



Kit Revision Date: 26/10/2021

8820 HIGH TEMPERATURE RIGID URETHANE KIT

MG Chemicals Multipart Product Kit

This product is a kit made up of multiple parts. Each part is an independently packaged chemical component and has independent hazard assessments.

Kit Content

<i>Part</i>	<i>Product Name</i>	<i>Product Use</i>
A	8820-A	Urethane resin for use with hardeners
B	8820-B	Urethane hardener for use with resins

Safety Data Sheets for each part listed above follow this cover sheet.

Transportation Instruction

Before offering this product kit for transport, read Section 14 for all parts listed above.

8820-A

HIGH TEMPERATURE RIGID URETHANE

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: 8820-A**Other Means of Identification:** High Temperature Rigid Urethane**Related Part #** 8820-375ML, 8820-2.55L, 8820-10.8L, 8820-60L

Recommended Use and Restriction on Use

Use: Urethane resin for use with hardeners**Uses Advised Against:** Not applicable

Details of Manufacturer or Importer

ManufacturerMG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADAMG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA**☎** +1-800-340-0772**Fax** +1-800-340-0773**E-mail** support@mgchemicals.com**Web** www.mgchemicals.com**E-MAIL** (Competent Person): sds@mgchemicals.com**☎** +1-905-331-1396**Fax** +1-905-331-2682**E-mail** info@mgchemicals.com

Emergency Phone Number



For hazardous material incidents ONLY (leaks, spills, fires, exposures or accidents)
USA or CANADA—Call Verisk 3E at **+1-866-519-4752** or **+1-760-476-3962**
(Service access code: 335388)**For emergencies involving the transport of dangerous goods;** 24/7 service
CANADA—Call CANUTEC collect at **+1-613-996-6666** or ***666** on cellular phones

8820-A
HIGH TEMPERATURE RIGID URETHANE
Section 2: Hazard(s) Identification
Classification of Hazardous Chemical
GHS Categories

Criteria		Category	Signal Word	Pictograms
Sensitization	Skin	1	Warning	Exclamation
Reproductive Toxicity		2	Warning	Health
Hazardous to the Aquatic Environment	Chronic	3	none	none

Note: The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity), which is opposite to HMIS and NFPA conventions. Severity category rankings do not allow comparisons between classes.

Label Elements

Signal Word	Warning
Pictograms	Hazard Statements
	H317: May cause an allergic skin irritation
	H361: Suspected of damaging fertility or the unborn child
<i>none mandated</i>	H412: Harmful to aquatic life with long lasting effects

Section continued on the next page

8820-A
HIGH TEMPERATURE RIGID URETHANE
Continued...

Prevention	Precautionary Statements
P102	Keep out of reach of children.
P201 + P202	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing mist, vapors, or spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves, protective clothing, and eye protection or face protection.
P273	Avoid release to the environment.
Response	Precautionary Statements
P302 + P352	IF ON SKIN: Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice or attention.
P308 + P313	If exposed or concerned: Get medical advice or attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
Storage	Precautionary Statements
P405	Store locked up.
Disposal	Precautionary Statements
P501	Dispose of contents in accordance to local, regional, national, and international regulations.

Hazards Not Otherwise Specified

Other Criteria	Hazard Statements/Precautionary Statement	Signal Word	Pictograms
None	None	None	None

Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
1318-02-1	zeolite	7%
25068-38-6	reaction product: bisphenol-A-(epichlorohydrin)	3%
1333-86-4	carbon black	0.9%
68609-97-2	alkyl glycidyl ether	0.7%
67-56-1	methanol	0.1%

8820-A
HIGH TEMPERATURE RIGID URETHANE
Section 4: First-Aid Measures

<i>Exposure Condition</i>	<i>GHS Code/Symptoms/Precautionary Statements</i>
IF ON SKIN	P302 + P352, P362 + P364
Immediate Symptoms	<i>dry skin, allergic dermatitis, redness</i>
Response	Wash with plenty of water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice or attention.
IF INHALED	P304 + P340, P308 + P313
Immediate Symptoms	<i>low toxicity</i>
Response	Remove person to fresh air and keep comfortable for breathing. IF exposed or concerned: Get medical advice or attention.
IF IN EYES	P305 + P351 + P338
Immediate Symptoms	<i>low toxicity: redness, pain, blurred vision</i>
Response	Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF SWALLOWED	P301 + P330, P331
Immediate Symptoms	<i>low toxicity: abdominal pain, nausea, diarrhea, (see inhalation symptoms)</i>
Response	Rinse mouth. Do NOT induce vomiting.

Section 5: Fire-Fighting Measures

Extinguishing Media	Use extinguishing media suitable for surrounding materials.
Specific Hazards	Not flammable or combustible, but burns if involved in a fire. Produces irritating smoke of unknown toxicity in fires. Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Produces carbon oxides (CO,CO ₂) and toxic fumes.
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

8820-A**HIGH TEMPERATURE RIGID URETHANE****Section 6: Accidental Release Measures**

Personal Protection	See personal protection recommendations in Section 8.
Precautions for Response	Avoid breathing the mist, spray, or vapors. Remove or keep away all sources of ignition or extreme heat.
Environmental Precautions	Avoid releasing to the environment. Prevent spill from entering drains and waterways.
Containment Methods	Contain with inert and nonflammable absorbent (such as soil, sand, vermiculite).
Cleaning Methods	Collect liquid in a sealable, solvent-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wash spill area with soap and water to remove the last traces of residue.
Disposal Methods	Dispose of spill waste according to Section 13.

Section 7: Handling and Storage

Prevention	Keep out of reach of children. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing mist, vapors, or spray. Avoid release to the environment.
Handling	Wear protective gloves, protective clothing, and eye protection or face protection. Contaminated work clothing should not be allowed out of the workplace. Take off contaminated clothing and wash it before reuse.
Storage	Store locked up.

8820-A
HIGH TEMPERATURE RIGID URETHANE
Section 8: Exposure Controls/Personal Protection
Substances with Occupational Exposure Limit Values

Chemical Name	Country/Province	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
zeolite ^{a)}	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	10 mg/m ³ 15 mg/m ³ Not established Not established Not established Not established	3 mg/m ³ 5 mg/m ³ Not established Not established Not established Not established
carbon black ^{b)}	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	3.5 mg/m ³ 3.5 mg/m ³ 3.5 mg/m ³ 3 mg/m ³ 3.5 mg/m ³ 3.5 mg/m ³	Not established Not established Not established Not established Not established Not established
methanol	ACGIH ^{c)} U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	200 ppm 200 ppm 200 ppm 200 ppm (Skin) 200 ppm (Skin) 200 ppm (Skin)	250 ppm Not established 250 ppm 250 ppm 250 ppm 250 ppm

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the RTECS database² and from suppliers' SDSs were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

Skin—can be absorbed through the skin

a) Supplier SDS

b) Respirable airborne particles.

c) TLV Basis: headache; eye dam; dizziness; nausea

Engineering Controls
Ventilation

Keep airborne concentrations below the occupational exposure limits (OEL).

Because carbon black is bound to the liquid mixture, it does not present an airborne hazard under normal use.

Section continued on the next page

8820-A**HIGH TEMPERATURE RIGID URETHANE****Personal Protective Equipment****Eye protection**

Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Ensure that glasses have side shields for lateral protection.

Skin Protection

For likely contacts, use of protective butyl rubber or other chemically resistant gloves.

For incidental contacts, use nitrile or other chemically resistant gloves.

Respiratory Protection

For over-exposures up to 10 x OEL of mist, vapors, or spray, wear respirator such as a half-mask respirator with organic vapor cartridges.

Above 10 x OEL, use a positive-pressure, air-supplied respirator or a self-contained breathing apparatus.

RECOMMENDATION: Consult your local safety supply store to ensure that your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in Section 3. The respirator should be fitted to the employee by a professional. Ensure vapor cartridges are stored in sealed plastic bags when not being used.

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

8820-A
HIGH TEMPERATURE RIGID URETHANE
Section 9: Physical and Chemical Properties

Physical State	Liquid	Lower Flammability Limit	Not available
Appearance	Black	Upper Flammability Limit	Not available
Odor	Mild	Vapor Pressure @20 °C	Not available
Odor Threshold	Not available	Vapor Density	Not available
pH	Not available	Relative Density @25 °C	1.15
Freezing/Melting Point	Not available	Solubility in Water	Insoluble
Initial Boiling Point ^{a)}	35 °C [95 °F]	Partition Coefficient n-octanol/water	Not available
Flash Point ^{a)}	>100 °C [212 °F]	Auto-ignition Temperature ^{a)}	≥385 °C [≥725 °F]
Evaporation Rate	<1 (ButAc = 1)	Decomposition Temperature	Not available
Flammability	Not applicable	Viscosity @25 °C	305 mm ² /s

a) Values based on the principal component.

Section 10: Stability and Reactivity

Reactivity	Not available
Chemical Stability	Chemically stable at normal temperatures and pressures.
Conditions to Avoid	Direct sunlight, high temperatures, open flames, sparks and incompatible substances.
Incompatibilities	Strong oxidizing agents, strong acids, alkali
Polymerization	Will not occur
Decomposition	Product decomposes at 270 °C without melting. For thermal decomposition, see combustion products in Section 5.

8820-A**HIGH TEMPERATURE RIGID URETHANE****Section 11: Toxicological Information****Summary of Effects and Symptoms by Routes of Exposure**

Eyes	Low toxicity: May cause redness, pain, and blurred vision.
Skin	May cause dry skin, redness and allergic dermatitis.
Inhalation	Low toxicity
Ingestion	Low toxicity: May abdominal pain, nausea, and diarrhea. See also inhalation symptoms.
Chronic	Prolonged or repeated exposure may cause skin may cause skin allergies.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
zeolite	Not Available	Not Available	Not Available
reaction product: bisphenol-A-(epichlorohydrin)	>2 000 mg/kg Rat	>2 000 mg/kg Rat	Not Available
carbon black	15 400 mg/kg Rat	3 000 mg/kg Rabbit	Not Available
alkyl glycidyl ether	19 200 mg/kg Rat	4 000 mg/kg Rabbit	Not Available
methanol	5 628 mg/kg Rat	15 800 mg/kg Rabbit	64 000 ppm Rat 8 h

Note: Toxicity data from the RTECS² and ECHA databases were consulted. The data from supplier SDSs were also consulted.

Section continued on the next page

8820-A**HIGH TEMPERATURE RIGID URETHANE****Other Toxicological Effects****Skin Corrosion/Irritation**

Based on available data, the classification criteria are not met.

Serious Eye Damage/Irritation

Based on available data, the classification criteria are not met.

Sensitization
(allergic reactions)

Reaction product: bisphenol-A-(epichlorohydrin) and alkyl glycidyl ether may cause skin sensitization.

Carcinogenicity
(risk of cancer)

Carbon black are possibly carcinogenic by airborne routes of exposures.

Because the carbon black is bound in the epoxy liquid mixture, it is not available as an airborne hazard (dust, mist, or spray) under normal use.

Carbon Black [1333-86-4]

IARC Group 2B: Possibly carcinogenic to humans

ACGIH A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans

CA Prop 65: Listed as a carcinogen (airborne, as unbound particles of respirable size)

NTP: Not listed

Mutagenicity
(risk of heritable genetic effects)

Based on available data, the classification criteria are not met.

Reproductive Toxicity
(risk to sex functions)

According to studies by EPA, birth defects have been observed in the offspring of rats and mice exposed to methanol by inhalation.

Teratogenicity
(risk of fetus malformation)

Based on available data, the classification criteria are not met.

STOT-Single Exposure

Based on available data, the classification criteria are not met.

STOT-Repeated Exposure

Based on available data, the classification criteria are not met.

Aspiration Hazard

Based on available data, the classification criteria are not met. There are no cat 1 substances, and the kinematic viscosity is $>20.5 \text{ mm}^2/\text{s}$ at $40 \text{ }^\circ\text{C}$.

8820-A**HIGH TEMPERATURE RIGID URETHANE****Section 12: Ecological Information**

Ecological classifications are based on the IMDG/GHS criteria in conjunction with ecotoxicological data from our suppliers, the European Chemical Agency database (<http://echa.europa.eu>), and other reliable sources.

The reaction product: bisphenol-A-(epichlorohydrin) ingredient is an acute category 2 environmental toxicant

The zeolite, carbon black, alkyl glycidyl ether, methanol ingredient is not classified as an environmental hazard according to GHS criteria.

Acute Ecotoxicity

Available toxicity data does not meet classification thresholds.

Chronic Ecotoxicity

Category 3

Harmful to aquatic life with long lasting effects

Avoid release to the environment.

Biodegradability

Expected to be biodegradable. The volatile solvent constituents will oxidize rapidly in air by photochemical reaction.

Other Effects

Not available

Section 13: Disposal Information

Dispose of contents in accordance with all local, regional, national, and international regulations.

8820-A**HIGH TEMPERATURE RIGID URETHANE****Section 14: Transport Information****Ground**

Refer to TDG (Canadian Transportation of Dangerous Goods regulations) and **USA DOT 49 CFR** (Parts 100 to 185) **Regulations.**

Not Regulated

Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Not Regulated

Sea

Refer to IMDG regulations.

Not Regulated

Note: Shipper must be appropriately trained and certified before involvement with the transport of dangerous goods.

Section 15: Regulatory Information**Canada****Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)**

All hazardous ingredients are listed on the DSL.

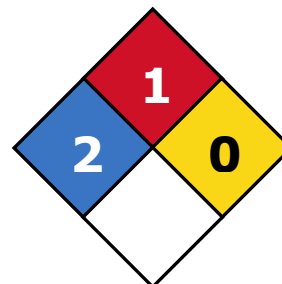
Hazardous Products Act (R.S.C., 1985, c. H-3)

The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2015.

Section continued on the next page

8820-A**HIGH TEMPERATURE RIGID URETHANE****USA****Other Classifications****HMIS[®] RATING**

HEALTH:	*	2
FLAMMABILITY:		1
PHYSICAL HAZARD:		0
PERSONAL PROTECTION:		

NFPA[®] 704 CODES

Approximate HMIS and NFPA Risk Ratings Legend:

0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

CAA (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

This product does not contain any class 2 ozone depleting substances.

This product contains methyl methacrylate, which is listed as hazardous air pollutants.

EPCRA (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45)

This product contains methanol (CAS# 67-56-1; reportable quantity = 5 000 lb), which is subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, USA).

This product contains carbon black, but it is bound and exposures during normal conditions of uses are below the Safe Harbor Threshold.

This product contains methanol, which is listed as reproductively toxic in California.

Section continued on the next page

8820-A**HIGH TEMPERATURE RIGID URETHANE****Europe****RoHS** (Restriction of Hazardous Substances Directive)

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, PBDE's, DEHP, BBP, DBP, or DIBP and complies with European RoHS regulations.

WEEE (Waste Electrical and Electronic Equipment Directive)

This product is not a piece of electrical or electronics equipment and is therefore not governed by this regulation.

Section 16: Other Information

SDS Prepared by Michel Hachey

Date of Creation 04 March 2020

Supersedes 05 June 2018

Reason for Changes: Change to emergency phone numbers.

Reference

1) ACGIH 2017 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2017).

2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

Section continued on the next page

8820-A**HIGH TEMPERATURE RIGID URETHANE****Abbreviations**

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
IARC	International Agency for Research on Cancer
NOELR	No observable effect loading ratio
NTP	National Toxicology Program
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
SDS	Safety Data Sheet
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content
Wt	Weight

Technical Queries Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions, and FAQs are located at www.mgchemicals.com.

Email: support@mgchemicals.com

Mailing Addresses *Manufacturing & Support*
1210 Corporate Drive
Burlington, Ontario, Canada
L7L 5R6

Head Office
9347-193rd Street
Surrey, British Columbia, Canada
V4N 4E7

Disclaimer This safety data sheet is provided as an information resource only. *M.G. Chemicals, Ltd.* believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to query and verify any information seeming suspect where doubt on the validity may exist. The buyer assumes all responsibility of using and handling the product in accordance with local, regional, national, and international regulations.

8820-B

HIGH TEMPERATURE RIGID URETHANE

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: 8820-B**Other Means of Identification:** High Temperature Rigid Urethane**Related Part #** 8820-375ML, 8820-2.55L, 8820-10.8L, 8820-60L

Recommended Use and Restriction on Use

Use: Urethane hardener for use with resins**Uses Advised Against:** FOR INDUSTRIAL USE ONLY

Details of Manufacturer or Importer

Manufacturer

MG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA

MG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA

Phone +1-800-340-0772**Fax** +1-800-340-0773**E-mail** support@mgchemicals.com**Web** www.mgchemicals.com**E-mail** (Competent Person): sds@mgchemicals.com**Phone** +1-905-331-1396**Fax** +1-905-331-2682**E-mail** info@mgchemicals.com

Emergency Phone Number

For hazardous material incidents ONLY (leaks, spills, fires, exposures or accidents)
USA or CANADA—Call Verisk 3E at **+1-866-519-4752** or **+1-760-476-3962**
(Service access code: 335388)

For emergencies involving the transport of dangerous goods; 24/7 service
CANADA—Call CANUTEC collect at **+1-613-996-6666** or ***666** on cellular phones



8820-B
HIGH TEMPERATURE RIGID URETHANE
Section 2: Hazard(s) Identification
Classification of Hazardous Chemical
GHS Categories

Criteria		Category	Signal Word	Pictograms
Sensitization	Respiratory	1	Danger	Health
Specific Target Organ Toxicity	Repeated Exposure	2	Warning	Health
Sensitization	Skin	1	Warning	Exclamation
Skin Irritation		2	Warning	Exclamation
Eye Irritation		2	Warning	Exclamation
Specific Target Organ Toxicity	Single Exposure	3	Warning	Exclamation
Acute Toxicity	Inhalation	4	Warning	Exclamation

Note: The degree of severity is ranked within each hazard class from

1 (Highest Severity) to up to 5 (Lowest Severity), which is opposite to HMIS and NFPA conventions. Severity category rankings do not allow comparisons between classes.

Label Elements

Signal Word	DANGER
Pictograms	Hazard Statements
	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled H373: Causes damage to respiratory system through prolonged or repeated exposure by inhalation
	H317: May cause an allergic skin irritation H315: Causes skin irritation H319: Causes serious eye irritation H335: May cause respiratory irritation H332: Harmful if inhaled

Section continued on the next page

8820-B
HIGH TEMPERATURE RIGID URETHANE
Continued...

Prevention	Precautionary Statements
P102	Keep out of reach of children.
P260	Do not breathe mist, vapors, or spray.
P271	Use only outdoors or in a well-ventilated area.
P284	In case of inadequate ventilation, wear respiratory protection.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves and eye protection or face protection.
P264	Wash hand thoroughly after handling.
Response	Precautionary Statements
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342 + P311, P312	If experiencing respiratory symptoms or if you feel unwell: Call a POISON CENTER or doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses. If present and easy to do. Continued rinsing.
P337 + P313	If eye irritation persists: Get medical advice or attention.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice or attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
Storage	Precautionary Statements
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
Disposal	Precautionary Statements
P501	Dispose of contents in accordance to local, regional, national, or international regulations.

Hazards Not Otherwise Specified

Other Criteria	Hazard Statements/Precautionary Statement	Signal Word	Pictograms
None	None	None	None

8820-B
HIGH TEMPERATURE RIGID URETHANE
Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
9016-87-9	polymethylene polyphenylene isocyanate	58%
101-68-8	4,4'-methylenediphenyl diisocyanate	38%
5873-54-1	diphenylmethane-2,4'-diisocyanate	4%
2536-05-2	diphenylmethane-2,2'-diisocyanate	0.2%

Section 4: First-Aid Measures

<i>Exposure Condition</i>	<i>GHS Code/Symptoms/Precautionary Statements</i>
IF INHALED	P304 + P340, P342 + P311, P312
Immediate Symptoms	<i>respiratory irritation, headache, nausea, shortness of breath, sore throat, difficulty breathing</i>
Response	Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms or if you feel unwell: Call a POISON CENTER or doctor.
IF ON SKIN	P302 + P352, P362 + P364, P333 + P313
Immediate Symptoms	<i>dry skin, redness, irritation, allergic dermatitis</i>
Response	Wash with plenty of water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice or attention.
IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	<i>irritation, pain</i>
Response	Rinse cautiously with water for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.
IF SWALLOWED	P301 + P330, P331
Immediate Symptoms	<i>low toxicity</i>
Response	Rinse mouth. Do NOT induce vomiting.

Section continued on the next page

8820-B**HIGH TEMPERATURE RIGID URETHANE****Advise to Physicians**

The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of diisocyanates may develop in sensitized persons.

Section 5: Fire-Fighting Measures

Extinguishing Media	Use extinguishing media suitable for surrounding materials.
Specific Hazards	Not flammable or combustible, but burns if involved in a fire. Produces irritating smoke of unknown toxicity in fires. Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Produces carbon oxides (CO,CO ₂), nitrogen oxides (NO _x), cyanates and toxic fumes.
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

Section 6: Accidental Release Measures

Personal Protection	See personal protection recommendations in Section 8.
Precautions for Response	Do not breathe mist, spray, or vapors. Remove or keep away all sources of ignition or extreme heat.
Environmental Precautions	Avoid releasing to the environment. Prevent spill from entering drains and waterways.
Containment Methods	Contain with inert and nonflammable absorbent (such as soil, sand, vermiculite).
Cleaning Methods	Collect liquid in a sealable, chemically resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wash spill area with soap and water to remove the last traces of residue.
Disposal Methods	Dispose of spill waste according to Section 13.

8820-B
HIGH TEMPERATURE RIGID URETHANE
Section 7: Handling and Storage

- Prevention** Keep out of reach of children.
Do not breathe mist, vapors, or spray. Use only outdoors or in a well-ventilated area.
- Handling** Wear protective gloves and eye protection or face protection.
Wash hand thoroughly after handling.
Contaminated work clothing should not be allowed out of the workplace.
- Storage** Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Section 8: Exposure Controls/Personal Protection
Substances with Occupational Exposure Limit Values

Chemical Name	Country/Province	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
polymethylene polyphenylene isocyanate	ACGIH	Not established	Not established
	U.S.A. OSHA PEL	Not established	Not established
	Canada AB	0.005 ppm	Not established
	Canada BC	Not established	Not established
	Canada ON	Not established	Not established
	Canada QC	Not established	Not established
4,4'-methylenediphenyl diisocyanate	ACGIH ^{a)}	0.005 ppm (RS)	Not established
	U.S.A. OSHA PEL	Not established	0.02 ppm
	Canada AB	0.005 ppm	Not established
	Canada BC	Not established	Not established
	Canada ON	Not established	Not established
	Canada QC	0.005 ppm	Not established

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the RTECS database² and from suppliers' SDSs were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

RS—Respiratory sensitization

Section continued on the next page

8820-B**HIGH TEMPERATURE RIGID URETHANE****Engineering Controls**

Ventilation Keep airborne concentrations below the occupational exposure limits (OEL).

Personal Protective Equipment

Eye protection Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Ensure that glasses have side shields for lateral protection.

Skin Protection For likely contacts, use of protective butyl rubber or other chemically resistant gloves.

For incidental contacts, use nitrile or other chemically resistant gloves.

Respiratory Protection For over-exposures up to 10 x OEL of mist, vapors, or spray, wear respirator such as a half-mask respirator with organic vapor cartridges.

Above 10 x OEL, use a positive-pressure, air-supplied respirator or a self-contained breathing apparatus.

RECOMMENDATION: Consult your local safety supply store to ensure that your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in Section 3. A respiratory protection program that meets OSHA's 29CFR 1910.134 and ANSI Z88.2 requirements or Canadian Standards Association (CSAQ) Standard Z94.4 must be followed whenever workplace conditions warrant a respirator's use. The respirator should be fitted to the employee by a professional. Ensure vapor cartridges are stored in sealed plastic bags when not being used.

NIOSH RECOMMENDATIONS FOR MDI CONCENTRATIONS IN AIR³:

Up to 0.5 mg/m³:
(APF = 10) Any supplied-air respirator

Up to 1.25 mg/m³:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

Section continued on the next page

8820-B**HIGH TEMPERATURE RIGID URETHANE****Respiratory Protection
(con't)**

Up to 2.5 mg/m³:
(APF = 50) Any self-contained breathing apparatus with a full facepiece
(APF = 50) Any supplied-air respirator with a full facepiece

Up to 75 mg/m³:
(APF = 2 000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10 000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10 000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having an N100, R100, or P100 filter.

Any appropriate escape-type, self-contained breathing apparatus

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

8820-B
HIGH TEMPERATURE RIGID URETHANE
Section 9: Physical and Chemical Properties

Physical State	Liquid	Lower Flammability Limit	Not available
Appearance	Brown	Upper Flammability Limit	Not available
Odor	Musty	Vapor Pressure @40 °C	<0.001 hPa [<0.001 mmHg]
Odor Threshold	Not available	Vapor Density	Not available
pH	Not available	Relative Density @25 °C	1.24
Freezing/Melting Point	Not available	Solubility in Water	Insoluble
Initial Boiling Point ^{a)}	208 °C [406.4 °F]	Partition Coefficient n-octanol/water	Not available
Flash Point ^{a)}	198 °C [388.4 °F]	Auto-ignition Temperature ^{a)}	Not available
Evaporation Rate	Not available	Decomposition Temperature	Not available
Flammability	Not applicable	Viscosity @25 °C	216 cP

a) Values based on suppliers SDS.

Section 10: Stability and Reactivity

Reactivity	Not available
Chemical Stability	Chemically stable at normal temperatures and pressures.
Conditions to Avoid	Avoid direct sunlight, high temperatures, open flames, sparks and incompatible substances.
Incompatibilities	Amines, strong bases, alcohols, water
Polymerization	May undergo uncontrolled exothermic polymerization upon contact with incompatible substances or if heated above 175 °C.
Decomposition	For thermal decomposition, see combustion products in Section 5.

8820-B
HIGH TEMPERATURE RIGID URETHANE
Section 11: Toxicological Information
Summary of Effects and Symptoms by Routes of Exposure

Eyes	May cause irritation, pain.
Skin	May cause dry skin, redness, irritation, allergic dermatitis.
Inhalation	May cause respiratory irritation, headache, nausea, shortness of breath, sore throat, and difficulty breathing.
Ingestion	Low toxicity.
Chronic	Prolonged or repeated exposure may cause skin may cause skin allergies.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
polymethylene polyphenylene isocyanate	49 000 mg/kg Rat	>9 400 mg/kg Rabbit	0.49 mg/L 4 h Rat ^{a)}
4,4'-methylenediphenyl diisocyanate	9 200 mg/kg Rat	>9 400 mg/kg Rabbit	0.49 mg/L 4 h Rat ^{a)}
diphenylmethane-2,4'-diisocyanate	>2 000 mg/kg Rat	>9 400 mg/kg Rabbit	0.31 mg/L 4 h Rat ^{a)}
diphenylmethane-2,2'-diisocyanate	>2 000 mg/kg Rat	>9 400 mg/kg Rabbit	0.31 mg/L 4 h Rat ^{a)}

Note: Toxicity data from the RTECS² and ECHA databases were consulted. The data from supplier SDSs were also consulted.

a) According to ECHA tests conducted for MDI were not indicative of normal conditions and therefore results are artificial.

Section continued on the next page

8820-B**HIGH TEMPERATURE RIGID URETHANE****Other Toxicological Effects**

Skin Corrosion/Irritation	All ingredients may cause skin irritation.
Serious Eye Damage/Irritation	All ingredients may cause eye irritation.
Sensitization (allergic reactions)	All ingredients may cause skin sensitization.
Carcinogenicity (risk of cancer)	Based on available data, the classification criteria are not met.
Mutagenicity (risk of heritable genetic effects)	Based on available data, the classification criteria are not met.
Reproductive Toxicity (risk to sex functions)	Based on available data, the classification criteria are not met.
Teratogenicity (risk of fetus malformation)	Based on available data, the classification criteria are not met.
STOT-Single Exposure	All ingredients may cause respiratory irritation.
STOT-Repeated Exposure	All ingredients may cause effects on the lungs, resulting in impaired function.
Aspiration Hazard	Based on available data, the classification criteria are not met. There are no cat 1 substances, and the kinematic viscosity is $>20.5 \text{ mm}^2/\text{s}$ at $40 \text{ }^\circ\text{C}$.

Section 12: Ecological Information

Ecological classifications are based on the IMDG/GHS criteria in conjunction with ecotoxicological data from our suppliers, the European Chemical Agency database (<http://echa.europa.eu>), and other reliable sources.

Polymethylene polyphenylene isocyanate and 4,4'-methylenediphenyl diisocyanate ingredients are not classified as an environmental hazard according to GHS criteria.

Acute Ecotoxicity

Available toxicity data does not meet classification thresholds.

Section continued on the next page

8820-B**HIGH TEMPERATURE RIGID URETHANE****Chronic Ecotoxicity**

Available toxicity data does not meet classification thresholds.

Biodegradability

Not available

Other Effects

Not available

Section 13: Disposal Information

Dispose of contents in accordance with all local, regional, national, and international regulations.

Section 14: Transport Information**Ground**

Refer to TDG (Canadian Transportation of Dangerous Goods regulations) and **USA DOT 49 CFR** (Parts 100 to 185) **Regulations.**

Not Regulated

Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Not Regulated

Sea

Refer to IMDG regulations.

Not Regulated

Note: Shipper must be appropriately trained and certified before involvement with the transport of dangerous goods.

8820-B**HIGH TEMPERATURE RIGID URETHANE****Section 15: Regulatory Information****Canada****Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)**

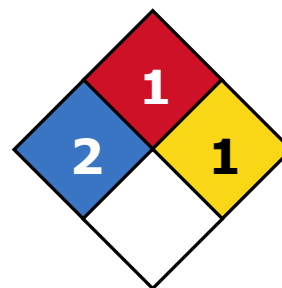
All hazardous ingredients are listed on the DSL.

Hazardous Products Act (R.S.C., 1985, c. H-3)

The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2015.

USA**Other Classifications****HMIS[®] RATING**

HEALTH:	*	2
FLAMMABILITY:		1
PHYSICAL HAZARD:		1
PERSONAL PROTECTION:		

NFPA[®] 704 CODES

Approximate HMIS and NFPA Risk Ratings Legend:

0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

CAA (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

This product does not contain any class 2 ozone depleting substances.

This product contains methyl methacrylate, which is listed as hazardous air pollutants.

EPCRA (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45)

This product does not contain ingredients that are subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

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8820-B**HIGH TEMPERATURE RIGID URETHANE****TSCA** (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, USA).

This product does not contain any substances on the California Proposition 65 list.

Europe**RoHS** (Restriction of Hazardous Substances Directive)

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, PBDE's, DEHP, BBP, DBP, or DIBP and complies with European RoHS regulations.

WEEE (Waste Electrical and Electronic Equipment Directive)

This product is not a piece of electrical or electronics equipment and is therefore not governed by this regulation.

Section 16: Other Information

SDS Prepared by MG Chemical's Regulatory Department

Date of Creation 26 October 2021

Supersedes 16 September 2020

Reason for Changes: Update to section 1.

Reference

1) ACGIH 2017 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2017).

2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

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8820-B**HIGH TEMPERATURE RIGID URETHANE****Abbreviations**

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
IARC	International Agency for Research on Cancer
NOELR	No observable effect loading ratio
NTP	National Toxicology Program
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
SDS	Safety Data Sheet
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content
Wt	Weight

Technical Queries Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions, and FAQs are located at www.mgchemicals.com.

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