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SAFETY DATA SHEET		Revision Date: 05/25/2015
		Print Date: 6/4/2015
		SDS Number: 000000093517
Pliogrip™ FLEXIBLE FOAM 50ML ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 603465		Version: 1.1

29 CFR 1910.1200 (OSHA HazCom 2012)

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Trade name : Pliogrip™ FLEXIBLE FOAM 50ML
ADHESIVE
™ Trademark, Ashland or its subsidiaries, registered in
various countries

Recommended use of the chemical and restrictions on use

Use of the Substance/Mixture : Adhesives
Industrial chemical

Details of the supplier of the safety data sheet Ashland P.O. Box 2219 Columbus, OH 43216 United States of America EHS Customer Requests@ashland.com	Emergency telephone number 1-800-ASHLAND (1-800-274-5263) Regulatory Information Number 1-800-325-3751 Product Information 614-790-3333
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SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Inhalation) : Category 4

Skin corrosion : Category 1

Serious eye damage : Category 1

Respiratory sensitization : Category 1

Skin sensitization : Category 1

Reproductive toxicity : Category 1B

Specific target organ systemic toxicity - single exposure (Oral) : Category 1 (thymus gland)

Specific target organ systemic toxicity - single exposure : Category 3 (Respiratory system)

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Specific target organ systemic toxicity - repeated exposure (Oral) : Category 1 (thymus gland)

Specific target organ systemic toxicity - repeated exposure (Inhalation) : Category 2 (Respiratory system, Respiratory Tract)

GHS Label element

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
Causes serious eye damage.
Harmful if inhaled.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.
May damage fertility or the unborn child.
Causes damage to organs (thymus gland) if swallowed.
Causes damage to organs (thymus gland) through prolonged or repeated exposure if swallowed.
May cause damage to organs (Respiratory system, Respiratory Tract) through prolonged or repeated exposure if inhaled.

Precautionary Statements : **Prevention:**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
In case of inadequate ventilation wear respiratory protection.
Response:
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue

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rinsing. Immediately call a POISON CENTER or doctor/physician.
 IF exposed: Call a POISON CENTER or doctor/ physician.
 If skin irritation or rash occurs: Get medical advice/ attention.
 Wash contaminated clothing before reuse.

Storage:

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

Disposal:

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

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

PART A

Substance / Mixture : Mixture

Hazardous components

Chemical Name	CAS-No.	Classification	Concentration (%)
4,4'-DIPHENYLMETHANE DIISOCYANATE	101-68-8	Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2A; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 STOT SE 3; H335 STOT RE 2; H373	49.00
METHYLENE DIPHENYLISOCYANATE	26447-40-5	Acute Tox. 4; H332 Skin Irrit. 2; H315 Resp. Sens. 1A; H334 Skin Sens. 1A; H317 STOT SE 3; H335 STOT RE 2; H373	30.00

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POLYMETHYLENE POLYPHENYL ISOCYANATE	9016-87-9	Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2A; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 STOT SE 3; H335 STOT RE 2; H373	10.00
1-ISOCYANATO-2-((4- ISOCYANATO- PHENYL)METHYL)-BENZ	5873-54-1	Skin Irrit. 2; H315 Eye Irrit. 2A; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317	1.00

PART B

Substance / Mixture : Mixture

Chemical nature : Defatter

Hazardous components

Chemical Name	CAS-No.	Classification	Concentration (%)
CATALYST	800986-5739P	Skin Corr. 1; H314 Eye Irrit. 2A; H319 Skin Sens. 1; H317 Repr. 1B; H360 STOT SE 1; H370 STOT RE 1; H372	>= 5.00 - < 10.00

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The identity of one or more component(s) is being withheld under business confidentiality.

BUTANEDIOL-1,4	110-63-4	Acute Tox. 4; H302 STOT SE 3; H336	5.00
Bis(2-dimethylaminoethyl)(methyl)amine	3030-47-5	Flam. Liq. 4; H227 Acute Tox. 4; H302 Acute Tox. 3; H311 Skin Corr. 1; H314 Eye Dam. 1; H318	5.00

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : Move to fresh air.
Call a physician or poison control centre immediately.
Keep patient warm and at rest.
If unconscious place in recovery position and seek medical advice.
- In case of skin contact : Remove contaminated clothing. If irritation develops, get medical attention.
If on skin, rinse well with water.
Wash contaminated clothing before re-use.
- In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Protect unharmed eye.
- If swallowed : Get medical attention immediately.

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Do NOT induce vomiting.
Rinse mouth with water.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed : Pulmonary edema may be delayed.
Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:
stomach or intestinal upset (nausea, vomiting, diarrhea)
irritation (nose, throat, airways)
Cough
Lung irritation
Headache
chest pain
Shortness of breath
lung edema (fluid buildup in the lung tissue)
Difficulty in breathing
May cause an allergic skin reaction.
Causes serious eye damage.
Harmful if inhaled.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.
May damage fertility or the unborn child.
Causes damage to organs if swallowed.
Causes damage to organs through prolonged or repeated exposure if swallowed.
May cause damage to organs through prolonged or repeated exposure if inhaled.
Causes severe burns.

Notes to physician : No hazards which require special first aid measures.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Water spray
Foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : High volume water jet

Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion : carbon dioxide and carbon monoxide

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- products : Hydrogen cyanide (hydrocyanic acid)
Isocyanates
Nitrogen oxides (NOx)
Hydrocarbons
stannic oxide fumes
toxic fumes
- Specific extinguishing methods :

Product is compatible with standard fire-fighting agents.
- Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.
- Other information : Comply with all applicable federal, state, and local regulations.

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Avoid formation of aerosol.
Provide sufficient air exchange and/or exhaust in work rooms.
Do not breathe vapours/dust.
Do not smoke.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Container hazardous when empty.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.

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Smoking, eating and drinking should be prohibited in the application area.
For personal protection see section 8.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

PART A

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
4,4'-DIPHENYLMETHANE DIISOCYANATE	101-68-8	TWA	0.005 ppm	ACGIH
		REL	0.005 ppm 0.05 mg/m3	NIOSH/GUIDE
		Ceil_Time	0.020 ppm 0.2 mg/m3	NIOSH/GUIDE
		Ceiling	0.02 ppm 0.2 mg/m3	OSHA_TRANS
POLYMETHYLENE POLYPHENYL ISOCYANATE	9016-87-9	TWA	0.005 ppm	ACGIH
		REL	0.005 ppm 0.05 mg/m3	NIOSH/GUIDE
		Ceil_Time	0.020 ppm 0.2 mg/m3	NIOSH/GUIDE
		Ceiling	0.02 ppm 0.2 mg/m3	OSHA_TRANS

PART B

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
CATALYST	800986- 5739P	TWA	0.1 mg/m3 (as Sn)	ACGIH
		STEL	0.2 mg/m3 (as Sn)	ACGIH
		PEL	0.1 mg/m3	OSHA_TRANS

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			(as Sn)	NS
		REL	0.1 mg/m3 (as Sn)	NIOSH/GUID E

Engineering measures : Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.
Diisocyanates have poor warning properties. An air-purifying respirator with an organic vapor cartridge and an N95 prefilter can be used safely and effectively to reduce exposure, provided that appropriate cartridge change schedules are developed to ensure that cartridges are changed before breakthrough occurs. The employer is required to select the appropriate respirator for each situation and must consider potential exposure to chemicals in addition to diisocyanates.

Hand protection
Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Wear chemical splash goggles and face shield when there is potential for exposure of the eyes or face to liquid, vapor or mist.
Maintain eye wash station in immediate work area.

Skin and body protection : Wear as appropriate:
impervious clothing
Chemical resistant apron
Safety shoes
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Discard gloves that show tears, pinholes, or signs of wear.
Wear resistant gloves (consult your safety equipment supplier).

Hygiene measures : Wash hands before breaks and at the end of workday.
When using do not eat or drink.
Ensure that eyewash stations and safety showers are close to the workstation location.
When using do not smoke.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

PART A

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Physical state : liquid

Odour : No data available

Odour Threshold : No data available

pH : No data available

Melting point/freezing point : No data available

Boiling point/boiling range : No data available

Flash point : > 300.00 °F / > 148.89 °C

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Upper explosion limit : No data available

Lower explosion limit : No data available

Vapour pressure : < 0.001 mmHg (25 °C)
Value for Component

Relative vapour density : 8.5(Air = 1.0)

Relative density : No data available

Density : 1.078 g/cm³ (25 °C)

Solubility(ies)

Water solubility : No data available

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available

Thermal decomposition : No data available

Viscosity

Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

Oxidizing properties : No data available

PART B

Physical state : liquid

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Colour : black

Odour : mild
No data available

Flash point : > 200.1 °F / > 93.4 °C

Vapour pressure : < 0.04 mmHg (20 °C)

Relative vapour density : > 1AIR=1

Density : > 1 g/cm3

Solubility(ies)
Water solubility : slightly soluble
No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No decomposition if stored and applied as directed.

Chemical stability : Stable under recommended storage conditions.

Possibility of hazardous reactions : Product will not undergo hazardous polymerization.

Conditions to avoid : temperatures above 350 degrees F (177 degrees C)
Freezing temperatures.
Exposure to moisture
Exposure to light.

Incompatible materials : Acids
Alcohols
alkenes
aluminum
Amines
Ammonia
Bases
Copper alloys
Iron
Reducing agents
strong bases
Strong oxidizing agents
UV light.
water
Zinc

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Hazardous decomposition
products

carbon dioxide and carbon monoxide
Hydrocarbons
Hydrogen cyanide (hydrocyanic acid)
Isocyanates
Nitrogen oxides (NOx)
stannic oxide fumes

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation
Skin contact
Eye Contact
Ingestion

Acute toxicity

Harmful if inhaled.

Components:

CATALYST:

Acute oral toxicity : LD 50 (Rat): 2,071 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD 50 (Rabbit): > 2,000 mg/kg

Components:

4,4'-DIPHENYLMETHANE DIISOCYANATE:

Acute oral toxicity : LD 50 (Rat): 9,200 mg/kg

Acute inhalation toxicity : LC 50 (Rat): 0.369 mg/l
Exposure time: 4 h

LC 50 (Rat): > 2.24 mg/l

Exposure time: 1 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403

Assessment: The component/mixture is classified as acute inhalation toxicity, category 4.

Acute dermal toxicity : LD 50 (Rabbit): > 7,900 mg/kg

METHYLENE DIPHENYLISOCYANATE:

Acute oral toxicity : LD 50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 425

GLP: yes

Remarks: Information given is based on data obtained from similar substances.

Acute inhalation toxicity : Assessment: The component/mixture is classified as acute inhalation toxicity, category 4.

Acute dermal toxicity : LD50 (Rabbit): > 9,400 mg/kg

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Remarks: Information given is based on data obtained from similar substances.

Benzene, 1,1'-methylenebis[isocyanato polymer and:

Acute oral toxicity : LD 50 (Rat): 9,200 mg/kg

Remarks: Information given is based on data obtained from similar substances.

Acute inhalation toxicity : LC 50 (Rat): > 2.24 mg/l

Exposure time: 1 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403

Assessment: The component/mixture is classified as acute inhalation toxicity, category 4.

Remarks: Information given is based on data obtained from similar substances.

Acute dermal toxicity : LD 50 (Rabbit): > 7,900 mg/kg

Remarks: Information given is based on data obtained from similar substances.

POLYMETHYLENE POLYPHENYL ISOCYANATE:

Acute oral toxicity : LD 50 (Rat): > 10,000 mg/kg

Acute inhalation toxicity : LC 50 (Rat): > 2.24 mg/l

Exposure time: 1 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403

Assessment: The component/mixture is classified as acute inhalation toxicity, category 4.

Acute dermal toxicity : LD 50 (Rabbit): > 10,000 mg/kg

BUTANEDIOL-1,4:

Acute oral toxicity : LD 50 (Rat): 1,500 mg/kg

Acute inhalation toxicity : LC 50 (Rat): > 5.1 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Target Organs: Nervous system

Symptoms: Drowsiness

LC 50 (Rat): > 15 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Target Organs: Nervous system

Symptoms: Loss of balance

Acute dermal toxicity : LD 50 (Rat): > 2,000 mg/kg

Assessment: No adverse effect has been observed in acute dermal toxicity tests.

Bis(2-dimethylaminoethyl)(methyl)amine:

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Acute oral toxicity : LD50 (Rat): ca. 1,330 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 290 ppm
Exposure time: 6 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
GLP: yes
Remarks: No mortality observed at this dose.

LC50 (Rat): 8.38 mg/l
Exposure time: 8 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
Remarks: No mortality observed at this dose.

Acute dermal toxicity : LD50 (Rabbit): > 200 - < 1,000 mg/kg

LD50 (Rabbit): > 200 mg/kg
Method: OECD Test Guideline 402
Remarks: No mortality observed at this dose.

Skin corrosion/irritation

Causes severe burns.

Product:

Remarks: May cause skin irritation in susceptible persons., Causes severe skin burns and eye damage.

Components:

CATALYST:

Species: Rat

Method: OECD Test Guideline 402

Result: Corrosive to skin

Components:

4,4'-DIPHENYLMETHANE DIISOCYANATE:

Result: Irritating to skin

METHYLENE DIPHENYLISOCYANATE:

Result: Irritating to skin

Remarks: Information given is based on data obtained from similar substances.

Benzene, 1,1'-methylenebis[isocyanato polymer and:

Result: Irritating to skin

Remarks: Information given is based on data obtained from similar substances.

POLYMETHYLENE POLYPHENYL ISOCYANATE:

Result: Irritating to skin

BUTANEDIOL-1,4:

Result: No skin irritation

Bis(2-dimethylaminoethyl)(methyl)amine:

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Species: Rabbit
Method: OECD Test Guideline 404
Result: Corrosive to skin

1-ISOCYANATO-2-((4-ISOCYANATO-PHENYL)METHYL)-BENZ:
Result: Irritating to skin

Serious eye damage/eye irritation

Causes serious eye damage.

Product:

Remarks: May cause irreversible eye damage.

Components:

CATALYST:

Species: Rabbit
Result: Severely irritating to eyes
Method: OECD Test Guideline 405

Components:

4,4'-DIPHENYLMETHANE DIISOCYANATE:

Result: Irritating to eyes

METHYLENE DIPHENYLISOCYANATE:

Result: Not irritating to eyes

Remarks: Information given is based on data obtained from similar substances.

Benzene, 1,1'-methylenebis[isocyanato polymer and:

Result: Irritating to eyes

Remarks: Information given is based on data obtained from similar substances.

POLYMETHYLENE POLYPHENYL ISOCYANATE:

Result: Irritating to eyes

BUTANEDIOL-1,4:

Result: No eye irritation

Bis(2-dimethylaminoethyl)(methyl)amine:

Species: Rabbit
Result: Corrosive to eyes
Method: OECD Test Guideline 405

1-ISOCYANATO-2-((4-ISOCYANATO-PHENYL)METHYL)-BENZ:

Result: Irritating to eyes

Respiratory or skin sensitisation

Skin sensitisation: May cause an allergic skin reaction.

Respiratory sensitisation: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Components:

CATALYST:

Assessment: May cause sensitization by skin contact.

Components:

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4,4'-DIPHENYLMETHANE DIISOCYANATE:

Assessment: May cause sensitization by inhalation.

Assessment: May cause sensitization by skin contact.

METHYLENE DIPHENYLISOCYANATE:

Test Type: Maximisation Test (GPMT)

Species: Guinea pig

Assessment: May cause sensitization by skin contact.

Result: The product is a skin sensitizer, sub-category 1A.

Assessment: May cause sensitization by inhalation.

Result: The product is a respiratory sensitizer, sub-category 1A.

Benzene, 1,1'-methylenebis[isocyanato polymer and:

Assessment: May cause sensitization by inhalation.

Assessment: May cause sensitization by skin contact.

POLYMETHYLENE POLYPHENYL ISOCYANATE:

Assessment: May cause sensitization by skin contact.

Assessment: May cause sensitization by inhalation.

BUTANEDIOL-1,4:

Test Type: Maximisation Test (GPMT)

Species: Guinea pig

Assessment: Does not cause skin sensitization.

Result: Did not cause sensitization on laboratory animals.

Bis(2-dimethylaminoethyl)(methyl)amine:

Test Type: Buehler Test

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Does not cause skin sensitization.

GLP: yes

Test Type: Local lymph node assay

Species: Mouse

Method: OECD Test Guideline 429

Result: Does not cause skin sensitization.

1-ISOCYANATO-2-((4-ISOCYANATO-PHENYL)METHYL)-BENZ:

Assessment: May cause sensitization by inhalation.

Assessment: May cause sensitization by skin contact.

Germ cell mutagenicity

Not classified based on available information.

Components:

CATALYST:

Genotoxicity in vitro : Method: OECD Test Guideline 473 (In vitro Mammalian Chromosome Aberration Test)

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Result: positive
Remarks: Information given is based on data obtained from similar substances.

: Test Type: Ames test
Result: negative
Remarks: Information given is based on data obtained from similar substances.

Genotoxicity in vivo : Test Type: Chromosome aberration test in vitro
Test species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: positive
Remarks: Information given is based on data obtained from similar substances.

Components:

METHYLENE DIPHENYLISOCYANATE:

Genotoxicity in vitro : Test Type: Ames test
Result: negative
Remarks: Information given is based on data obtained from similar substances.

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Test species: Rat
Method: OECD Test Guideline 474
Remarks: Information given is based on data obtained from similar substances.

BUTANEDIOL-1,4:

Genotoxicity in vitro : Test Type: Ames test
Result: negative

: Test Type: Chromosome aberration test in vitro
Result: negative

Bis(2-dimethylaminoethyl)(methyl)amine:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Test species: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: Mutagenicity (in vitro mammalian cytogenetic test)
Result: negative
GLP: yes

: Test Type: Ames test
Test species: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

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Carcinogenicity

Not classified based on available information.

Product:

Carcinogenicity - Assessment : Methylene bisphenylisocyanate (MDI) aerosol has been reported to be irritating to lungs at a concentration of 1 mg/m³ with no effect observed at 0.2 mg/m³. Although MDI has been reported to cause an increase in non-carcinogenic lung tumors and a single carcinogenic lung tumor at very high concentrations (6 mg/m³), it is not classified as a carcinogen by IARC, NTP or OSHA.

Reproductive toxicity

May damage fertility or the unborn child.

Components:

CATALYST:

Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments, Clear evidence of adverse effects on development, based on animal experiments., May damage fertility. May damage the unborn child.

STOT - single exposure

May cause respiratory irritation.

Causes damage to organs (thymus gland) if swallowed.

Components:

CATALYST:

Exposure routes: Ingestion

Target Organs: thymus gland

Assessment: Causes damage to organs.

Components:

4,4'-DIPHENYLMETHANE DIISOCYANATE:

Exposure routes: Inhalation

Target Organs: Respiratory system

Assessment: May cause respiratory irritation.

METHYLENE DIPHENYLISOCYANATE:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

Benzene, 1,1'-methylenebis[isocyanato polymer and:

Assessment: May cause respiratory irritation.

POLYMETHYLENE POLYPHENYL ISOCYANATE:

Exposure routes: Inhalation

Target Organs: Respiratory system

Assessment: May cause respiratory irritation.

BUTANEDIOL-1,4:

Exposure routes: inhalation (dust/mist/fume)

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

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STOT - repeated exposure

Causes damage to organs (thymus gland) through prolonged or repeated exposure if swallowed.
May cause damage to organs (Respiratory system, Respiratory Tract) through prolonged or repeated exposure if inhaled.

Components:

CATALYST:

Exposure routes: Ingestion

Target Organs: thymus gland

Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Components:

4,4'-DIPHENYLMETHANE DIISOCYANATE:

Exposure routes: Inhalation

Target Organs: Respiratory system

Assessment: May cause damage to organs through prolonged or repeated exposure.

METHYLENE DIPHENYLISOCYANATE:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause damage to organs through prolonged or repeated exposure.

Benzene, 1,1'-methylenebis[isocyanato polymer and:

Exposure routes: Inhalation

Target Organs: Respiratory system

Assessment: May cause damage to organs through prolonged or repeated exposure.

POLYMETHYLENE POLYPHENYL ISOCYANATE:

Exposure routes: Inhalation

Target Organs: Respiratory system

Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

BUTANEDIOL-1,4:

Species: Rat

NOAEL: 225 mg/kg

Application Route: Ingestion

Exposure time: 90-day

Bis(2-dimethylaminoethyl)(methyl)amine:

Species: Rat

NOAEL: 30 mg/kg

Application Route: Oral

Method: OECD Test Guideline 422

GLP: yes

Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks: No data available

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Components:

4,4'-DIPHENYLMETHANE DIISOCYANATE:

Remarks: Lung

Carcinogenicity:

IARC

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.

OSHA

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

CATALYST:

Toxicity to fish : LC 50 (Danio rerio (zebra fish)): > 3.1 mg/l
Exposure time: 96 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (Daphnia magna)): < 1 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

4,4'-DIPHENYLMETHANE DIISOCYANATE:

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): > 3,000 mg/l
Exposure time: 96 h
Test Type: semi-static test
Remarks: Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Water flea (Daphnia magna)): > 100 mg/l
Exposure time: 24 h
Test Type: static test
Method: OECD Test Guideline 202

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Remarks: Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Water flea (*Daphnia magna*)): > 10 mg/l
Exposure time: 21 d
End point: Reproduction Test
Test Type: semi-static test
Method: OECD Test Guideline 211
Remarks: Information given is based on data obtained from similar substances.

METHYLENE DIPHENYLISOCYANATE:

Toxicity to fish : LC 50 (*Oryzias latipes* (Japanese medaka)): > 3,000 mg/l
Exposure time: 96 h
Test Type: semi-static test
Remarks: Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates : (*Daphnia magna* (Water flea)): > 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Method: OECD Test Guideline 202
Remarks: Information given is based on data obtained from similar substances.

Toxicity to algae : NOEC (*Desmodesmus subspicatus* (green algae)): 1,640 mg/l
End point: Growth inhibition
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
Remarks: Information given is based on data obtained from similar substances.

POLYMETHYLENE POLYPHENYL ISOCYANATE:

Toxicity to fish : LC50 (*Oryzias latipes* (Orange-red killifish)): > 3,000 mg/l
Exposure time: 96 h
Test Type: semi-static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna*): > 100 mg/l
Exposure time: 24 h
Test Type: static test
Method: OECD Test Guideline 202

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna*): > 10 mg/l
Exposure time: 21 d
End point: Reproduction Test
Test Type: semi-static test
Method: OECD Test Guideline 211

BUTANEDIOL-1,4:

Toxicity to fish : LC0 (*Pimephales promelas* (fathead minnow)): 30,000 mg/l
Exposure time: 96 h

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Test Type: static test

LC50 (Pimephales promelas (fathead minnow)): > 30,000 mg/l
Exposure time: 96 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC 50 (Daphnia magna Straus): 813 mg/l
Exposure time: 48 h
Test Type: static test

Toxicity to algae : EC10 (Desmodesmus subspicatus (green algae)): 76 mg/l
Exposure time: 72 h
Test Type: Cell multiplication inhibition test

EC50 (Desmodesmus subspicatus (green algae)): > 500 mg/l
Exposure time: 72 h
Test Type: Cell multiplication inhibition test

Bis(2-dimethylaminoethyl)(methyl)amine:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 157 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
GLP: yes

NOEC (Leuciscus idus (Golden orfe)): 100 mg/l
Exposure time: 96 h
Test Type: static test

LC0 (Leuciscus idus (Golden orfe)): 100 mg/l
Exposure time: 96 h
Test Type: static test

LC50 (Leuciscus idus (Golden orfe)): ca. 200 mg/l
Exposure time: 96 h
Test Type: static test

LC100 (Leuciscus idus (Golden orfe)): 464 mg/l
Exposure time: 96 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 24 h
Test Type: static test
Method: Directive 67/548/EEC, Annex V, C.2.
GLP: yes

EC50 (Daphnia magna (Water flea)): 54.9 mg/l
Exposure time: 48 h
Test Type: static test
Method: Directive 67/548/EEC, Annex V, C.2.
GLP: yes

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NOEC (Daphnia magna (Water flea)): 35 mg/l
Exposure time: 24 h
Test Type: static test
Method: Directive 67/548/EEC, Annex V, C.2.
GLP: yes

NOEC (Daphnia magna (Water flea)): 35 mg/l
Exposure time: 48 h
Test Type: static test
Method: Directive 67/548/EEC, Annex V, C.2.
GLP: yes

EC100 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 24 h
Test Type: static test
Method: Directive 67/548/EEC, Annex V, C.2.
GLP: yes

EC100 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test
Method: Directive 67/548/EEC, Annex V, C.2.
GLP: yes

Toxicity to algae : ErC50 (Desmodesmus subspicatus): 78.3 mg/l
Exposure time: 72 h
Test Type: static test
Method: Directive 67/548/EEC, Annex V, C.3.
GLP: yes

Toxicity to bacteria : EC20 (activated sludge): > 1,000 mg/l
Exposure time: 0.5 h
Test Type: Static
Method: OECD Test Guideline 209
GLP:

Persistence and degradability

Components:

CATALYST:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 23 %
Exposure time: 39 d
Method: OECD Test Guideline 301F

4,4'-DIPHENYLMETHANE DIISOCYANATE:

Biodegradability : Result: Not biodegradable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 302C
Remarks: Information given is based on data obtained from similar substances.

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METHYLENE DIPHENYLISOCYANATE:

Biodegradability : Result: Not readily biodegradable.
Remarks: Information given is based on data obtained from similar substances.

POLYMETHYLENE POLYPHENYL ISOCYANATE:

Biodegradability : Result: Not biodegradable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 302C
Remarks: Information given is based on data obtained from similar substances.

BUTANEDIOL-1,4:

Biodegradability : Biodegradation: 100 %
Exposure time: 14 d
Remarks: Readily biodegradable

Photodegradation :

Bis(2-dimethylaminoethyl)(methyl)amine:

Biodegradability : Result: Not rapidly biodegradable
Biodegradation: < 10 %
Exposure time: 28 d
Method: OECD Test Guideline 301E

Bioaccumulative potential

Components:

CATALYST:

Partition coefficient: n-octanol/water : log Pow: 3.12

BUTANEDIOL-1,4:

Bioaccumulation : Bioconcentration factor (BCF): 3.16
Remarks: No bioaccumulation is to be expected (log Pow <= 4).

Partition coefficient: n-octanol/water : log Pow: -0.88 (25 °C)

Bis(2-dimethylaminoethyl)(methyl)amine:

Partition coefficient: n-octanol/water : log Pow: 0.07 (25 °C)
pH: 8.45

Mobility in soil

Components:

BUTANEDIOL-1,4:

Distribution among environmental compartments : Koc: 8.4

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Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life with long lasting effects.

Components:

BUTANEDIOL-1,4:
Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

General advice : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Dispose of in accordance with all applicable local, state and federal regulations.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International transport regulations

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.

U.S. DOT - ROAD

Not dangerous goods

U.S. DOT - RAIL

Not dangerous goods

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U.S. DOT - INLAND WATERWAYS

Not dangerous goods

TRANSPORT CANADA - ROAD

Not dangerous goods

TRANSPORT CANADA - RAIL

Not dangerous goods

TRANSPORT CANADA - INLAND WATERWAYS

Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS

UN	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIBUTYLTIN DILAUATE)	9	III	LIMITED QUANTITY
----	------	--	---	-----	---------------------

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

UN	3082	Environmentally hazardous substance, liquid, n.o.s. (DIBUTYLTIN DILAUATE)	9	III	
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INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

UN	3082	Environmentally hazardous substance, liquid, n.o.s. (DIBUTYLTIN DILAUATE)	9	III	
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MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

UN	3082	SUSTANCIA LIQUIDA POTENCIALMENTE PELIGROSAS PARA EL MEDIO AMBIENTE, N.E.P. (DIBUTYLTIN DILAUATE)	9	III	
----	------	--	---	-----	--

***ORM = ORM-D, CBL = COMBUSTIBLE LIQUID**

Marine pollutant

yes

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Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15. REGULATORY INFORMATION

PART A

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
4,4'-DIPHENYLMETHANE DIISOCYANATE	101-68-8	5000	10204.081633

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 313 Component(s)

101-68-8	101-68-8	49.00 %
9016-87-9	9016-87-9	10.00 %

California Prop 65 This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

PART B

SARA 311/312 Hazards : Acute Health Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 Component(s)SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop 65 This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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The components of this product are reported in the following inventories:

- TSCA : On TSCA Inventory
- DSL : This product contains the following components listed on the Canadian NDSL. All other components are on the Canadian DSL.
- AUSTR : Not in compliance with the inventory
- ENCS : Exempt
- KECL : Not in compliance with the inventory
- PICCS : Not in compliance with the inventory
- IECSC : Not in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECL (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

Registration: Trade Secret

Chemical Name	Identification number
CATALYST	800986-5739P

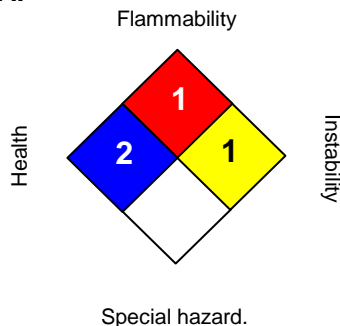
SECTION 16. OTHER INFORMATION

Further information

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PART A

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	1
PHYSICAL HAZARD	1

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

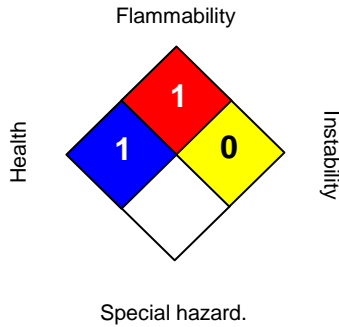
NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class IIIB

PART B

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NFPA:



HMIS III:

HEALTH	2
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

NFPA Flammable and Combustible Liquids Classification
Combustible Liquid Class IIIB

Full text of H-Statements referred to under sections 2 and 3.

PART A

- H227 Combustible liquid.
- H302 Harmful if swallowed.
- H311 Toxic in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H335 May cause respiratory irritation.
- H336 May cause drowsiness or dizziness.
- H360 May damage fertility or the unborn child.
- H370 Causes damage to organs if swallowed.
- H372 Causes damage to organs through prolonged or repeated exposure if swallowed.
- H373 May cause damage to organs through prolonged or repeated exposure if inhaled.

PART B

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H227	Combustible liquid.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H360	May damage fertility or the unborn child.
H370	Causes damage to organs if swallowed.
H372	Causes damage to organs through prolonged or repeated exposure if swallowed.

Sources of key data used to compile the Safety Data Sheet
Ashland internal data including own and sponsored test reports
The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :

ACGIH : American Conference of Industrial Hygienists
BEI : Biological Exposure Index
CAS : Chemical Abstracts Service (Division of the American Chemical Society).
CMR : Carcinogenic, Mutagenic or Toxic for Reproduction
FG : Food grade
GHS : Globally Harmonized System of Classification and Labeling of Chemicals.
H-statement : Hazard Statement
IATA : International Air Transport Association.
IATA-DGR : Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

ICAO : International Civil Aviation Organization
ICAO-TI (ICAO) : Technical Instructions by the "International Civil Aviation Organization"
IMDG : International Maritime Code for Dangerous Goods
ISO : International Organization for Standardization
logPow : octanol-water partition coefficient
LCxx : Lethal Concentration, for xx percent of test population
LDxx : Lethal Dose, for xx percent of test population.
ICxx : Inhibitory Concentration for xx of a substance
Ecxx : Effective Concentration of xx
N.O.S.: Not Otherwise Specified
OECD : Organization for Economic Co-operation and Development
OEL : Occupational Exposure Limit
P-Statement : Precautionary Statement
PBT : Persistent , Bioaccumulative and Toxic
PPE : Personal Protective Equipment
STEL : Short-term exposure limit

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STOT : Specific Target Organ Toxicity
 TLV : Threshold Limit Value
 TWA : Time-weighted average
 vPvB : Very Persistent and Very Bioaccumulative
 WEL : Workplace Exposure Level

CERCLA : Comprehensive Environmental Response, Compensation, and Liability Act
 DOT : Department of Transportation
 FIFRA : Federal Insecticide, Fungicide, and Rodenticide Act
 HMIRC : Hazardous Materials Information Review Commission
 HMIS : Hazardous Materials Identification System
 NFPA : National Fire Protection Association
 NIOSH : National Institute for Occupational Safety and Health
 OSHA : Occupational Safety and Health Administration
 PMRA : Health Canada Pest Management Regulatory Agency
 RTK : Right to Know
WHMIS : Workplace Hazardous Materials Information System