PRODUCT NAME(S): UV Topcoat Isocyanate

SECTION 1 – IDENTIFICATION

Manufacturer's Info:
Rhino Linings Corporation
9747 Businesspark Avenue
San Diego, CA, 92131

Information phone: (858) 450 0441
Emergency contact: CHEMTREC (800) 424 9300

Product name: **UV Topcoat Isocyanate**
Chemical Name: Homopolymer of Hexamethylene Diisocyanate
Chemical Family: Aliphatic Isocyanate

SECTION 2 – HAZARD(S) IDENTIFICATION

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

GHS-Label Elements: **Signal Word:** DANGER

Pictogram(s):

GHS 08 GHS 07 GHS 02

CONTAINS ISOCYANATES. INHALATION OF ISOCYANATE MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT AND REDUCED PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING. ANIMAL TESTS AND OTHER RESEARCH INDICATE THAT SKIN CONTACT WITH MDI MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION.

Classification of the substance or mixture:

Hazard Class	Category	Hazard Statement Codes	Hazard Statements
Acute Toxicity, Oral	5	H303	May be harmful if swallowed
Acute Toxicity, Inhalation (mist)	4	H332	Harmful if inhaled
Skin corrosion / Irritation	2	H315	Causes skin irritation
Serious eye damage / Eye irritation	2A	H319	Causes serious eye irritation
Respiratory Sensitization	1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
Skin Sensitization	1	H317	May cause an allergic skin reaction
Reproductive Toxicity	1	H360	May damage fertility or the unborn child
Specific target organ toxicity, single exposure	3	H335 H336	May cause respiratory irritation May cause drowsiness and dizziness
Specific target organ toxicity, repeated exposure	2	H373	May cause damage to respiratory system/lungs, kidney and liver through prolonged or repeated exposure by inhalation May cause damage to the eyes (conjunctivitis) through prolonged or repeated exposure (vapors)
Aquatic Hazard, Acute	3	H402	Harmful to aquatic life
Flammable Liquids	3	H226	Flammable liquid and vapor

Precautionary Statements:

Prevention:	P201	Obtain special instruction before use.
	P202	Do not handle until all safety precautions have been read and understood.
	P281	Use personal protective equipment as required.
	P260	Do not breathe mist/vapors/spray.
	P270	Do not eat, drink or smoke when using this product.
	P280	Wear protective gloves/ protective clothing / eye protection/ face protection.
	P285	In case of inadequate ventilation wear respiratory protection
	P264	Wash exposed area with plenty of water and soap thoroughly after handling.
	P272	Contaminated work clothing should not be allowed out of the workplace.
	P271	Use only outdoors or in a well-ventilated area.
	P273	Avoid release to the environment.
	P210	Keep away from flames and hot surfaces. No smoking.
	P240	Ground container and receiving equipment.

	P241	Use explosion proof electrical, ventilating, lighting equipment.
	P242	Use only non-sparking tools.
	P243	Take precautionary measures against static discharge.
Response:	P304 + P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
	P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337 + P313	If eye irritation persists: Get medical advice/attention.
	P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
	P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
	P363	Wash contaminated clothing before reuse.
	P314	Get medical advice/attention if you feel unwell.
	P308 + P313	IF exposed or concerned: Get medical advice/attention.
	P370 + P378	In case of fire: Use alcohol-resistant foam, dry chemical, carbon dioxide or dry sand for extinction.
Storage:	P403 + P233 + P235	Store in a well-ventilated place. Keep container tightly closed. Keep cool.
	P405	Store locked up.
Disposal:	P501	Dispose of contents/container to hazardous or special waste collection point in accordance with local/regional/national/international regulations.

Hazards not otherwise classified: Repeated exposure may cause skin dryness or cracking.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS #	EC #	Concentration, %
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	500-060-2	25 – 50
Confidential Component 1	Trade Secret	Trade Secret	25 – 50
N-Butyl Acetate (N-BAc)	123-86-4	204-658-1	5 – 15
Hexamethylene-1,6-Diisocyanate	822-06-0	212-485-8	0.1 – 1

SECTION 4 – FIRST-AID MEASURES

Description of First Aid measures:

Inhalation: Immediate medical attention required. Call a poison center or physician. Remove exposed person to fresh air and keep at rest in a position comfortable for breathing.
If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed.
Asthmatic symptoms may develop and may be immediate or delayed up to several hours. Extreme asthmatic reactions that may occur in sensitized persons can be life threatening.

Skin: Wash material off of the skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes immediately and wash them before reuse. Continue to rinse for at least 10 minutes. An MDI study has demonstrated that a polyglycol-based skin cleanser (such as D-TamTM,PEG-400) or corn oil may be more effective than soap and water. For severe exposures, immediately get under safety shower and begin rinsing.
If irritation develops, consult a physician or dermatologist.

Eye: Immediately rinse with lukewarm water for several minutes, especially under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Do not rub eyes in order to prevent cornea injury. Immediate medical attention required.

Ingestion: Immediate medical attention required. Remove exposed person to fresh air and keep at rest in a position comfortable for breathing. Remove dentures if any. Do NOT induce vomiting unless directed to do so by medical personnel.
If the exposed person is conscious, rinse mouth with water and then give plenty of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, prevent aspiration by holding the head below the knees, so that vomit does not enter the lungs.
If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. A qualified physician can perform gastric lavage only when the airway (trachea) has been secured to prevent aspiration.

Most important symptoms/effects, acute and delayed: See Section 11 for more details.

General advice for First Aid responders: No action should be taken involving any personal risk or without suitable training. If potential for exposure exist refer to Section 8 for specific personal protective equipment. Show this SDS to physician.

Note to physician: Specific antidotes or neutralizers do not exist. Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient. Recommended medical monitoring for at least 48 hours.
Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.
Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision.
Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.
Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound. Administration of absorbents such as activated charcoal may be of value. Gastric lavage may be effective when performed by a physician within 4 hours of ingestion.

SECTION 5 – FIRE-FIGHTING MEASURES

Suitable extinguishing media: Those recommended for Class B fuels: Alcohol-resistant foam, dry chemical, carbon dioxide fire extinguishers and dry sand.

Unsuitable extinguishing media: Water. Direct water stream may cause frothing, splattering of burning material and spreading of fire.

Specific hazards arising from the chemical: Flammable Liquid, Category 2 per GHS. Keep away from extreme heat or open flame. Product may release flammable vapors below normal ambient temperatures. When mixed with air and exposed to ignition source, they can burn in the open or be explosive in confined spaces. Flammable vapors may be heavier than air and travel long distances along the ground before igniting and flashing back to vapor source. Mists or sprays may be flammable below regular flash points.
Fire in vicinity poses risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if it can be done without risk, removed from the danger area. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

- Exposure to heated diisocyanate can be extremely dangerous. Reaction between water and hot isocyanate may be vigorous.
- Confidential Component 1, CAS #: Trade Secret: Flash Point: 58°C (136°F); Flammable Liquid, Category 3 per GHS; Combustible Liquid, Class II per OSHA 29 CFR 1910.106
- N-Butyl Acetate (BAc), CAS #: 123-86-4: Flammable Liquid, Category 2 per GHS. Flammable Liquid, Class IB per OSHA 29 CFR 1910.106.

Hazardous Combustion products: carbon and nitrogen oxides, amines, hydrogen cyanide, lower molecular weight organic molecules.

Special Protective Equipment and Precautions for fire-fighters: Wear NIOSH or OSHA approved self-contained breathing apparatus in positive pressure mode with full face piece and full protective gear. Isolate the scene by removing all persons from the incident area. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Always stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. No action should be taken involving any personal risk or without suitable training.

Water contaminated with this material must be contained and prevented being discharged to any waterway, sewer or drain. Fire water run-off, if not contained, will cause environmental damage. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Keep unnecessary and unprotected personnel from entering. Ensure adequate ventilation/exhaust extraction. Avoid breathing vapors or mist during clean up. Use protective equipment as described in Section 8. Do not touch or walk through spilled material.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Inform the relevant authorities if the product has caused environmental pollution.

Methods and materials for containment and cleaning up: Product is flammable. Eliminate all sources of ignition. Use clean non-sparking tools to collect absorbed material. All equipment used when handling this product must be grounded. A vapor suppressing foam may be used to reduce vapors. Water spray may reduce vapor; but may not prevent ignition in closed spaces.
Remove mechanically; cover the remainder with non-combustible absorbent material (e.g. sand, earth, vermiculite or diatomaceous earth). After approximately one hour, transfer into properly labeled and approved chemical waste containers. Do not fill the container more than 2/3 full to allow for expansion. Cover container, but do not seal, and remove from work area. Keep in a well ventilated area. If necessary, repeat application of absorbent material until all liquid has been removed from the surface. Decontaminate the spill surface area using a neutralization solution. Scrubbing the surface with a broom or brush helps the decontamination solution to penetrate into porous surfaces. Wait at least 15 minutes after first application of the neutralization solution. Cover the area again with absorbent material and shovel this into chemical waste container. Apply lid loosely to the waste container (do not tighten the lid because carbon dioxide gas and heat can be generated from the neutralization process). With the lid still loosely in place, move the container to an

isolated, well-ventilated area to allow release of carbon dioxide. After 72 hours, seal the container, and properly dispose of the waste material and any contaminated equipment (i.e., broom or brush) in accordance with existing federal, state and local regulations.

Spill cleaning solutions:
Products or product mixtures that have been shown to be effective neutralization solutions for decontaminating surfaces, tools, or equipment that have been in contact with an isocyanate includes:

Products available through industrial suppliers:

- Spartan Chemical Company: 1-800-537-8990:
  - Spartan® ShineLine Emulsifier Plus
  - Spartan® SC-200 Heavy Duty Cleaner

Products available through retail outlets:

- ZEP® Commercial Heavy-Duty Floor Stripper
- Greased Lightning® Super Strength Cleaner and Degreaser
- EASY OFF® Grill and Oven Cleaner or EASY OFF® Fume Free Oven Cleaner
- A mixture of 50% Simple Green® Pro HD Heavy-Duty Cleaner and 50% household ammonia
- A mixture of 90% Fantastic® Heavy Duty All Purpose Cleaner and 10% household ammonia.

Note: Always wear proper PPE when cleaning up an isocyanate spill and using a neutralization solution. It may take two or more applications of the neutralization solution to decontaminate the surface. Check for residual surface contamination using a surface wipe method such as the CLI Swype® pad.

For major spills: Stop leak if without risk. Move containers from spill area. Remove ignition sources. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or contain and collect with an absorbent material as described in the previous paragraph.
For minor spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly with soap and water to remove residual contamination.
Never return spills to original containers for re-use.

Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, see Section 1 for the Emergency contact; for further disposal measures, see Section 13.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling: Product is flammable. Check atmosphere for explosiveness and oxygen deficiencies. Eliminate all sources of ignition. Ground and bond containers and equipment before transferring to avoid static sparks. All equipment must conform to applicable electrical code. Use clean non-sparking tools. Carefully vent any internal pressure before removing closure. Handle empty containers with care; vapor/residue may be flammable.
Avoid exposure to heat and air. Protect chemical from atmospheric moisture. Do not reseal if contamination is suspected. Use adequate ventilation to keep airborne levels below the exposure limits. Do not inhale vapors and mists. Wear respiratory protection if material is heated, mixed, sprayed or used in a confined space. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash hands thoroughly after handling. Hands and/or face should be washed before eating, drinking and smoking and at the end of the shift. Remove contaminated clothing and protective equipment before entering eating areas.
This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with asthma, chronic respiratory disease or prior allergic reactions to isocyanates and those with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not handle until all safety precautions have been read and understood.

Conditions for safe storage, including any incompatibilities: Store in original or approved alternative container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink.
Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Protect it against physical damage and moisture. Normal temperature and pressures do not affect the material. Keep liquid away from heat, sparks and flame. Do not cut, drill, grind, weld or perform similar operations on or near containers. Use clean non-sparking tools. Ground and bond containers and equipment. Use appropriate containment to avoid environmental contamination. Segregate from acids and acid forming substances.

Storage stability: Stable under normal conditions.
Storage temperature: 40 - 90°F (4 - 32°C)

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200. Employees and consumers should be warned of health risks associated with product use. See Section 8 for additional information on hygiene measures.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters/Occupational exposure limit values: Not available for mixture. Results for components are listed in Section 15.

Advice on system design: Provide process enclosures, local exhaust ventilation or other engineering controls to maintain recommended PEL. All equipment must conform to applicable electrical code. Use clean non-sparking tools.

Appropriate engineering controls: Use only with adequate ventilation. Diisocyanates can only be smelled if the occupational exposure limit has been exceeded considerably. Emissions from ventilation or process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. Curing ovens must be ventilated to prevent emissions into the workplace. If oven off-gases are not vented properly (i.e. they are released into the work area), it is possible to be exposed to airborne monomeric HDI.

Personal protective equipment:

Eye/face protection:

When directly handling liquid product, eye protection is required. Examples of eye protection include safety glasses and goggles or full face shield when there is a greater risk of splash. Contact lenses should not be worn when working with chemicals.

Skin/body protection:

Avoid contact with skin. Impervious gloves (nitrile butyl rubber, neoprene and PVC) should be worn always when working with this product. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact. Dispose contaminated gloves after use in accordance with good laboratory practices. Body should be covered with appropriate clothing (apron, arm covers or full body suit) depending on the task being performed and the risks involved. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH. Wash contaminated clothing before reuse. Store work clothing separately. Appropriate footwear should be also selected based on the task being performed and the risks involved.

Respiratory protection:

A respirator that is recommended or approved for use in isocyanate-containing environments (air-purifying or fresh air-supplied) may be necessary for spray or high temperature applications which may produce inhalation exposures. A supplied-air respirator (either positive pressure or continuous flow-type) is recommended. Before an air-purifying respirator can be used, air monitoring must be performed to measure airborne concentrations of HDI monomer and HDI polyisocyanate. Observe OSHA regulations for respirator use (29 CFR 1910.134).
Spray application: Good industrial hygiene practice dictates that when isocyanate-based coatings are spray applied, some form of respiratory protection should be worn.
Non-spray application: During non-spray operations such as mixing, batch-making, brush or roller application, etc., at elevated temperatures (heating of material or application to a hot substrate), it is possible to be exposed to airborne isocyanate vapors.

Regardless of the application, use of a supplied-air (either positive pressure or continuous flow-type) respirator is mandatory when ONE OR MORE of the following conditions exists:

- the airborne isocyanate concentrations are not known or
- the airborne isocyanate monomer concentrations exceed 0.05ppm averaged over 8hours (10 times the 8hour TWA exposure limit) or
- the airborne polyisocyanate (polymeric, oligomeric) concentrations exceed 5mg/m^3 averaged over 8hours or 10mg/m^3 averaged over 15 minutes (10 times the 8hour TWA or the 15 minute STEL exposure limits) or
- operations are performed in a confined space (See OSHA Confined Space Standard, 29 CFR 1910.146).

A properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing environments, and used in accordance with all recommendations made by the manufacturer, can be used when ALL of the following conditions are met:

- The airborne isocyanate monomer concentrations are known to be below 0.05 ppm averaged over 8 hours (10 times 8 hour TWA exposure limit); and -the airborne polyisocyanate (polymeric, oligomeric) concentrations are known to be below 5 mg/m^3 averaged over 8 hours or 10 mg/m3 averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits) and
- a NIOSH-certified End of Service Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, prefilters should be changed whenever breathing resistance increases due to particulate buildup.

Additional Protective Measures: Educate and train employees in safe handling of this product. Follow all label instructions. As a general hygiene practice, wash hands and face after use. Emergency eyewash fountains and safety shower should be in close proximity as a matter of good practice.

Medical Surveillance: All applicants who are assigned to an isocyanate work area should undergo a pre-placement medical evaluation. A history of eczema or respiratory allergies such as hay fever, are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult asthma should be restricted from work with isocyanates. Applicants with a history of prior isocyanate sensitization should be excluded from further work with isocyanates. A comprehensive annual medical surveillance program should be instituted for all employees who are potentially exposed to diisocyanates. Once a worker has been diagnosed as sensitized to any isocyanate, further exposure cannot 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 AND CHEMICAL PROPERTIES

Appearance:	Colorless to light yellow liquid
Odor:	Fruity
Odor threshold:	Not available for mixture; N-BAc: 10 ppm
pH:	Not available
Melting point/ freezing point:	Not available for mixture; CC 1: -50°C (-58°F) at 1,013hPa; N-BAc: <-78°C (<-108°F)
Initial boiling point and boiling range:	125-165°C (257-329°F); CC 1: 166°C (331°F); N-BAc: 127°C (261°F)
Flash point:	27°C (81°F); CC 1: 58°C (136°F); N-BAc: 22°C (72°F) (closed cup)
Evaporation rate:	Slower than n-Butyl Acetate; N-BAc: 5.8 (carbon tetrachloride=1) (butyl acetate=1)
Flammability (solid, gas):	Not available
Upper/ lower flammability or explosive limits:	Not available for mixture; CC 1: 9.8 %(V)/1.05 %(V); N-BAc: 7.6/1.2%
Vapor pressure:	Not available for mixture; HDI: 5.2 x 10^{-9} mm Hg at 20°C (68°F); CC 1: 2.30hPa (1.73mmHg) at 20°C (68°F); N-BAc: 10 mmHg at 20°C;
Vapor density:	Not available; CC 1: 5.03; N-BAc: 4.0 (air)
Relative density:	Not available for mixture; CC 1: 0.95 g/mL at 25°C; N-BAc: 0.88 g/cm^3 at 20°C;
Solubility (water):	Insoluble, reacts slowly with water to liberate CO_2; N-BAc: 0.7g in 100ml at 20°C-slightly soluble; Soluble: alcohol, ether, benzene, hydrocarbons
Partition coefficient n-octanol/water:	Not available for mixture; CC 1: log Pow: 1.47; PMA: log Pow: 1.2 (OECD Test Guideline 117); N-BAc: log Pow: 1.82;
Auto-ignition temperature:	Not available for mixture; N-BAc: 420°C (788°F);
Decomposition temperature:	Not available
Viscosity:	Not available
Weight per gallon:	8.34
% Volatile by Volume:	62.08 %
VOC as supplied	571 g/L

CC 1=Confidential Component 1

SECTION 10 – STABILITY AND REACTIVITY

Reactivity: Isocyanate is insoluble in and heavier than water, sinks to the bottom, but reacts slowly at the interface. A solid water-insoluble layer of polyurea is formed at the interface accompanied by carbon dioxide release. This can lead to container bursting, if tightly closed.
There is a risk of exothermic reaction with materials containing active hydrogen groups. The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of the reaction partners is good or is supported by stirring or by the presence of solvents. Vapors may form explosive mixture with air.
Contact with certain rubbers and plastics can cause brittleness of the product with subsequent loss in strength.
Hazardous Polymerization: Contact with moisture, alcohols, amines, bases and acids or temperatures above 350°F (177°C).

Chemical stability: Stable under recommended storage conditions. Product is hygroscopic; contamination with moisture will negatively affect product performance. Avoid unintended contact with incompatible chemicals; the reaction will generate heat.
Due to the certain components, product requires special attention during handling and storing.

- Confidential Component 1, CAS #: Trade Secret: Flash Point: 58°C (136°F); Flammable Liquid, Category 3 per GHS; Combustible Liquid, Class II per OSHA 29 CFR 1910.106
- N-Butyl Acetate (BAc), CAS #: 123-86-4: Flammable Liquid, Category 2 per GHS. Flammable Liquid, Class IB per OSHA 29 CFR 1910.106.

Conditions to avoid: Unintentional contact with moisture, mist formation, heat, open flame and sparks, pressure formation. Containers may rupture or explode if exposed to heat. Protect from freezing.

Incompatible materials: Strong oxidizing agents. Water, alcohols, amines, bases, acids, nitrates, copper, aluminum and zinc alloys. This material may attack some forms of plastics (vinyl and styrene based), rubbers, and coatings.

Hazardous decomposition products: Depend upon temperature, air supply and presence of other materials. Can include, but are not limited to carbon and nitrogen oxides, amines, hydrogen cyanide, lower molecular weight organic molecules. Creates dense black smoke when burned without sufficient oxygen.

SECTION 11 – TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, Skin and Eye Contact, Ingestion.
Symptoms of exposure:
Acute toxicity:
Oral: May be armful if swallowed (irritation and burns of the digestive tract). Adverse symptoms may include abdominal pain, nausea, vomiting, and diarrhea.
Dermal: May be harmful in contact with skin. Adverse symptoms may include irritation and redness.
Inhalation: Harmful if inhaled. Irritating to respiratory system. Inhalation of vapors may cause irritation of the mucous membranes of the nose, throat or trachea with symptoms of runny nose, sore throat, coughing, choking, wheezing, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Inhalation exposure well above the PEL may result additionally in eye irritation, headache, chemical bronchitis, asthma-like findings or pulmonary edema and CNS depression (fatigue,

dizziness, loss of concentration, collapse, coma and death in cases of severe over-exposure). Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like symptoms, the onset of which may be delayed.

Skin corrosion / irritation:

Irritating to skin. Skin contact may result in dermatitis, either irritative or allergic with symptoms of reddening, itching, and swelling.

Serious eye damage / eye irritation:

Causes serious eye irritation. Adverse symptoms may include tearing, redness, itching and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing.

Specific target organ toxicity, single exposure:

May cause respiratory irritation. May cause drowsiness and dizziness.

Aspiration hazard:

Based on physical properties, not likely to be an aspiration hazard.

Chronic toxicity:

Respiratory and Skin Sensitizer:

This material contain components that are reported to be a respiratory and skin sensitizer.

- Homopolymer of Hexamethylene Diisocyanate, CAS #:28182-81-2: skin and respiratory sensitizer
- Hexamethylene-1,6-Diisocyanate, CAS #: 822-06-0: skin and respiratory sensitizer

Sensitization is possible after skin contact. The substance may cause sensitization of the respiratory tract. As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the PEL/TLV. These symptoms, which include chest tightness, wheezing, cough, shortness of breath, or asthmatic attack, could be immediate or delayed up to several hours after exposure. Similar to many non-specific asthmatic responses, there are reports that once sensitized individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Chronic overexposure to isocyanates has also been reported to cause lung damage, including a decrease in lung function, which may be permanent. Prolonged contact can cause reddening, swelling, rash, scaling, or blistering. In those who have developed a skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material, or even as a result of vapor-only exposure. Animal tests indicate that skin contact may play a role in causing respiratory sensitization. However, the relevance of this result for humans is unclear.

Germ cell mutagenicity:

This product does not contain component(s) known or reported to be mutagenic.

Carcinogenicity:

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, NTP, OSHA or AGCIH.

Reproductive toxicity:

This product contains component known or reported to cause reproductive toxicity.

- N-Butyl Acetate, CAS #: 123-86-4: may damage developing fetus.

Specific target organ toxicity, repeated exposure:

Respiratory and central nervous system, lungs, liver and kidney damage after repeated or prolonged inhalation. Prolonged vapor contact with the eyes may cause conjunctivitis.

Medical conditions aggravated by overexposure:

The isocyanate component is a respiratory sensitizer. Respiratory sensitization may result in allergic (asthma-like) signs in the lower respiratory tract including wheezing, shortness of breath and difficulty breathing, the onset of which may be delayed. Repeated inhalation of high concentrations may cause lung damage, including reduced lung function, which may be permanent.

Medical supervision of all employees who handle or come into contact with isocyanates is recommended. Persons with history of respiratory disease or hypersensitivity should not be exposed to this product. Persons with asthmatic conditions, chronic bronchitis, other chronic respiratory diseases, recurrent eczema or pulmonary sensitization should be excluded from working with isocyanates. Once a person is diagnosed as having pulmonary sensitization (allergic asthma) to isocyanates, further exposure is not recommended.

Pre-employment and periodic medical examinations with respiratory function tests (FEV, FVC as a minimum) are suggested.

Toxicity test results: Not available for mixture. Results for components:

Components	Test Results
Homopolymer of Hexamethylene Diisocyanate, CAS #:28182-81-2	Data is based on similar product, including residual monomer. Acute Toxicity Oral LD50 (Rat): >2,500 mg/kg (OECD Guideline 423) Dermal LD50 (Rabbit): >2,000 mg/kg / (Rat): >2,000 mg/kg (OECD Guideline 402) Inhalation LC50 (Rat), 4hr: 0.39-0.543 mg/L (OECD Guideline 403); The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on the weight of the evidence, a modified classification for acute inhalation toxicity is justified. Skin corrosion/irritation (Rabbit), 4hrs: slightly irritating (OECD Test Guideline 404) Serious eye damage/eye irritation (Rabbit): slightly irritating (OECD Test Guideline 405) Chronic Toxicity Sensitization (mouse): skin sensitizer (Mouse Local Lymph Node Assay) (OECD Test Guideline 429); (guinea pig): skin sensitizer (Maximisation Test (OECD Test Guideline 406, GPMT) respiratory sensitizer Germ cell mutagenicity: in vitro (Salmonella typhimurium): negative (OECD Guideline 471, Ames-test) and (Chinese hamster): negative (chromosome aberration test) / in vivo in mammalian cells: negative (HPRT test)

	Carcinogenicity (Rat), 5 days a week/6 hours a day: Negative in animal experiments. STOT, RE (Rat, inhalation), 90 days/5 days a week/6 hours a day: NOAEL: 3,3 mg/m³ Irritation to lungs and nasal cavity. Evidence of damage to other organs was not found.
Confidential Component 1, CAS #: Trade Secret	Acute Toxicity Oral LD50 (Rat, male): >5,000 mg/kg; (Rat, female): ~4,000 mg/kg (OECD Test Guideline 401) Dermal LD50 (Rabbit, male): ~4,000 mg/kg; (Rabbit, female): ~4,500 mg/kg (OECD Test Guideline 402) Inhalation LC50 (Rat, male), 6hrs: >1,000 ppm (highest concentration tested) (OECD Test Guideline 403) Skin corrosion/irritation (Rabbit), 4hrs: slightly irritating (OECD Test Guideline 404) Serious eye damage/eye irritation (Rabbit), 24hrs: Slightly irritating (OECD Test Guideline 405) STOT, SE: No data available Aspiration hazard: No Chronic toxicity Sensitization, skin and respiratory: Not skin sensitizer (Guinea pig maximization test) (OECD Test Guideline 406) Germ cell mutagenicity: In vitro: bacterial; chromosome aberration; mammalian: negative. In vivo: No data available Carcinogenicity: No data available STOT, RE: Oral (Rat, male & female), 28days: NOAEL: 1,000 mg/kg (OECD Test Guideline 407) - Liver Irregularities Inhalation (Rat), 90days: NOAEL: 500 ppm - Nausea, Headache, Vomiting, Central nervous system depression, Dizziness
N-Butyl Acetate, CAS #: 123-86-4	Major health hazards: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression. Acute Toxicity: Highly Toxic: inhalation; Slightly Toxic: ingestion Oral (Rat, female): LD50: 10,760 mg/kg (OECD Test Guideline 423) - sore throat, nausea, stomach pain, headache, drowsiness, symptoms of drunkenness, general depressed activity; affected: respiratory system and liver Oral (Mouse): LD50: 6,000 mg/kg Dermal (Rabbit): LD50: >14,112 mg/kg (OECD Test Guideline 402) Inhalation (Rat), 4hrs: LC50: > 21 mg/L (OECD Test Guideline 403) - cough, sore throat, irritation, dizziness, nausea, difficulty breathing, headache, drowsiness, symptoms of drunkenness, blood hemorrhage, death Inhalation (Human) LPTC: 200 ppm; effect on eyes and respiratory system; Severe irritation of the throat has been reported in volunteers exposed to 300 ppm for 3 to 5 minutes. Irritation of the eyes and nose is first objectionable at 3,300 ppm and that higher concentrations cause tearing and hyperemia of the conjunctiva. Skin corrosion/irritation (Rabbit), 24hrs: 500 mg - moderate irritation, dry skin. Serious eye damage/eye irritation (Rabbit): Redness, pain, irritation, tearing; (Human): 300 ppm; (Rabbit): 100 mg - moderate irritation STOT, SE: May cause drowsiness or dizziness. Target organs: Central nervous system Aspiration Hazard: No data available. Chronic Toxicity Respiratory and Skin Sensitization: No data available. Germ cell mutagenicity: Ames test (S. typhimurium): negative Carcinogenicity: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, NTP, OSHA or AGCIH. Reproductive Toxicity: may damage developing fetus. Inhalation (Rat) LPTC: 1,500 ppm/7hrs (7-16 day pregnant) Effects on embryo or fetus: Fetotoxicity (except death, e.g., underdeveloped fetus); Musculoskeletal system developmental abnormalities. STOT, RE: Inhalation, vapor (Rat, male and female): NOAEL: 2.4 mg/L. Inhalation (Rat), 13weeks/6hrs/intermittent: LPTC: 1,500 ppm – effects: general depressed activity; weight loss or decreased weight gain; endocrine: changes in adrenal weight. Inhalation (Rat), 13weeks/6hrs/continuous: LPTC: 3,000 ppm - effects: brain and coverings: changes in brain weight; endocrine: changes in spleen and adrenal weight; blood: changes in erythrocyte count and in serum composition. Stomach - Irregularities - Based on Human Evidence Medical conditions aggravated by exposure: kidney, liver, respiratory disorders. LPTC-lowest published toxic concentration RTECS: AF7350000
Hexamethylene-1,6- Diisocyanate, CAS #: 822-06-0	Acute Toxicity Oral LD50 (Rat): 746 mg/kg (OECD Test Guideline 401) Dermal LD50 (Rat): > 7,000 mg/kg (OECD Test Guideline 402) Inhalation LC50 (Rat), 4hrs: 0.124 mg/L (OECD Guideline 403) Skin corrosion/irritation (Rabbit): Corrosive (OECD Test Guideline 404) Serious eye damage/eye irritation (Rabbit): Corrosive (OECD Test Guideline 405) Chronic Toxicity Sensitization (guinea pig): skin and respiratory sensitizer (Maximisation Test (GPMT) (mouse): skin sensitizer (Mouse Local Lymph Node Assay) (human): skin sensitizer Germ cell mutagenicity: in vitro (Salmonella typhimurium): with and without metabolic activation: negative (OECD Guideline, 471 Ames-test) / in vivo (mammalian cells): negative (OECD Guideline 474, Micronucleus assay(HPRT test)) Carcinogenicity (Rat, Inhalation), 2 yrs/5 days/week/6 hours/day: Negative in animal experiments. Reproductive toxicity (Rat), Inhalation, 6 hours/day, 7 days/week: NOAEL: 0.3 ppm; Negative in animal experiments (combined with Repeated Dose Toxicity Study); Developmental (Rat, female, inhalation), gestation days 0 - 19, daily: NOAEL(teratogenicity): >0.3 ppm, NOAEL (maternal): < 0.3 ppm / Effects not observed at tested doses. STOT, RE (Rat, inhalation), 2 years/5 days a week/6 hours a day: NOAEL: < 0.005 ppm; LOAEL: 0.005 ppm / Irritation to lungs and nasal cavity. Evidence of damage to other organs was not found. Neurological: (Rat, inhalation), 3weeks/6hours a day: 0.3ppm-no effects or damage to nerve tissue.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity: Acutely harmful to aquatic organisms. Product is immiscible, but will react with water to produce inert and non-biodegradable solids. In air, the predominant degradation process is predicted to be a relatively rapid OH radical attack, based on calculation and analogy with related diisocyanates.

Persistence and degradability: Some components are readily biodegradable by OECD criteria, while others are not. In contact with water the substance will hydrolyze. After evaporation or exposure to the air, the product will be rapidly degraded by photochemical processes.

Bioaccumulative potential: No significant accumulation in organisms is expected.

Mobility in soil: Isocyanate emitted to water or soil will be readily converted into polyureas.
Other adverse effects: No known significant effects or critical hazards.

Ecotoxicity test results: Not available for the mixture. Results for components:

Components	Test Results
Homopolymer of Hexamethylene Diisocyanate, CAS #:28182-81-2	Data is based on similar product, including residual monomer. Acute Toxicity Fish (Zebra fish), 96hrs: LC50>100 mg/L (OECD Guideline 203, static) Aquatic invertebrates (Daphnia magna), 48hrs: EC50>100 mg/L (OECD Guideline 202, part 1, static) Aquatic plants (algae), 72hrs: ErC50>1,000 mg/L (growth rate) (OECD Guideline 201, static) Microorganisms (Activated sludge), 3hrs: EC50=3,238 mg/L Elimination data Biodegradability, 28 days: 1%; Not readily degradable. Bioaccumulation: Not considered to be persistent, bioaccumulating nor toxic (PBT).
Confidential Component 1, CAS #: Trade Secret	Harmful to aquatic life. Acute toxicity Fish (fathead minnow), 96hrs: LC50: 10-100 mg/L (OECD Test Guideline 203, static test) Aquatic invertebrates (Daphnia magna), 48hrs: EC50: 500-1,000 mg/L (OECD Test Guideline 202, Immobilization test) Aquatic plants (green algae), 72hrs: EC50: >100 mg/L (OECD Test Guideline 201, Growth inhibition) Microorganisms (bacteria), 16hrs: IC50: >5,000 mg/L (Growth inhibition) Ecological Data Biodegradation, 28 days: 100% - Readily biodegradable (CO_2 Evolution test) Bioaccumulation: No data available Mobility in soil: No data available Results of PBT and vPvB assessment: Log Kow: 1.35; Log Koc: 1.52 (QSAR Model) An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
N-Butyl Acetate, CAS #: 123-86-4	Harmful to aquatic life. Acute Toxicity Fish: (fathead minnow), 96hrs: LC50: 18 mg/L (OECD Guideline 203, flow-through test) (Zebrafish), 96hrs: LC50: 62 mg/L Aquatic invertebrates (daphnia magna), EC50, 48hrs: 44 mg/L (static test); EC100, 24hrs: 500 mg/L Aquatic plants (algae), EC50, 72hrs: 674.7 mg/L (growth rate) (OECD Guideline 201, static) Ecological Data Persistence and degradability: 83% in 28 days, Readily biodegradable. (OECD Test Guideline 301D) Bioaccumulative potential: No data available. Mobility in soil: No data available. Results of PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.
Hexamethylene-1,6-Diisocyanate, CAS #: 822-06-0	Acute Toxicity Fish (Zebra fish), 96hrs: LC50=82.8 mg/L (OECD Guideline 203, static) Aquatic invertebrates (Daphnia magna), 48hrs: EC50=89.1 mg/L (OECD Guideline 202, part 1, static) Aquatic plants (algae), 72hrs: ErC50=77.4 mg/L (growth rate) (OECD Guideline 201, static) Microorganisms (Activated sludge), 3hrs: EC50=842 mg/L Elimination data Biodegradability, aerobic, 28 days: 42%; Not readily degradable. Bioaccumulation: 57.6 BCF (calculated). An accumulation in aquatic organisms is not expected.

SECTION 13 – DISPOSAL CONSIDERATIONS

Product Disposal: The generation of waste should be avoided or minimized wherever possible. If product becomes a waste, it meets criteria of hazardous waste as defined in 40 CFR 261, Subpart C and D. Do not discharge into sewer system. Spill cleanup residues are subject to RCRA storage and disposal requirements.
Dispose waste in compliance with local, state and federal regulations via licensed waste disposal contractor. Preferred disposal method is burning in a chemical incinerator equipped with an afterburner and scrubber; extra care should be taken in igniting as this material is highly flammable.

Container disposal: Even after emptying, container may retain residues. Do not heat or cut empty container with electric or gas torch since highly toxic vapors and gases can be formed. Empty containers should be completely drained and safely stored until appropriately reconditioned or disposed through licensed contractor in accordance with government regulations.
This material and its container must be disposed of in a safe way.

SECTION 14 – TRANSPORT INFORMATION

	Land transport, U.S. DOT	Sea transport, IMDG:	Air transport, IATA/ICAO:
UN number:	UN 1263	UN 1263	UN 1263
UN proper shipping name:	Paint related material, n.o.s. (contains N-Butyl Acetate)	Paint related material, n.o.s. (contains N-Butyl Acetate)	Paint related material, n.o.s. (contains N-Butyl Acetate)
Transport hazard class(es):	3	3	3
Packing group:	II	II	II
Hazard Label			
Special precautions:	Shipping descriptions are provided for informational purposes and do not consider container sizes and packaging. Certain exceptions may be applied as outlined in 49 CFR 173.150.		

	Special Provisions: 149, B52, IB2, T4, TP1, TP8, TP28; Exceptions: 150; Non bulk: 173 / Bulk: 242 Passenger aircraft rail: 5L / Cargo aircraft only: 60L / Location: B

SECTION 15 – REGULATORY INFORMATION

U.S. Regulations:

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

TSCA Regulations:

All components of this product are listed or are exempt from TSCA Inventory requirements under 40 CFR 720.30.

EPCRA Section 302 (40 CFR Part 355) (Emergency Response Planning, Extremely Hazardous Substance):

No components are subject to the reporting.

EPCRA Section 304 (40 CFR Part 355) (Emergency Release Notification Requirements):

No components are subject to the reporting.

EPCRA Sections 311 & 312 (Hazardous Chemical Inventory Reporting, Hazard Categories):

Fire Hazard, Acute Health Hazard, Chronic health hazard

EPCRA Section 313 (40 CFR Part 372) (Toxic Chemical Release Inventory Reporting):

The following components and impurities are subject to the reporting:

- Hexamethylene-1,6-Diisocyanate, CAS #: 822-06-0: in Product: 0.1-1.0% De Minimis: 1.0%

CERCLA Sections 102-103 (40 CFR Part 302) (Hazardous Substances Release Notification):

The following components are subject to the reporting:

- Hexamethylene-1,6-Diisocyanate, CAS #: 822-06-0: RQ: 100 lbs Product RQ: >10,000 lbs
- N-Butyl Acetate , CAS #: 123-86-4: RQ: 5,000 lbs Product RQ: >30,000 lbs

Clean Air Act:

- Ozone Depleting Substances (ODS): This product does not contain and is not manufactured with ozone depleting substances.
- Hazardous Air Pollutants, OSHA, Section 112(b), Table Z-1:

Substance	Regulatory Limits			Recommended Limits	
	OSHA PEL		Cal/OSHA PEL	NIOSH REL	ACGIH® 2015 TLV®
	ppm	mg/m^3	8-hour TWA, mg/m^3	Up to 10-hour TWA, mg/m^3	8-hour TWA, mg/m^3
N-Butyl Acetate, CAS #: 123-86-4	150	710	150 ppm (ST) 200 ppm	150 ppm (ST) 200 ppm	150 ppm (ST) 200 ppm

ppm=parts per million; (ST)=short term exposure limit;

NIOSH IDLH: N-Butyl Acetate, CAS #: 123-86-4: 1,700 ppm

Clean Water Act:

- Section 307(a) (Toxic pollutants): No components are listed.
- Section 311(b): The following components are listed in Table 116.4A (Hazardous chemicals) / Table 117.3 (RQ):
  N-Butyl Acetate, CAS #: 123-86-4; RQ: 5,000 lbs

Available Exposure Limits for Components not regulated by OSHA:

Homopolymer of Hexamethylene Diisocyanate, CAS #:28182-81-2	Supplier Exposure Limit: TWA: 0.5 mg/m^3 Supplier STEL: 1.0 mg/m^3 (15 min)
Hexamethylene-1,6-Diisocyanate, CAS #: 822-06-0	US. ACGIH TLV: TWA: 0.005 ppm NIOSH REL: TWA: 0.005 ppm (0.035 mg/m^3) and 0.020 ppm (0.140 mg/m^3) [10-minute]

EPA Hazardous Waste Code: D001 (Ignitable waste)

NFPA rating: Health: 2 Fire: 3 Reactivity: 1 Special: W
HMIS rating: Health: 2* Flammability: 3 Physical hazard: 1

State Regulations:

California Prop. 65 Components:

This product does not contain chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Instruction: for regulatory information on components of this mixture, check the appropriate state websites.

International Regulations/Inventories:

Canadian Regulations: All ingredients of this product are listed or are exempt from the DSL.

WHMIS Classification (Controlled Products Regulations): Class D2B: Material causing other toxic effects (Toxic).
Class B2: Flammable Liquid

WHMIS Label Information:

SECTION 16 – OTHER INFORMATION

LEGEND

GHS	Globally Harmonized System
CAS	Chemical Abstracts Services
EC	European Community
EPA	Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute of Occupational Safety and Health
PEL	Permissible Exposure Limits
TLV	Threshold Limit Value
REL	Recommended Exposure Limit
TWA	Time-Weighted Average
STEL	Short-term exposure limit
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
COD	Chemical Oxygen Demand
BOD	Biological Oxygen Demand
STOT, SE	Specific Target Organ Toxicity following Single Exposure
STOT, RE	Specific Target Organ Toxicity following Repeated Exposure
DOT	Department of Transportation
IMDG	International maritime dangerous goods code
IATA, ICAO	International Air Transport Association, International Civil Aviation Organization
TSCA	Toxic Substances Control Act
EPCRA	Emergency Planning and Community Right-to-Know Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
RQ	Reportable Quantity
TQ	Threshold Quantity
TPQ	Threshold Planning Quantity
EHS	Extremely Hazardous Substances
DSL	Domestic Substance List
WHMIS	Workplace Hazardous Materials Information System

Latest revision date: May 18, 2016
Date of the previous revision: December 22, 2015 – Preparation of SDS in accordance to the GHS requirements

Disclaimer: The data set forth in this sheet are based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. Rhino Linings Corporation makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof.