SAFETY DATA SHEET

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision date: 01-02-2015

Section 1 – Identification of the Substance/Mixture and of the Company/Undertaking

Product Name:	**Flexible Joint Cartridge** PART A
Product Codes:	**Series No. 8142-6116**
Recommended Use:	Concrete Expansion Joint Compound
Sold By:	Gabriel First Corp.
Street Address:	233 West Commercial Street
City, State, Zip:	East Rochester, NY 14445-0191
Telephone:	585-381-7000
Emergency Phone:	800-424-9300
Date Revised:	01-02-15
Chemical Name or Class:	Caprolactum Mixture

Section 2 – Hazards Identification

Hazard Overview

GHS Classification:

Acute Toxicity (Inhalation):	Category 4
Acute Toxicity (Oral):	Category 4
Specific Target Organ Toxicity – Single Exposure:	Category 3
Serious Eye Damage/Irritation:	Category 2B
Skin Corrosion/Irritation:	Category 3

GHS Label Elements and Precautionary Statements

Label Elements:

Hazard Statements:

Warning: May be Harmful if swallowed.
Warning: Harmful if inhaled.
Warning: May cause Respiratory irritation.
Warning: Causes eye irritation.
Warning: Causes mild skin irritation.

Precautionary Statements:
P102 Keep out of reach of children.
P103 Read label before use.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P271 Use only outdoors or in a well-ventilated area.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

Response:
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P301 + P312 IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell.
P330 Rinse mouth.
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.
P332 + P313 IF SKIN irritation occurs: Get medical advice/attention.

Storage:
P405 Store locked up.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Disposal:
P501 Dispose of contents/container to a waste disposal facility in accordance with local, state, federal or international laws.

Other Non-Classifiable Potential Hazards: Carcinogen Category 2

HMIS Hazard Classification

Health: 2 **Flammability: 1** **Reactivity: 0** **Personal Protective Equipment: G**

Potential Health Effects

Eyes: High vapor concentration can cause severe irritation to the eyes, nose or throat.

Skin: Can cause irritation to skin.

Ingestion: Liquid can cause irritation to the mucous membranes if swallowed.

Inhalation: High vapor concentration can cause severe irritation to the respiratory tract.

Health Hazards (Acute and Chronic): Prolonged or repeated exposure may cause asthma and skin sensitization or other allergic responses.

Medical Conditions Generally Aggravated by Exposure:
Respiratory conditions or other allergic ailments.

Carcinogenicity: **OSHA:** No **NTP:** No **IARC:** Yes

Additional Carcinogenicity Information:
Some colors may contain Carbon Black - Explanation of Carcinogenicity: IARC MONOGRAPHS ON EVALUATION OF CARCINOGENIC RISK OF CHEMICALS TO MAN, VOL 65, PG 149, 1996: GROUP 2B. Titanium Dioxide is listed by IARC as possibly carcinogenic to humans (Group 2B).

Section 3 – **Composition/Information on Ingredients**

Ingredient	CAS No.	OSHA PEL	ACGIH TLV	OSHA STEL	Weight %
Castor Oil	8001-79-4	None	None	None	10-30
2-Oxepanone, Polymer with 2,2'-Oxybis [Ethanol]	36890-68-3	None	None	None	10-30
2-Oxypanone, 2-Ethyl-2-(Hydroxymethyl) -1,3-Propane	37625-56-2	None	None	None	15-40
Precipitated Silica	112926-00-8	None	80mg/m3	None	0.1-1
Aluminum Oxide (Non-Fibrous)	1344-28-1	5mg/m3	10mg/m3	None	1-5
Sodium Oxide	1313-59-3	None	None	None	1-5
Magnesium Oxide	1309-48-4	15mg/m3	10mg/m3	None	1-5
Siloxanes and Silicones, Di-Me Reactions Products with Silica (Non-Hazardous)	67762-90-7	None	None	None	0.1-1
Siloxanes and Silicones, Di-Methyl (Non-Hazardous)	63148-62-9	None	None	None	0.1-1
Alkyl Quaternary Ammonium Clay	Proprietary	None	None	None	1-5
Methyl N-Amyl Ketone	110-43-0	100 ppm	50 ppm	None	1-5
Dibutylin Dilurate	77-58-7	0.1mg / m3	0.1mg / m3	0.1mg / m3	0.1-1
Colors May Contain:					
Titanium Dioxide	13463-67-7	10mg/m3	10mg/m3	5mg/m3	1-5
*Carbon	1333-86-4	3.5ppm	3.4ppm	None	<1.0

SECTION 3 NOTES:
"*" Indicates TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III AND OF 40 CFR 372 ARE PRESENT.

Note: Ingredients listed without percentages, the percentages are considered a trade secret.

Section 4 – **First Aid Measures**

Eyes: Immediately flush with large amounts of water for at least fifteen minutes while lifting upper and lower lids. Get immediate medical attention.

Skin: Flush skin with water for at least 15 minutes and remove all contaminated clothing immediately. Get medical attention if reddening or swelling occurs.

Ingestion: Do not induce vomiting. Dilute by giving water to drink if victim is conscious. Get medical attention immediately.

Inhalation: Remove victim to fresh air if effects persist and administer oxygen if necessary.

Section 5 – **Fire-Fighting Measures**

Flammable Limits in Air, (% by volume): **Upper:** Not available. **Lower:** Not available.

Flash Point: 200+F
Method Used: Seta flash.

Extinguishing Media:	Foam, Alcohol Foam, CO2, Dry Chemical, Water Fog.
Special Fire Fighting Procedures:	Toxic fumes will be evolved when this material is involved in a fire. A self-contained breathing apparatus should be available for fire fighters. Cool all fire exposed containers with water.
Unusual Fire and Explosion Hazards:	None known.

Section 6 – **Release Measures**

Steps to be Taken in Case Material is Released or Spilled:	Avoid contact with material. Wear the appropriate safety equipment. Stop spill at source, dyke area to prevent spreading. Pump liquid to salvage tank. Take up the remainder with an absorbent such as clay and place in disposal containers.

Section 7 – **Handling and Storage**

Precautions to be Taken in Handling and Storage:	Avoid all skin contact. Avoid breathing vapors. Reseal partially used containers. Properly label all containers. Wash with soap and water before eating, drinking, smoking, or using toilet facilities. Observe good industrial hygiene and safe working practices.
Other Precautions:	Mixed materials contain the hazards of all the components, therefore, read the SDS of all components to become familiar with all hazards prior to using this product.

Section 8 – **Exposure Controls/Personal Protection**

Respiratory Protection:	NIOSH approved respirator required in the absence of proper environmental controls. For emergencies a self-contained breathing apparatus or a full face respirator is recommended.
Ventilation:	Avoid breathing vapors. Ventilation must be sufficient to control vapors.
Protective Gloves:	Impervious gloves – neoprene or rubber.
Eye Protection:	Splash proof goggles or safety glasses with side shields.
Other Protective Clothing or Equipment:	Clean body covering clothing as well as apron, footwear equipment should be used as deemed necessary to avoid contact with the material.
Work Hygienic Practices:	Observe good general hygienic practices.

See Section Three for occupational exposure limit values.

Section 9 – **Physical and Chemical Properties**

Appearance and Odor:	Medium viscosity clear or colored liquid – negligible odor.
Boiling Point or Range:	N/A
VAPOR DENSITY (AIR = 1):	N/A
Specific Gravity (H2O = 1):	1.1
Evaporation Rate:	N/A
Solubility in Water:	Negligible.
Odor Threshold:	N/A
pH:	N/A
Melting Point/Freezing Point:	N/A
Vapor Pressure:	N/A
Auto-ignition Temperature:	N/A
Partition Coefficient: n-Octanol/water:	N/A
Decomposition Temperature:	N/A

Section 10 – **Stability and Reactivity**

Stability:	Stable.
Conditions to Avoid (Stability):	Avoid contact with open flames and all sources of ignitions and sparks.
Incompatibility (Material to Avoid):	Avoid contact with strong oxidizing agents or materials.
Hazardous Decomposition or By-Products:	Carbon Monoxide, Carbon Dioxide and Nitrogen Compounds.
Hazardous Polymerization:	Will not occur.

Section 11 – **Toxicological Information**

No data for the product itself.

Component Data:

Component CASTOR OIL CAS# 8001-79-4:
Draize test, rabbit, eye: 500 mg Mild; Draize test, rabbit, skin: 100 mg/24H Severe.

Component 2-OXEPANONE, POLYMER WITH 2,2'-OXYBIS [ETHANOL] CAS# 36890-68-3:
Oral LD50 (rat) > 2000 mg/kg.

Component 2-OXYPANONE, 2-ETHYL-2-(HYDROXYMETHYL) -1,3-PROPANE CAS# 37625-56-2:
Acute oral toxicity - Oral route, LD 50, > 2000 mg/kg. Acute dermal irritation/corrosion - Rabbit, Non irritant (eyes), - Rabbit, Non irritant (skin), Skin irritation –Negligible. Eye irritation – Negligible.

Component Titanium Dioxide:
Inhalation 4 h LC50 > 6.82 mg/l; Oral LD50 > 5000 mg/kg, rat; In February 2006, IARC listed Titanium Dioxide as possibly carcinogenic to humans Group 2B.

Component CAS# 112926-00-8:
LD50 (rat >5000 mg/kg, LD50 dermal (rat) >2000 mg/kg.

Component Aluminum Oxide CAS# 1334-28-1:
Special Remarks on Chronic Effects on Humans: May cause cancer (tumorigenic) according to animal data. No human data found.
Special Remarks on other Toxic Effects on Humans: Acute Potential Health Effects: Skin: May cause skin irritation. Eyes: Nuissance Dust. Dust may cause mechanical eye irritation. Inhalation: Nuissance Dust. Material is irritating to mucous membranes and upper respiratory tract. May cause lung injury. Ingestion: May be harmful if swallowed. Ingestion of large amounts may cause gastrointestinal tract irritation. It is expected to be a low hazard for normal industrial handling.

Component CAS# 112926-00-8, Component Aluminum Oxide CAS# 1334-28-1, Sodium Oxide CAS# 1313-59-3 and Magnesium Oxide CAS# 1309-48-4:
Components Acute oral toxicity LD50 is greater than 5g/kg (rat). The components are an ocular irritant by FHSA standards. When the components were administered by stomach intubation to male rats, the animals survived single massive doses equivalent to 32.0 gram per kilogram of body weight with good weight gains. There were no significant micropathological findings on tissue taken fourteen days after dosing.

Component Carbon:
IARC lists Carbon as a possible human carcinogen Category 2B. LD50 – Intravenous, mouse = 440 mg/kg.

Component Alkyl Quaternary Ammonium Clay CAS# Proprietary:
Short term exposure to dust can cause minor irritation or shortness of breath. Eye contact may cause irritation to the eyes due to physical abrasion. Component may cause respiratory disorders or act as an allergen for persons who are strongly allergic to Quaternary Amines.

Component CAS# 110-43-0:
Oral LD 50 (rat): 1600 mg/kg; Oral LD50 (mouse) 730 mg/kg; Inhalation LC50 (rat) 2000-4000 ppm, 4 hr. Dermal LD50 (rabbit) 10206 mg/kg; Dermal LD50 (guinea pig) >16200 mg/kg; Skin irritation (Rabbit) – slight to moderate; Eye irritation (rabbit) slight; Skin sensitization (human) none.

Component Dibutylin Dilurate CAS# 77-58-7:
ACUTE ORAL TOX (LD50,RAT) 3200.00 MG/KG. ACUTE DERMAL TOX (LD50,RABBIT) >2000 MG/KG (NO DEATHS). ACUTE INHAL TOX (LC50, RAT) >8.10 MG/L/1 HR. AMES TEST: NEG (ACTIVATED & NONACTIVATED) INDUST CHEMS SUCH AS THIS MATL W/ACUTE TOX VALUES SHOWN & WHOSE VAPS/MISTS ARE NOT LIKELY TO BE ENCOUNTERED BY HUMANS WHEN USED IN ANY REASONABLY FORESEEABLE MANNER WOULD NOT REQ TOXIC LBL ACCORD TO U.S. DOMESTIC & INTERNATIONAL TRANSPORT REQS.
IRRIT EFTS DAT: SEV IRRITANT TO EYES OF RABBIT. MOD IRRITANT TO SKIN OF RABBIT.

Section 12 – **Ecological Information**

No data for the product itself.

Component Data:

Component 2-OXEPANONE, POLYMER WITH 2,2'-OXYBIS [ETHANOL] CAS# 36890-68-3:
Fish LC50, 96 hours, 80 mg/l. fish LC50, 96 hours, 39 mg/l. Abiotic degredation: Water, Hydrolysis, t+/- 50 days (calculated value, QSAR) degredation product 6-Hydroxycaproic Acid.

Component 2-OXYPANONE, 2-ETHYL-2-(HYDROXYMETHYL) -1,3-PROPANE CAS# 37625-56-2:
Acute toxicity: Fishes, Brachydanio rerio, LC 50, 96h, 150 mg/l. Bactéria, Achromobacter sp., NOEC, 16 h, 670 mg/l. Biodegradation - test ready biodegradability/modified STURM, > 60 %, 7 day(s) Result: readily biodegradable. Remarks - Harmful for aquatic organisms. - Hazard for aquatic environment is limited due to product properties: - . ready biodegradability.

Component Titanium Dioxide:
Pimephales promelas (fathead minnow) < 1000 mg/l @ 96h LC50; Pseudokirchneriella subcapitate (green algae) 61 mg/l @ 72h EC50; Daphnia magna (water flea) > 1000 mg/l @ 48h EC50.

Component CAS# 112926-00-8:
Ecotoxicity: EC50 (fish) .10000 mg/l (daphnia) >10000 mg/l.

Component Aluminum Oxide CAS# 1334-28-1:
Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Component CAS# 112926-00-8, Component Aluminum Oxide CAS# 1334-28-1, Sodium oxide CAS# 1313-59-3 and Magnesium Oxide CAS# 1309-48-4:
Food Chain Concentration Potential: non expected for components.

Component CAS# 110-43-0:
BOD-5: 1770 mg/kg; BOD-20: 2000 mg/kg; COD: 2420 mg/kg. Acute Aquatic Effects: 96 hr LC50 (fathead minnow) 131 mg/l and 48 hr EC50 (daphnia) >90 mg/l (highest concentration tested).

Section 13 – **Waste Disposal**

Waste Disposal Method: Dispose of the material in a waste disposal site in accordance with local, state, and federal laws.

Section 14 – **Transport Information**

DOT: Not Regulated.

IMO/IMDG: Not Regulated.

Section 15 – **Regulatory Information**

No data for the product itself.

Component Data:

Component CASTOR OIL CAS# 8001-79-4:
Component is on the TSCA list and Canada DSL.

Component 2-OXEPANONE, POLYMER WITH 2,2'-OXYBIS [ETHANOL] CAS# 36890-68-3:
Component is on the TSCA list and Canada DSL.

Component 2-OXYPANONE, 2-ETHYL-2-(HYDROXYMETHYL) -1,3-PROPANE CAS# 37625-56-2:
TSCA Inventory 8(b): Yes. National Regulations (Canada): Canadian NSN Registration: DSL # 11400. WHMIS Classification: Not Listed. National Regulations (Europe): National Regulations (Europe) EINECS / ELINCS #: EINECS: Not applicable.

Component Titanium Dioxide:
Contains Proposition 65 Chemicals, is on the PA Hazardous substance list, is on the NJ Right to Know Regulated chemical List. Titanium Dioxide is on inventory or in compliance with EINECS, TSCA, AICS, DSL, ENCS (JP), KECI (KR), PICCS (PH) and INV (CN).

Component CAS# 112926-00-8:
Is not classified as dangerous. National Chemical Inventory listings include – AICS, DSL, IECSC, EINECS, ENCS, KECI, NZLOC, PICCS, TSCA.

Component Aluminum Oxide CAS# 1334-28-1:
Federal and State Regulations: Illinois toxic substances disclosure to employee act: Aluminum Oxide Rhode Island RTK hazardous substances: Aluminum Oxide Minnesota: Aluminum Oxide Massachusetts RTK: Aluminum Oxide New Jersey: Aluminum Oxide New Jersey spill list: Aluminum Oxide California Director's list of Hazardous Substances: Aluminum Oxide TSCA 8(b) inventory: Aluminum Oxide SARA 313 Toxic Chemical Notification And Release Reporting: Aluminum Oxide Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances. Other Classifications: WHMIS (Canada): Not controlled under WHMIS (Canada). DSCL (EEC): R36/38-Irritating to eyes and skin. S2- Keep out of the reach of children. S46- If swallowed, seek medical advice immediately.

Sodium Oxide CAS# 1313-59-3:
Component is on the TSCA list.

Magnesium Oxide CAS# 1309-48-4:
Component is on the TSCA list.

Component CAS# 112926-00-8, Component Aluminum Oxide CAS# 1334-28-1, Sodium Oxide CAS# 1313-59-3 and Magnesium Oxide CAS# 1309-48-4:
Components are not classified as a controlled product under regulations pursuant to the federal hazardous product act (e.g. WHMIS).

Component Carbon:
Contains Proposition 65 Chemicals. Carbon: is listed on TSCA and DSL Canada.

Component Siloxanes and Silicones, Di-Me Reactions Products with Silica:
Included on TSCA, EINECS, MITI, ACOIN, and Canadian DSL inventory or lists.

Component Siloxanes and Silicones, Di-Methyl:
Included on TSCA, EINECS, MITI, ACOIN, and Canadian DSL inventory or lists.

Component Alkyl Quaternary Ammonium Clay CAS# Proprietary:
Component is on the TSCA, European inventory, Canada DSL, and Australian AICS lists. This component is not known to be a hazardous chemical as defined by OSHA Hazard Communication Standard 29 CFR 1910.1200.

Component CAS# 110-43-0:
On DSL and TSCA, EINECS, AICS, MITI and ECL lists.

Component Dibutylin Dilurate CAS# 77-58-7:
Sara Title III Information: TOXIC SUBSTANCES CONTROL ACT (TSCA): ALL COMPONENTS ARE INCL IN EPA TOXIC SUBSTANCES CTL ACT (TSCA) CHEM SUBSTANCE INVENTORY. OSHA HAZARD COMMUNICATION STD (29CFR1910.1200) HAZARD CLASS(ES): IRRITANT. KIDNEY TOXIN. EPA SARA TITLE III SECTION 312 (40CFR370) HAZARD CLASS. IMMED HLTH HAZARD. EPA SARA TITLE III 313 (40CFR372) TOXIC CHEMICALS "DE MINIMIS" LEVEL ARE NONE. Federal Regulatory Information: CANADA DSL-INCL ON INVENTORY. HAZARD CLASSIFICATION-CLASS D DIVISION 2B. (EEC). EINECS /ELINCS MASTER INVENTORY-INCLUDED ON INVENTORY. EEC SYMBOL-HARMFUL (XN). EEC RISK (R) PHRASES-IRRITATING TO EYES & SKIN (R36/38). HARMFUL BY INHAL (R20). EEC SFTY PHRASES-IN CASE OF CONT W/EYES, RINSE IMMED W/PLENTY OF WATER & SEEK MED ADVICE (S26). AUSTRAILA-AICS-INCLUDED ON INVENTORY. State Regulatory Information: STATE REGS: PROPOSITION 65 SUBSTANCES (COMPONENT(S) KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER AND/OR REPRODUCTIVE TOXICITY & SUBJECT TO WARNING & DISCHARGE REQUIREMENTS UNDER "SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986"): NONE.

Section 16 – **Other Information**

DISCLAIMER: The information Contained herein is based on the data available and is believed to be accurate, However, the manufacturer makes no warranty expressed or implied regarding the accuracy of this data or the results obtained from the use thereof. Accordingly, we assume no responsibility for injury from the use of this product.

N/A = Not Available

Revision Date: 01/02/15

Section 1 – Identification of the Substance/Mixture and of the Company/Undertaking

Product Name:	**Flexible Joint Cartridge** PART B
Product Codes:	**Series No. 8142-6116**
Recommended Use:	Concrete Expansion Joint Compound
Sold By:	Gabriel First Corp.
Street Address:	233 West Commercial Street
City, State, Zip:	East Rochester, NY 14445-0191
Telephone:	585-381-7000
Emergency Phone:	800-424-9300
Date Revised:	01-02-15
Chemical Name or Class:	MDI Isocyanate

Section 2 – Hazards Identification

Hazard Overview

GHS Classification:

Respiratory Sensitizer:	Category 1B
Skin Corrosion/Irritation:	Category 2
Skin Sensitizer:	Category 1B
Serious Eye Irritation:	Category 2B
Acute Toxicity Inhalation:	Category 4
Specific Target Organ Toxicity Single Exposure:	Category 3
Long Term Hazard to Aquatic Environment:	Category 4

GHS Label Elements and Precautionary Statements

Label Elements:

Hazard Statements:

Danger:	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Warning:	Causes skin irritation.
Warning:	May cause an allergic skin reaction.
Warning:	Causes eye irritation.
Warning:	May be harmful if inhaled.
Warning:	May cause respiratory irritation. May cause long lasting harmful effects to aquatic life.

Precautionary Statements:

P102 Keep out of reach of children.
P103 Read label before use.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P284 Wear respiratory protection.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P272 Contaminated work clothing should not be allowed out of the workplace.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.

Response:

P304 + P340 IF INHALED: 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.
P302 + P352 IF ON SKIN: wash with plenty of soap and water.
P333 + P313 IF SKIN irritation or rash occurs: Get medical advice/attention.
P362 + P364 take off contaminated clothing and wash it before reuse.
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.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.

Storage: P405 Store locked up.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Disposal: P501 Dispose of contents/container to a waste disposal facility in accordance with local, state, federal or international laws.

HMIS Hazard Classification

Health: 2 **Flammability: 1** **Reactivity: 1** **Personal Protective Equipment: G**

Potential Health Effects

Eyes: May cause irritation.

Skin: May cause irritation or allergic skin response. Skin contact may cause sensitization.

Ingestion: This material has a probable low acute oral toxicity.

Inhalation: Harmful by inhalation. Irritating to respiratory system. May cause sensitization by 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. A hyper-reactive response to even minimal concentrations of Diisocyanates may develop in sensitized persons. The onset of the respiratory symptoms may be delayed for several hours after exposure.

Health Hazards (Acute and Chronic): There are reports that chronic exposure may result in permanent decrease in lung function. Single or repeated skin contact or inhalation may cause sensitization or allergic reaction. Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from contact to materials or working with this products.

Medical Conditions Generally Aggravated by Exposure: Respiratory conditions or other allergic ailments.

Carcinogenicity: **OSHA:** No **NTP:** No **IARC:** Yes

Additional Carcinogenicity Information:
Component Diphenylmethane 4,4'-Disocyanate CAS# 101-68-8 is a IARC Class 3 Carcinogen.

Section 3 – Composition/Information on Ingredients

Ingredient	CAS No.	OSHA PEL	ACGIH TLV	OSHA STEL	Weight %
Isocyanates, Reaction Product of Polyol with Methylenediphenyl Disocyanate	9048-57-1	None	None	None	30 - 60
Diphenylmethane 4,4'-Disocyanate	101-68-8	0.02ppm	0.005ppm	0.20mg/m3	30 - 60
Homopolymer of Methylenediphenyl Disocyanate	25686-28-6	None	None	None	7 – 13

Section 3 Notes:

*****Toxic chemical(s) subject to the reporting requirements of Section 313 of Title III and of 40 CFR 372 are present.*****

Note: Ingredients listed without percentages, the percentages are considered a trade secret.

Section 4 – First Aid Measures

Eyes: Flush eyes with water for at least fifteen minutes. Get immediate medical assistance.

Skin: Skin contact will normally cause no more than irritation but wash affected area with soap and water or a polyglycol based skin cleanser and remove contaminated clothing promptly.

Ingestion: Do not induce vomiting. Wash out mouth with water. Move exposed person to fresh air area. Get medical attention immediately if symptoms occur.

Inhalation: Remove victim to fresh air and administer oxygen if necessary. Obtain medical assistance. Treatment is symptomatic for primary irritation or bronchospasm.

Notes to physicians or First Aid providers:

Section 4 Notes:
For severe exposure, medical follow-up should be monitored for at least 48 hours.

Section 5 – Fire-Fighting Measures

Flammable Limits in Air, (% by volume): **Upper:** Not available.
Lower: Not available.

Flash Point: 200+F
Method Used: Seta Flash.

Extinguishing Media:	Foam, Alcohol Foam, CO2, Dry Chemical.
Special Fire Fighting Procedures:	Use full bunker gear including a positive pressure self-contained breathing apparatus. Containers may burst under intense heat. If water is used, very large amounts are required. Reaction between water and Isocyanate may be vigorous.
Unusual Fire and Explosion Hazards:	No unusual fire hazards know other then reaction to water can be vigorous.

Section 6 – **Release Measures**

Steps to be Taken in Case Material is Released or Spilled:	Wear respirator and protective clothing, shut off the source at the leak. Remove excess with vacuum truck and take up the remainder with an absorbent such as clay and place in disposal containers. Flush area with a liquid decontaminant. For large spills, evacuate the area and test atmosphere for MDI.

Section 7 – **Handling and Storage**

Precautions to be Taken in Handling and Storage:	Store in a cool dry place. Seal all partially used containers. Wash with soap and water before eating, drinking, smoking or using toilet facilities. Mixed materials contain the hazards of all the components; therefore, read the SDS's of all the components prior to using material. Properly label all containers. Store material between 60-100 F and keep dry.
Other Precautions:	Avoid all skin contact. Avoid breathing vapors generated from the material. Observe conditions of good general hygiene and safe working practices. Contaminated leather articles can not be cleaned and must be discarded if contaminated with this product. Wash all contaminated clothing prior to the reuse thereof.

Section 8 – **Exposure Controls/Personal Protection**

Respiratory Protection:	Use a NIOSH approved pressure air-supplied respirator as required to prevent over-exposure to vapor in accordance with 29 CFR 1910.134. Cartridge type respirators are not approved for protection against Diisocyanates.
Ventilation:	General exhaust is usually sufficient to control vapors and exposure hazards. However, area should be monitored to prevent exposure beyond the recommended OHSA, ACGIH limits.
Protective Gloves:	Impervious gloves – neoprene or rubber.
Eye Protection:	Splash goggles or glasses with side shields.
Other Protective Clothing or Equipment:	Wear body covering clothing and other coverings as necessary such as apron and appropriate footwear to avoid contact with material.
Work Hygienic Practices:	Observe good general hygienic practices.

See Section Three for occupational exposure limit values.

Section 9 – **Physical and Chemical Properties**

Appearance and Odor:	Medium viscosity liquid.
Boiling Point or Range:	**>**300C decomposes.
Vapor Density (AIR = 1):	N/A
Specific Gravity (H2O = 1):	1.1
Evaporation Rate:	N/A
Solubility in Water:	Negligible
Odor Threshold:	N/A
pH:	N/A
Melting Point/Freezing Point:	N/A
Vapor Pressure:	N/A
Auto-ignition Temperature:	N/A
Partition Coefficient: n-Octanol/water:	N/A
Decomposition Temperature:	N/A

Section 10 – Stability and Reactivity

Stability: Stable at room temperature.

Conditions to Avoid (Stability): Avoid excessive heat, open flames. Due to reaction with water, a hazardous buildup of pressure could result.

Incompatibility (Material to Avoid): Can react vigorously with strong oxidizing agents and strong lewis acids or mineral acids, alcohols, bases and water.

Hazardous Decomposition or By-Products: CO, CO2, Nitrogen Oxides, Hydrocarbons and HCN.

Hazardous Polymerization: Polymerization may occur at elevated temperatures in the presence of Alkalies, Tertiary Amines and metal compounds.

Section 11 – Toxicological Information

Component Diphenylmethane 4,4'-Disocyanate CAS# 101-68-8 is a IARC Class 3 Carcinogen.

ACUTE TOXICITY:

Ingredient	Test	Endpoint	Species	Result
Diphenylmethane 4,4'-Disocyanate	OECD 403 Acute Inhalation Toxicity	LC50 Inhalation Dusts and mists	Rat - Male, Female	0.49 mg/l
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rabit - Male, Female	>9400 mg/kg
	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat - Male	>10000 mg/kg
Homopolymer of Methylenediphenyl Disocyanate	OECD 403 Acute Inhalation Toxicity	LC50 Inhalation Dusts and Mists	Rat - Male, Female	0.49 mg/l
	OECD 425 Acute Oral Toxicity Up and Down-Procedure	LD50 Oral	Rat - Female	>5000 mg/kg

IRRITATION/CORROSION

Ingredient	Test	Endpoint	Species
Diphenylmethane 4,4'-Disocyanate	OECD 404 Acute Dermal Iritation/Corrosion	Rabbit	Skin – irritant
	OECD 405 Acute Eye Irritation/Corrosion	Eyes	Non-Irritant
Homopolymer of Methylenediphenyl Disocyanate	OECD 405 Acute Eye Irritation/Corrosion	Eyes	Non-irritant
	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin – Irritant
	OECD 404 Acute Dermal Irritation/Corrosion	Other	Non Corrosive

Conclusion/Summary

Skin:

Isocyanates, reaction product of Polyol with Methylenediphenyl Disocyanate: No additional information.

Diphenylmethane 4,4'- Disocyanate: Irritating to skin.

Homopolymer of Methylenediphenyl Disocyanate: Irritating To skin.

Eyes:

Isocyanates, reaction product of Polyol with Methylenediphenyl Disocyanate: No additional information.

Diphenylmethane 4,4'-Diisocyanate: Based on the human occupational exposure data, this substance is considered as irritating to eyes.

Homopolymer of Methylenediphenyl Disocyanate: Irritating to the eyes.

Respiratory:

Isocyanates, reaction product of Polyol with Methylenediphenyl Disocyanate: No additional Information.

Diphenylmethane 4,4'- Disocyanate: No additional information.

Homopolymer of Methylenediphenyl Disocyanate: No additional information.

SENSITIZER

Ingredient	Test	Route of Exposure	Species	Result
Diphenylmethane 4,4'- Disocyanate	OECD 429 Skin Sensitization: Local Lymph Node Assay	Skin	Mouse	Sensitizing
	OECD 406 Skin Sensitization	Skin	Guinea pig	Non sensitizing
	No official guidelines	Respiratory	Guinea pig	Sensitizing
Homopolymer of Methylenediphenyl Disocyanate	OECD 406 Skin Sensitization	Skin	Guinea pig	Sensitizing
	No official guidelines	Respiratory	Guinea pig	Sensitizing

MUTAGENICITY

Ingredient	Test	Result
Diphenylmethane 4,4'- Disocyanate	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
	Experiment: In vivo Subject: Mammalian-Animal	Negative
Homopolymer of Methylenediphenyl Disocyanate	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
	Experiment: In vivo Subject: Mammalian-Animal	Negative

Conclusion/Summary

Diphenylmethane 4,4'-Diisocyanate: No mutagenic effect.

CARCINOGENICITY

Ingredient	Test	Species	Dose	Exposure	Result/Result Type
Diphenylmethane 4,4'- Disocyanate	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat – Male, Female	1 mg/m3	2 years; 5 days per week	Positive – Inhalation - NOAEL
Homopolymer of Methylenediphenyl Disocyanate	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat – Male, Female	1 mg/m3	2 years; 5 days per week	Negative - Inhalation - NOAEL

Conclusion/Summary:

Diphenylmethane 4,4'- Diisocyanate: No known significant effects or critical hazards.

TERATOGENICITY

Ingredient	Test	Species	Result/Result Type
Diphenylmethane 4,4'- Disocyanate	OECD 414 Prenatal Developmental Toxicity Study	Rat – Female	Negative – Inhalation
Homopolymer of Methylenediphenyl Disocyanate	OECD 414 Prenatal Developmental Toxicity Study	Rat – Male, Female	Negative - Inhalation

Conclusion/Summary:

Diphenylmethane 4,4'- Diisocyanate: No known significant effects or critical hazards.

Potential Acute Health Effects:

Inhalation: LC50 (rat) : ca. 490 mg/m³ (4 hours) : using experimentally produced respirable aerosol having aerodynamic diameter <5microns. 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.

Ingestion: Low oral toxicity. Ingestion may cause irritation of the gastrointestinal tract.

Skin Contact: Irritating to skin. May cause sensitization by skin contact. Animal studies have shown that respiratory sensitization can be induced by skin contact with known respiratory sensitizers including Diisocyanates. These results emphasize the need for protective clothing including gloves to be worn at all times when handling these chemicals or in maintenance work. 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: Irritating to eyes.

POTENTIAL CHRONIC HEALTH EFFECTS:

Ingredient	Test	Endpoint	Species	Result
Homopolymer of Methylenediphenyl Disocyanate	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Chronic NOEC Inhalation Dusts and Mists	Rat – Male, Female	0.2 mg/m³
	OECD 413 Subchronic Inhalation Toxicity: 90-day Study	Sub-chronic NOEC Inhalation Dusts and Mists	Rat – Male, Female	<4 mg/m³

General: No known significant effects or critical hazards.

Target Organs: No known significant effects or critical hazards.

Carcinogenicity: Rats have been exposed for two years to a respirable aerosol of polymeric MDI which resulted in chronic pulmonary irritation at high concentrations. Only at the top level (6 mg/m3), there was a significant incidence of a benign tumour of the lung (adenoma) and one malignant tumour (adenocarcinoma). There were no lung tumours at 1 mg/m3 and no effects at 0.2 mg/m3. Overall, the tumour incidence, both benign and malignant, and the number of animals with the tumours were not different from controls. The increased incidence of lung tumours is associated with prolonged respiratory irritation and the concurrent accumulation of yellow material in the lung, which occurred throughout the study. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is highly unlikely that tumour formation will occur.

Mutagenicity: There is no substantial evidence of mutagenic potential. 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, which are well in excess of defined occupational exposure limits.

Teratogenicity Developmental Effects: No known significant effects or critical hazards.

Fertility Effects: No known significant effects or critical hazards.

Medical Conditions Aggravated by Over-Exposure: None known.

Section 12 – **Ecological Information**

Environmental effects: By comparison with an analogous product, the following values are anticipated. The measured ecotoxicity is that of the hydrolised product, generally under conditions maximizing production of soluble species. Even so, the observed ecotoxicity is low/very low. A pond study showed gross contamination caused no significant toxic effects on a wide variety of flora in all trophic levels (including fish), no detectable Diaminodiphenylmethane (MDA), and no evidence of bioaccumulation of MDI or MDA.

AQUATIC TOXICITY

Ingredient	Test	Endpoint	Exposure	Species	Result
Diphenylmethane 4,4'- Disocyanate	OECD 202 *Daphnia* sp. Acute Immobilization Test	Acute EC50	25 hours static		
	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours static		
	OECD 211 *Daphnia Magna* Reproduction Test	Chronic NOEC	21 days semi-static		

Ingredient	Test	Endpoint	Exposure	Species	Result
Homopolymer of Methylenediphenyl Disocyanate	OECD 201 Alga, Growth Inhibition Test	Chronic NOEC	72 hours static		
	OECD 201 Alga, Growth Inhibition Test	Acute EC50	72 hours static		
	OECD 209 Activated Sludge, Respiration Inhibition Test	Acute EC50	3 hours static		
	OECD 202 *Daphnia* sp. Acute Immobilization Test	Acute EC50	24 hours static		
	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours static		
	OECD 211 *Daphnia Magna* Reproduction Test	Chronic NOEC	21 days semi-static		
Diphenylmethane-2,4'- Diisocyanate	OECD 209 Activated Sludge, Respiration Inhibition Test	Acute EC50	3 hours static		
	OECD 202 *Daphnia* sp. Acute Immobilization Test	Acute EC50	24 hours static		
	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours static		
	OECD 211 *Daphnia Magna* Reproduction Test	Chronic NOEC	24 hours semi-static		

PERSISTENCE AND DEGRADABILITY

Ingredient	Test	Period	Result
Diphenylmethane 4,4'- Diisocyanate OECD 302C Inherent Biodegradability: Modified MITI Test (II) 28 days 0 %	OECD 302C Inherent Biodegradability: Modified MITI Test (II)	28 days	0%
Homopolymer of Methylenediphenyl Diisocyanate	OECD 302C Inherent Biodegradability: Modified MITI Test (II)	28 days	0%
Diphenylmethane-2,4'- Diisocyanate	OECD 302C Inherent Biodegradability: Modified MITI Test (II)	28 days	0%

Conclusion/Summary:

Diphenylmethane 4,4'-Diisocyanate: Not biodegradable

Ingredient	Aquatic Half Life	Photolysis	Biodegradability
Diphenylmethane 4,4'- Diisocyanate OECD 302C Inherent Biodegradability: Modified MITI Test (II) 28 days 0 %	Fresh water 0.83 days	-	Not readily
Homopolymer of Methylenediphenyl Diisocyanate	Fresh water 0.83 days	-	Not Readily
Diphenylmethane-2,4'- Diisocyanate	Fresh water 0.83 days	-	Not Readily

BIOACCUMULATIVE POTENTIAL

Ingredient	LogPow	BCF	Potential
Diphenylmethane 4,4'- Diisocyanate OECD 302C Inherent Biodegradability: Modified MITI Test (II) 28 days 0 %	4.51	200-	Low
Homopolymer of Methylenediphenyl Diisocyanate	8.56	-200	Low
Diphenylmethane-2,4'- Diisocyanate	4.51	-200	Low

Mobility in Soil:

Mobility: By considering the production and use of the substance, it is unlikely that significant environmental exposure in the air or water will arise. Immiscible with water, but will react with water to produce inert and non-biodegradable solids. Conversion to soluble products, including Diamino- Diphenylmethane (MDA), is very low under the optimal laboratory conditions of good dispersion and low concentration. In air, the predominant degradation process is predicted to be a relatively rapid OH radical attack, by calculation and by analogy with related Diisocyanates.

Other Adverse Effects: No known significant effects or critical hazards.

BOD5 Not Determined
COD Not Determined
TOC Not Determined

Section 13 – **Waste Disposal**

Waste Disposal Method: Dispose of material according to federal, state, and local regulations.

Section 14 – **Transport Information**

DOT: Not Regulated (single containers less than 5,000 pounds)

IMO/IMDG: Not Regulated

Section 15 – **Regulatory Information**

Component(s) 4,4'-DIPHENYLMETHANE DIISOCYANATE CAS# 101-68-8 and Modified MD CAS# NOT LISTED:
This material is classified as hazardous under OSHA hazard communication standard 29 CFR 1910.1200. HCS Classification: Class – Toxic, Irritating substance, Sensitizing substance. Components are on the TSCA list. Canadian Regulations: This product has been classified in accordance with the hazard criteria of the CPR (controlled Products Regulations) Class D-1A Material Causing immediate and serious toxic effects (very toxic). Class D-2A Material causing other toxic effects (Very Toxic). Class D-2b material causing other toxic effects (Toxic).

Section 16 – **Other Information**

DISCLAIMER: The information Contained herein is based on the data available and is believed to be accurate, However, the manufacturer makes no warranty expressed or implied regarding the accuracy of this data or the results obtained from the use thereof. Accordingly, we assume no responsibility for injury from the use of this product.

Label Requirements:

Harmful by inhalation. Irritating to eyes and respiratory system. May cause sensitization by inhalation and skin contact.
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.
A hyper-reactive response to even minimal concentrations of Diisocyanates may develop in sensitized persons.
The onset of the respiratory symptoms may be delayed for several hours after exposure.
Reacts slowly with water to produce carbon dioxide which may rupture closed containers.
This reaction accelerates at higher temperatures.

N/A = Not Available

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