is an IARC, NTP or OSHA carcinogen. In a lifetime inhalation test, lung cancers were found in some rats exposed to 250 mg/m³ respirable titanium dust. Analysis of the titanium dioxide concentrations in the rat's lungs showed that the lung clearance mechanism was overwhelmed and that the results at the massive 250 mg/m³ level are not relevant to the workplace. Results of a DuPont epidemiology study showed that employees who had been exposed to Titanium Dioxide were at no greater risk of developing lung cancer than were employees who had not been exposed to Titanium dioxide. No pulmonary fibrosis was found in any of the employees and no association was observed between Titanium dioxide exposure and chronic respiratory disease or xray abnormalities. Based on the results of this study DuPont concludes that titanium dioxide will not cause lung cancer or chronic respiratory disease in humans at concentrations experienced in the workplace.?

0014808-60-7 SILICA, CRYSTALLINE

Is an IARC, NTP or OSHA carcinogen. Repeated overexposure to crystalline silica may lead to x-ray changes and chronic lung disease. Inhalation of high dust concentrations may cause: breathing difficulties, lung injury. **WARNING:** This chemical is known to the State of California to cause cancer.

Section 12 – Ecological Information

Toxicity:

Harmful to aquatic life

Harmful to aquatic life with long lasting effects

Mobility in Soil:

No data available.

Other Adverse Effects:

No data available.

Bio-accumulative Potential

0001333-86-4 CARBON BLACK

A relevant bioaccumulation potential of carbon black is not expected based on its insolubility in organic solvents and in water.

Furthermore, since the aggregate diameter of carbon black varies between 80 nm and 810 nm, bioaccumulation of particulate carbon black is not likely owing to the large diameter of the solid aggregate particles.

Persistence and Degradability

0001333-86-4 CARBON BLACK

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.

Section 13 – Disposal Consideration

Waste Disposal Method:

Under RCRA, it is the responsibility of the user of the product, to determine at the time of disposal whether the product meets RCRA criteria for hazardous waste. Waste management should be in full compliance with federal, state, and local laws.

Empty containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.

Section 14 – Transportation Information

U.S. DOT Information:

UN/NA #: 2735

UN Proper Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (POLYOXYPROPYLENEDIAMINE)

Hazard Class: 8

Packing Group: III

Placard: Corrosive

IMDG Information:

UN/NA #: 2735

UN Proper Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S.(POLYOXYPROPYLENEDIAMINE)

Hazard Class: 8

Packing Group: III

Placard: Corrosive

Marine Pollutant: No data available

IATA Information:

UN/NA #: 2735

UN Proper Shipping Name: AMINE, LIQUID, CORROSIVE, N.O.S. (POLYOXYPROPYLENEDIAMINE)

Hazard Class: 8

Packing Group: III

Placard: Corrosive

Section 15 – Regulatory Information

CAS	Chemical Name	% By Weight	Regulation List
0009046-10-0	POLYOXYPROPYLENEDIAMINE	31-55%	TSCA

0154279-60-4	CYCLOHEXANAMINE, 4,4'-METHYLENEBIS[-(1-METHYLPROPYL)-	19-33%	NDSL, SARA312, TSCA
0013463-67-7	TITANIUM DIOXIDE	7-14%	DSL, SARA312, TSCA, CA_PROP65 – California Proposition 65
0002855-13-2	ISOPHORONEDIAMINE	6-11%	DSL, SARA312, VOC, TSCA
0014808-60-7	SILICA, CRYSTALLINE	0.2-0.3%	DSL, SARA312, TSCA, CA_PROP65 – California Proposition 65
0001333-86-4	CARBON BLACK	Trace	DSL, SARA312, TSCA, CA_PROP65 – California Proposition 65

Section 16 – Other Information

OTHER INFORMATION:

* There are points of differences between OSHA GHS and UN GHS. In 90% of the categories, they can be used interchangeably, but for the Skin Corrosion/Irritant Category and the Specific Target Organ Toxicity (Single and Repeated Exposure) Categories. In these cases, our system will say UN GHS.

GLOSSARY:

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; Canadian TDG Canadian Transportation of Dangerous Goods; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center (US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC- Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL- Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self-Contained Breathing Apparatus; STEL- Short Term Exposure Limit; TCEQ - Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA- Toxic Substances Control Act Public Law 94-469; TWA - Time Weighted Value; US DOT- US Department of Transportation; WHMIS- Workplace Hazardous Materials Information System.

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