
SAFETY DATA SHEET

Issued 2/2018

OR70SS 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

Acute toxicity (Inhalation): Category 4
Specific target organ toxicity - single exposure: Category 3 (Respiratory system)
Respiratory sensitisation: Category 1
Skin irritation: Category 2
Skin sensitisation: Category 1
Eye irritation: Category 2B

GHS Label Elements Hazard pictograms:



Signal word: Danger

Hazard statements:

Harmful if inhaled.
May cause respiratory irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Causes damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.
Causes skin irritation.
May cause an allergic skin reaction.
Causes eye irritation.

Precautionary statements:

Prevention:

Avoid breathing dust, mist, gas, vapors or spray.
Do not eat, drink or smoke when using this product.
Wash skin and face 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.

In case of inadequate ventilation wear respiratory protection. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134) or regional standards.

For additional details, see section 8 of the SDS.

Response:

Get medical attention if you feel unwell.

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.

IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a doctor or emergency medical facility (i.e. 911).

Storage:

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

Keep container tightly closed.

Disposal:

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

Section 3 – Composition and Information on Ingredients

CAS#

4, 4'-Diphenylmethane-Diisocyanate	30-60	101-68-8
Methylenediphenyl Diisocyanate, isomers and homologues	40-70	9016-87-9

* Occupational Exposure Limit(s), if available, are listed in section 8

Section 4 – First Aid Measures

Ingestion:

Do not induce vomiting. Provided the patient is conscious, wash out mouth with water. Obtain immediate medical attention.

Eye contact:

Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.

Skin Contact:

Remove contaminated clothing. After contact with skin, wash immediately with plenty of warm soapy water. If symptoms develop, obtain medical attention. Contaminated clothing should be thoroughly cleaned. An MDI study has demonstrated that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water.

Inhalation:

Remove patient from exposure, keep warm and at rest. Obtain immediate medical attention. Treatment is symptomatic for primary irritation or bronchospasm. If breathing is labored, oxygen should be given by administered by qualified personnel. Apply artificial respiration if breathing has ceased or shows signs of failing.

Notes to physician:

Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.

Section 5 – Fire Fighting Measures

Auto-ignition temperature:

>600 °C Products of Combustion Carbon

Products of Combustion:

Carbon monoxide, carbon dioxide, Nitrous Oxide and HCN.

Flash points:

Closed cup: >110°C (230° F).

Flammable Limits:

Not available.

Fire-fighting media and Instructions:

SMALL FIRE: Use dry chemical powder.

LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:

Reacts slowly with water to produce carbon dioxide which may rupture closed containers. This reaction accelerates at higher temperatures.

Protective Clothing (Fire):

Splash goggles full protective suit, boots, and gloves. Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product.

Section 6 – Accidental Release Measures

For major spills call Chemtrec (800-424-9300).

Exposure controls, personal protection small spill and leak:

Clean-up should only be performed by trained personnel. People dealing with major spillages should wear full protective clothing including appropriate respiratory protection. Evacuate the area. Prevent further leakage, spillage or entry into drains.

Large Spill and Leak:

Contain and absorb large spillages onto an inert, non-flammable adsorbent carrier (such as earth or sand). Shovel into open-top drums or plastic bags for further decontamination, if necessary. Wash the spillage area clean with liquid decontaminant. Test atmosphere for MDI. Neutralize small spillages with decontaminant. Remove and properly dispose of residues. (See Section 13 for disposal considerations.) Notify applicable government authorities if release is reportable. The CERCLA RQ for 4, 4-MDI is 5,000 lbs (see CERCLA in Section 15).

Decontaminant:

Preparation of Decontamination Solution: Prepare a decontamination solution of 0.2-0.5% liquid detergent and 3-8% concentrated ammonium hydroxide in water (5-10% sodium carbonate may be substituted for the ammonium hydroxide). Follow the precautions on the supplier's material safety data sheets when preparing and using solution. Use of Decontamination Solution: Allow deactivated material to stand for at least 30 minutes before shoveling into drums. Do not tighten the bungs. Mixing with wet earth is also effective, but slower.

Section 7 – Storage and Handling

Avoid personal contact with the product or reaction mixture. Use only with adequate ventilation to ensure that the occupational exposure limit is not exceeded. The efficiency of the ventilation system must be monitored regularly because of the possibility of blockage. Avoid breathing aerosols, mists and vapors. (See Section 8--Exposure Control for details.)

Storage:

Keep containers properly sealed and when stored indoors, in a well ventilated area. Keep contents away from moisture. Due to reaction with water, producing CO₂-gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed. Do not reseal contaminated containers. Uncontaminated containers, free of moisture, may be resealed only after placing under a nitrogen blanket. Do not store in containers made of copper, copper alloys or galvanized surfaces.

Ideal storage temperature is 16-38°C (60-100° F).

Keep stocks of decontaminant (See Section 6) readily available.

Section 8 – Exposure Controls/Personal Protection

Preventive Measures Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

Engineering Controls:

Use local exhaust ventilation to maintain airborne concentrations below the TLV. Suitable respiratory equipment should be used in cases of insufficient ventilation or where operational procedures demand it. For guidance on engineering control measures refer to publications such as the ACGIH current edition of 'Industrial Ventilation, a manual of Recommended Practice.

Personal Protection:

Eyes:

Chemical safety goggles. If there is a potential for splashing, use a full face shield.

Body and Hands:

The following protective materials are recommended: Gloves - neoprene, nitrile rubber, butyl rubber. Thin latex disposable gloves should be avoided for repeated or long term use. Protective clothing should be selected and used in accordance with 'Guidelines for the Selection of Chemical Protective Clothing' published by ACGIH.

Respiratory:

When the product is sprayed or heated without adequate ventilation, an approved MSHA/NIOSH positive-pressure, supplied-air respirator may be required. Air purifying respirators equipped with organic vapor cartridges and a HEPA (P100) particulate filter may be used under certain conditions when a cartridge change-out schedule has been developed in accordance with the OSHA respiratory protection standard (29 C.F.R. 1910.134).

Personal Protection in case of a large spill:

Consult your supervisor or S.O.P. for special handling instructions. Splash goggles, full protective suit. Vapor respirator or self-contained breathing apparatus (SCBA), boots and gloves. Suggested protective clothing might not be adequate.

Consult a specialist before handling this product.

Product Name:

4, 4-Diphenylmethane Diisocyanate
hours/week)

Exposure Limits

ACGIH TLV 0.05 mg/m³ (8-hour, 40

OSHA PEL Ceiling Limit 0.20 mg/m³

NIOSH REL/TWA 0.05 mg/m³ (10-hour, 40
hours/week)

NIOSH REL/CEILING 0.20 mg/m³ (10-minute)

Exposure controls/personal protection:

Medical supervision of all employees who handle or come in contact with respiratory sensitizers is recommended. Persons with respiratory problems including asthmatic type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or skin allergies should be evaluated for their suitability of working with this product. Once a person is diagnosed as sensitized, no further exposure to the material that caused the sensitization should be permitted. The Occupational Exposure Limits listed do not apply to previously sensitized individuals. Sensitized individuals should be removed from any further exposure.

Section 9 – Physical Properties

Physical state and Appearance	Liquid.
Odor	Dark brown.
PH	slightly musty
Boiling/Condensation Point	Not applicable.
Melting/Freezing Point	>300 °C decomposes
Specific Gravity	Not available.
Vapor Pressure	1.12 (Water = 1)
Vapor Density	0.000004 mmHg
Evaporation Rate	Not available
Flash points	Not available
	Closed cup: >110°C (230°F).

Section 10 – Stability and Reactivity

Stability and reactivity:

stable at room temperature.

Conditions of Instability:

Avoid high temperatures. Avoid freezing.

Incompatibility with various substances:

This product will react with any materials containing active hydrogen's such as water, alcohol, amines, bases and acids. The reaction with water is very slow less than 50° C (122° F) but is accelerated at higher temperatures. Some reactions may be violent.

Hazardous Decomposition Products:

Carbon monoxide, Carbon dioxide, Isocyanate, Nitrous Oxide and HCN.

Hazardous Polymerization:

Polymerization may occur at elevated temperatures in the presence of alkalies, tertiary amines and metal compounds.

Section 11 – Toxicological Information

Toxicity to Animals

LD50 Rat Oral: > 5000 mg/kg

LD50 Rabbit Dermal: > 5000 mg/kg

LC50 Rat Respirable aerosol: 2240 mg/m³ 1 hours

LC50 Rat Respirable aerosol: 490 mg/m³ 4 hours

Inhalation:

This product is a respiratory irritant and potential respiratory sensitizer. Repeated inhalation of vapor or aerosol at levels above the occupational exposure limit could cause respiratory sensitization. Symptoms may include irritation to the eyes, nose, throat, and lungs, possibly combined with dryness of the throat, tightness of chest and difficulty in breathing. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitized persons.

Skin Contact:

Moderate irritant. Repeated and/or prolonged contact may cause skin sensitization. There is limited evidence from animal studies that skin contact may play a role in respiratory sensitization. These results emphasize the need for protective clothing including gloves to be worn at all times when handling these chemicals or in maintenance work.

Eye contact:

The vapor, aerosol, and liquid are irritants.

Ingestion:

Ingestion may cause irritation of the gastrointestinal tract. Based on the acute oral LD50 this product is considered practically non-toxic by ingestion.

Carcinogenic Effects:

The ingredients of this product are not classified as carcinogenic by ACGIH or IARC, not regulated as carcinogens by OSHA, and not listed as carcinogens by NTP.

Mutagenic Effects:

There is no substantial evidence of mutagenic potential.

Teratogenic effects:

No birth defects were seen in two independent animal (rat) studies. Fetotoxicity was observed at doses that were extremely toxic (including lethal) to the mother. Fetotoxicity was not observed at doses that were not maternally toxic. The doses used in these studies were maximal respirable concentrations well in excess of the defined occupational limits.

Reproductive Effects:

No adverse reproductive effects are anticipated.

Remark:

A study was conducted where groups of rats were exposed for 6 hours/day, 5 days/week for a lifetime to atmospheres of respirable polymeric MDI aerosol at concentrations of 0, 0.2, 1 or 6 mg/m³. No adverse effects were observed at 0.2 mg/m³. At the 1 mg/m³ concentration, minimal nasal and lung irritant effects were seen. Only at the top concentration (6.0 mg/m³) was there an increased incidence of a benign tumor of the lung (adenoma). One malignant pulmonary tumor (adenocarcinoma) was seen in the 6.0 mg/m³ group. MDI administration to rats in this study did not change the distribution and incidence of tumors from those seen in control animals. The increased incidence of lung tumors is associated with prolonged respiratory irritation and the concurrent accumulation of yellow material in the lung. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is highly unlikely that tumor formation will occur. (MDI) there are reports that chronic exposure to diisocyanates by inhalation may result in permanent decreases in lung function.

Section 12 – Ecological Information

Ecotoxicity:

Polymeric MDI. LC50 (Zebra Fish) > 1000 mg/l. EC50 (Daphnia magna) (24 hour) >1000 mg/l EC50 (E. coli) > 100 mg/l

Environmental Fate and Distribution:

It is unlikely that significant environmental exposure in the air or water will arise based on consideration of the production and use of the substance.

Persistence and Degradation:

Immiscible with water, but will react with water to produce inert and non-biodegradable solids.

Section 13 – Disposal Consideration

Waste Information:

The generation of waste should be avoided or minimized wherever possible. Disposal should be in accordance with local, state, provincial or national regulations. This material is not a hazardous waste under RCRA 40 CFR 261. Small quantities should be treated with a decontaminant solution (See Section 6). The treated waste is not a hazardous material under RCRA 40 CFR 261. Chemical waste, even small quantities, should never be poured down drains, sewers or waterways. Empty containers should be decontaminated and either passed to an approved drum recycler or destroyed.

Transportation Emergency Number 1-800-424-9300 (CHEMTREC).

Section 14 – Transportation Information

DOT Classification:

Single containers less than 5,000 lbs. are not regulated.

Single containers with 5,000 lbs. or more of 4,4'-Methylene Diphenyl Diisocyanate are regulated as: Other Regulated Substances, Liquid, N.O.S. (Methylene Diphenyl Diisocyanate), 9, NA3082, PGIII, RQ.

TDG Classification Not regulated.

IMO/IMDG Classification Not regulated.

ICAO/IATA Classification Not regulated.

Section 15 – Regulatory Information

United States CS Classification: Toxic material
Irritant
Sensitizer

U.S. Federal regulations

TSCA 8(b) inventory:

All Ingredients Listed. TSCA 12(b) one-time export notification: This product does not contain nor is it manufactured with ozone depleting substances.

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements:	Diphenylmethane 4, 4'- Diisocyanate	101-68-8	40
Supplier notification: Methylenediphenyl Diisocyanate,	Isomers and homologues	9016-87-9	60
	Diphenylmethane 4, 4'- Diisocyanate	101-68-8	40

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

California Prop 65:

California Prop. 65: No ingredients listed.

Canada

WHMIS (Canada) WHMIS Class D-1A: Material causing immediate and serious toxic effects (Very toxic).

WHMIS Class D-2A: Material causing other toxic effects (Very toxic).

WHMIS Class D-2B: Material causing other toxic effects (Toxic).

CEPA: DSL/NDSL: All Ingredients Listed.

SARA Title III Section 313 (40 EPCRA Section 313 (40 CFR 372)

CFR Part 372): Diisocyanate Compounds (Category Code N120) 36%

Section 16 – Other Information

CAUSES DAMAGE TO THE FOLLOWING ORGANS: LUNGS, RESPIRATORY TRACT, SKIN, EYES. MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION.

Hazardous Material
Information System
(U.S.A.)

Health	2
Fire hazard	1
Reactivity	1

While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity, and behavior of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behavior should be determined by the user and made known to handlers, processors and end users.

Contact Person: Product Safety Department

Telephone: 800-635-9577

NOTICE

Oak Ridge Foam & Coating Systems, Inc expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose with respect to the product or information provided herein, and shall under not circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this SDS as a product specification. For product specification information refers to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from your local Oak Ridge Foam & Coating Systems, Inc sales office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Oak Ridge Foam & Coating Systems, Inc makes no representations as to its accuracy or sufficiency.

Conditions of use are beyond Oak Ridge Foam & Coating Systems, Inc control. Therefore, users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes, and they assume all risks of their use, handling, and disposal of the product or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein and does not relate to its use in combination with any other material or in any other process.

END OF MSDS

MFG by Oak Ridge Foam & Coating Systems, Inc

Safety Data Sheet

OR70SS, 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

Aquatic Acute	Category 3 (Hazardous to the aquatic environment – acute)
Aquatic Chronic (chronic)	Category 2 (Hazardous to the aquatic environment – chronic)
Specific target organ toxicity-single exposure:	Category 3 (Oral-Kidneys)
Skin irritation:	Category 2
Eye irritation:	Category 2B
Acute toxicity:	Category 4

GHS Label Elements

Hazard pictograms:



Signal word: Warning

Hazard Statements: Causes severe skin burns and eye damage.
Harmful to aquatic life.
Toxic to aquatic life with long lasting effects.

Precautionary Statements: **Prevention:**
Wear protective gloves/protective clothing/eye protection/face protection.
Avoid release to the environment.
Do not breathe dust or mist.
Wash with plenty of water and soap thoroughly after handling.
Response:
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
 Collect spillage.
 Get medical attention if you feel unwell.

Storage:

Store locked up.
 Store in a well-ventilated place. Keep container tightly closed.

Disposal:

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

Section 3 – Composition and Information on Ingredients

Hazardous Components

Weight Percent	Components	CAS-No.	Classification
30-40%	Primary amine polymer	9046-10-0	Skin irritation Category 2. Eye irritation Category 2B.
20-30%	Primary amine polymer	64852-22-8	Skin irritation Category 2. Eye irritation Category 2B.
15-25%	Propoxylated amine	102-60-3	Eye irritation Category 2B.
10-20%	Aromatic secondary amine	5285-60-9	Acute toxicity Category 4
1-10%	Alkylene glycol	107-21-1	Acute toxicity-Oral Category 4 Eye irritation Category 2B. SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE): ORAL [kidneys]- Category 2

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

Section 4 – First Aid Measures

Description of first aid measures

General advice: Remove contaminated clothing.

If inhaled: Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

In case of skin contact: Wash affected areas thoroughly with soap and water. Immediate medical attention required.

In case of eye contact: In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed: Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Indication of any immediate medical attention and special treatment needed

Note to physician:

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote. Pulmonary edema prophylaxis. Medical monitoring for at least 24 hours.

Section 5 – Fire Fighting Measures

Extinguishing media: Suitable extinguishing media: water spray, dry powder, alcohol-resistant foam, carbon dioxide

Special hazards arising from the substance or mixture: Hazards during fire-fighting: toxic gases/vapors Depolymerization and liberation of the mentioned substances/groups of substances.

Advice for fire-fighters Protective equipment for fire-fighting: Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information: If exposed to fire, keep containers cool by spraying with water. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

Impact Sensitivity: Remarks: Based on the chemical structure there is no shock-sensitivity.

Section 6 – Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:

Wear appropriate respiratory protection. Use personal protective clothing. Ensure adequate ventilation.

Environmental precautions

Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

Spills should be contained, solidified, and placed in suitable containers for disposal.

Spill and Leak Procedures

Implement site emergency response plan. Evacuate non-emergency personnel. The magnitude of the evacuation depends upon the quantity released, site conditions, and the ambient temperature. Isolate the area and prevent access of unauthorized personnel. Notify management. Call CHEMTREC at 1-800-424-9300 for assistance and advice.

Wear necessary personal protective equipment (PPE) as specified in the SDS or the site emergency response plan. Ventilate and remove ignition sources. Control the source of the leak. Contain the released material by damming, diking, retaining, or diverting into an appropriate containment area. Absorb or pump off as much of the spilled material as possible. When using absorbent, completely cover the spill area with suitable absorbent material (e.g., vermiculite, kitty litter, Oil-Dri®, etc...). Allow for the absorbent material to absorb the spilled liquid. Shovel the absorbent material into an approved metal container (i.e., 55-gallon

salvage drum). Do not fill the container more than 2/3 full to allow for expansion, and do not tighten the lid on the container. Repeat application of absorbent material until all liquid has been removed from the surface.

Section 7 – Storage and Handling

Technical measures:

Ensure that eyewash stations and safety showers are close to the workstation location.

Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Handle in accordance with good industrial hygiene and safety practice. Remove contaminated clothing and protective equipment before entering eating areas. Hands and/or face should be washed before breaks and at the end of the shift. When using do not eat, drink or smoke. Keep away from sources of ignition - No smoking. Keep container tightly sealed.

Protection against fire and explosion:

Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

Conditions for safe storage, including any incompatibilities

Segregate from acids and acid forming substances.

Further information on storage conditions:

Keep container tightly closed in a cool, well-ventilated place.

Section 8 – Exposure Controls/Personal Protection

Components	CAS-No.	Value Type (Form of exposure)	Control parameters / Permissible concentration	Basis
Alkylene glycol	107-21-1	TLV	STEL/100 mg/m ³	ACGIH

No occupational exposure limits known for other components.

Advice on system design: Provide local exhaust ventilation to control vapors/mists.

Personal protective equipment

Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an

approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hand protection Remarks: The suitability for a specific workplace should be discussed with the

producers of the protective gloves.

Protective gloves should be worn when handling freshly made polyurethane products to avoid contact with trace residual materials which may be hazardous in contact with skin.

Use chemical resistant gloves classified under Standard EN374: protective gloves against chemicals and microorganisms. Examples of glove materials that

might provide suitable protection include: Butyl rubber, Chlorinated polyethylene, Polyethylene, Ethyl vinyl alcohol copolymers laminated (“EVAL”),

Polychloroprene (Neoprene*), Nitrile/butadiene rubber (“nitrile” or “NBR”),

Polyvinyl chloride (“PVC” or “vinyl”), Fluoroelastomer (Viton*).

When prolonged or frequently repeated contact may occur, a glove with protection class of 5 or higher (breakthrough time greater than 240 minutes

according to EN374) is recommended.

When only brief contact is expected, a glove with protection class of 3 or higher

(breakthrough time greater than 60 minutes according to EN374) is recommended. Contaminated gloves should be decontaminated and disposed of.

Notice: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all requisite workplace factors such as, but not limited to: other chemicals that may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), as well as instructions/specifications provided by the glove supplier.

Eye protection: Safety eyewear complying with an approved standard should be used when a

risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Chemical splash goggles.

Always wear eye protection when the potential for inadvertent eye contact with

the product cannot be excluded.

Please follow all applicable local/national requirements when selecting protective measures for a specific workplace.

Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection: Impervious clothing

Choose body protection according to the amount and concentration of the

dangerous substance at the work place.

Recommended:

Overall (preferably heavy cotton) or Tyvek-Pro Tech 'C' , Tyvek Pro 'F'
disposable
coverall.

Protective measures: Personal protective equipment comprising: suitable protective gloves,
safety

goggles and protective clothing

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Ensure that eye flushing systems and safety showers are located close to
the
working place.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice.
Wash face, hands and any exposed skin thoroughly after handling.
Remove contaminated clothing and protective equipment before entering eating areas.
When using do not eat, drink or smoke.
Contaminated work clothing should not be allowed out of the workplace.
Wash hands before breaks and immediately after handling the product.
Wash hands before breaks and at the end of workday.

Section 9 – Physical Properties

State of Matter:	liquid
Appearance:	liquid
Color:	yellowish
Odor:	amine-like
Odor Threshold:	No Data Available
pH:	No Data Available
Boiling Point:	No Data Available
Flash Point:	>100 °C (212 °F)
Evaporation Rate:	No Data Available
Lower explosion limit:	No Data Available
Upper explosion limit:	No Data Available
Vapor Pressure:	No Data Available
Vapor Density:	No Data Available
Density:	No Data Available
Relative Vapor Density:	No Data Available
Specific Gravity:	1.00
Solubility in Water:	partially soluble
Partition Coefficient: n-octanol/water:	No Data Available

Auto-ignition Temperature:	No Data Available
Decomposition Temperature:	Not established
Dynamic Viscosity:	No data available
Kinematic Viscosity:	No Data Available
Bulk Density:	1,002 kg/m ³
Self Ignition:	Not applicable
Self-ignition temperature:	Based on its structural properties the product is not classified as self-igniting.
Thermal decomposition:	No data available
Viscosity, dynamic:	No data available
Viscosity, kinematic:	No data available
Particle size:	The substance / product is marketed or used in a non solid or granular form.
Miscibility with water:	partly miscible
Molar mass:	Not applicable
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.

Section 10 – Stability and Reactivity

Reactivity

Corrosion to metals: Corrosive effects to metal are not anticipated.

Oxidizing properties: Based on its structural properties the product is not classified as oxidizing.

Formation of flammable gases: Remarks: Forms no flammable gases in the presence of water.

Chemical stability

Possibility of hazardous reactions: Evolution of heat under influence of acids.

Conditions to avoid

Incompatible materials: acids, isocyanates, oxidizing agents

Hazardous decomposition products: carbon dioxide, carbon monoxide, nitrogen oxides

Thermal decomposition: No data available for product.

Section 11 – Toxicological Information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation. May include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Toxicity data for components

Components	Result	Species	Dose	Exposure
Alkylene glycol (CAS# 107-21-1)	LD50 Dermal	Rabbit	9530 mg/kg	--
	LD50 Oral	Rat	4700 mg/kg	--

Primary amine polymer (CAS # 64852-22-8)	LD50 Dermal LD50 Oral	Rat Rat	2-3 g/kg >2 g/kg	--
Primary amine polymer (CAS #9046-10-0)	Not established	--	--	--
Propoxylated amine (CAS# 102-60-3)	LD50 oral	Rat	>3000 mg/kg	--
Aromatic secondary amine (CAS# 5285-60-9)	LD50 Oral LD50 Dermal	Rat Rabbit	1380 mg/kg 3090 mg/kg	-- --

Acute Toxicity/Effects

Acute toxicity Assessment of acute toxicity: Of low toxicity after single ingestion. Of low toxicity after short-term skin contact. The inhalation of a highly enriched/saturated vapor-air-mixture represents an unlikely acute hazard.

Assessment other acute effects Assessment of STOT single: Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Irritation / corrosion Assessment of irritating effects: Corrosive! Damages skin and eyes.

Sensitization Assessment of sensitization: No data available. As the substance is corrosive, conducting sensitization studies is not feasible.

Aspiration Hazard No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity Assessment of repeated dose toxicity: No substance-specific organ toxicity was observed after repeated administration to animals. After repeated exposure the prominent effect is local irritation.

Genetic toxicity Assessment of mutagenicity: No mutagenic effect was found in various tests with mammalian cell culture and mammals. The substance was not mutagenic in bacteria.

Carcinogenicity Assessment of carcinogenicity: No data available concerning carcinogenic effects.

Reproductive toxicity Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect. The results were determined in a Screening test (OECD 421/422).

Teratogenicity Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies. The results were determined in a Screening test (OECD 421/422).

Other Information No experimental evidence available for genotoxicity in vitro (Ames test negative). Literature data.

Section 12 – Ecological Information

Ecology: Harmful to aquatic life

Ecological Data for components

Components	Acute Toxicity	Time	Species	Exposure
Alkylene glycol	Not available	--	--	--

(CAS# 107-21-1)				
Primary amine polymer (CAS # 64852-22-8)	LC50 (10-100 mg/L)	--	Fish	--
Primary amine polymer (CAS #9046-10-0)	LC50 (>15mg/L) EC50 (418.34 mg/L) EC50 (141.72 mg/L)	96h 48h 72h	Fish Daphnia Algae	-- -- --
Propoxylated amine (CAS# 102-60-3)	Not available	--	--	--
Aromatic secondary amine (CAS# 5285-60-9)	Not classified as hazardous to aquatic life	--	--	--

Bioaccumulation

Not established

Persistence and degradability

Not available

Section 13 – Disposal Consideration

Waste Disposal Method:

Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method.

Empty Container Precautions

Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse without thorough commercial cleaning and reconditioning. If container is to be disposed, ensure all product residues are removed prior to disposal.

Section 14 – Transportation Information

Land transport

USDOT

Hazard class: 8
Packing group: III
ID number: UN 2735
Hazard label: 8
Proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (contains POLYETHERDIAMINE)

Sea transport

IMDG

Hazard class: 8
Packing group: III
ID number: UN 2735
Hazard label: 8
Marine pollutant: NO

Proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (contains POLYETHERDIAMINE)

Air transport

IATA/ICAO

Hazard class: 8

Packing group: III

ID number: UN 2735

Hazard label: 8

Proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (contains POLYETHERDIAMINE)

Section 15 – Regulatory Information

United States Federal Regulations

US Toxic Substances Control Act: Listed on the TSCA Inventory

U.S. EPA EPCRA 311/312 (Hazard categories): Acute;

NFPA Hazard codes:

Health: 3 Fire: 0 Reactivity: 0 Special:

HMIS III rating

Health: 3 Flammability: 0 Physical hazard: 0

Assessment of the hazard classes according to UN GHS criteria (most recent version):

Acute Tox.	5 (oral)	Acute toxicity
Acute Tox.	5 (dermal)	Acute toxicity
Skin Corr./Irrit.	1C	Skin corrosion/irritation
Aquatic Acute	3	Hazardous to the aquatic environment - acute
Aquatic Chronic	2	Hazardous to the aquatic environment - chronic
Eye Dam./Irrit.	1	Serious eye damage/eye irritation

Section 16 – Other Information

The method of hazard communication for Oak Ridge Foam & Coating Systems, Inc is comprised of Product Labels and Safety Data Sheets.

Contact: Product Safety Department
Telephone: 800-625-9577
Version Date: 02/18/2018
SDS Version: 1.0

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