29 CFR 1910.1200 (OSHA HazCom 2012)

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Trade name : Valvoline™ MERCON® V Automatic Transmission Fluid

Details of the supplier of the safety data sheet	**Emergency telephone number**
Valvoline LLC 100 Valvoline Way Lexington, KY 40509 United States of America (USA) 1-800-TEAMVAL (1-800-832-6825) SDS@valvoline.com	1-800-VALVOLINE (1-800-825-8654) **Regulatory Information Number** 1-800-TEAMVAL (1-800-832-6825) **Product Information** 1-800-TEAMVAL (1-800-832-6825)

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Eye irritation : Category 2A

Skin sensitization : Category 1

Aspiration hazard : Category 1

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : May be fatal if swallowed and enters airways.
May cause an allergic skin reaction.
Causes serious eye irritation.

Precautionary Statements : **Prevention:**
Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
Wash skin thoroughly after handling.
Contaminated work clothing must not be allowed out of the

workplace.
Wear protective gloves/ eye protection/ face protection.
Response:
IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF ON SKIN: Wash with plenty of soap and water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Do NOT induce vomiting.
If skin irritation or rash occurs: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Wash contaminated clothing before reuse.
Storage:
Store locked up.
Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Classification	Concentration (%)
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC	64742-54-7	Not a hazardous substance or mixture.	>=30.00 - < 40.00
HYDROTREATED LIGHT PARAFFINIC DISTILLATE	64742-55-8	Asp. Tox. 1; H304	>=30.00 - < 40.00
POLYALKYLMETHACRYLATE		Eye Irrit. 2A; H319	>=10.00 - < 15.00
MINERAL OIL		Not a hazardous substance or mixture.	>=10.00 - < 15.00
HYDROTREATED LIGHT PARAFFINIC DISTILLATE	64742-55-8	Asp. Tox. 1; H304	>=1.50 - < 5.00
METHACRYLATE COPOLYMER		Eye Irrit. 2A; H319	>=1.00 - < 1.50
ALKYL METHACRYLATE		Skin Irrit. 2; H315 Eye Irrit. 2A; H319	>=0.10 - < 0.50

		Skin Sens. 1; H317 STOT SE 3; H335	

SECTION 4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended.
If inhaled	:	If breathed in, move person into fresh air. If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	:	Remove contaminated clothing. If irritation develops, get medical attention. If on skin, rinse well with water. First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water. Wash contaminated clothing before re-use.
In case of eye contact	:	Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye.
If swallowed	:	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	:	No symptoms known or expected. May be fatal if swallowed and enters airways. May cause an allergic skin reaction. Causes serious eye irritation.
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	:	If product is heated above its flash point it will produce vapors sufficient to support combustion. Vapors are heavier than air and may travel along the ground and be ignited by heat, pilot lights, other flames and ignition sources at locations near the point of release. Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	carbon dioxide and carbon monoxide Hydrocarbons nitrogen oxides (NOx)
Specific extinguishing methods	:	Product is compatible with standard fire-fighting agents.
Further information	:	Standard procedure for chemical fires.
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. 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.
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	:	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.
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.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC	64742-54-7	TWA	5 mg/m3 Mist	OSHA Z-1
		TWA	5 mg/m3 Inhalable fraction	ACGIH
		TWA	5 mg/m3 Mist	OSHA P0
		TWA	5 mg/m3 Mist	NIOSH REL
		ST	10 mg/m3 Mist	NIOSH REL
		PEL	5 mg/m3 particulate	CAL PEL
HYDROTREATED LIGHT PARAFFINIC DISTILLATE	64742-55-8	TWA	5 mg/m3 Mist	OSHA Z-1
		TWA	5 mg/m3 Inhalable fraction	ACGIH
		TWA	5 mg/m3 Mist	OSHA P0
		TWA	5 mg/m3 Mist	NIOSH REL
		ST	10 mg/m3 Mist	NIOSH REL
		PEL	5 mg/m3 particulate	CAL PEL
MINERAL OIL		TWA	5 mg/m3 Mist	OSHA Z-1
		TWA	5 mg/m3	ACGIH

			Inhalable fraction	
		TWA	5 mg/m3 Mist	OSHA P0
		TWA	5 mg/m3 Mist	NIOSH REL
		ST	10 mg/m3 Mist	NIOSH REL
		PEL	5 mg/m3 particulate	CAL PEL
HYDROTREATED LIGHT PARAFFINIC DISTILLATE	64742-55-8	TWA	5 mg/m3 Mist	OSHA Z-1
		TWA	5 mg/m3 Inhalable fraction	ACGIH
		TWA	5 mg/m3 Mist	OSHA P0
		TWA	5 mg/m3 Mist	NIOSH REL
		ST	10 mg/m3 Mist	NIOSH REL
		PEL	5 mg/m3 particulate	CAL PEL

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

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 when there is the potential for exposure of the eyes to liquid, vapor or mist.

Skin and body protection : Wear as appropriate:
Impervious clothing
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.
When using do not smoke.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	red
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	:	374 °F / 190 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Self-ignition	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
		No data available
Lower explosion limit / Lower flammability limit	:	No data available
		No data available
Vapour pressure	:	0.0133333 hPa (70.00 °F / 21.11 °C) Calculated Vapor Pressure
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	0.858 g/cm3 (60.01 °F / 15.56 °C)
Solubility(ies)		
Water solubility	:	negligible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Decomposition temperature	:	No data available

Viscosity

Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	7.4 mm2/s (212 °F / 100 °C)
Oxidizing properties	:	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	:	excessive heat
Incompatible materials	:	alkalis Strong acids Strong oxidizing agents
Hazardous decomposition products		No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Inhalation
Skin contact
Eye Contact
Ingestion
Acute toxicity
Not classified based on available information.
Components:
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC:

Acute oral toxicity	:	LD50 (Rat): > 15 g/kg
Acute dermal toxicity	:	LD50 (Rabbit): > 5 g/kg

HYDROTREATED LIGHT PARAFFINIC DISTILLATE:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 5.58 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: Not classified as acutely toxic by inhalation

under GHS.
Remarks: No mortality observed at this dose.

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
Remarks: No mortality observed at this dose.

Skin corrosion/irritation
Not classified based on available information.
Product:
Remarks : May cause skin irritation in susceptible persons.

Components:
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC:
Assessment : Slight, transient irritation
Result : Slight, transient irritation

HYDROTREATED LIGHT PARAFFINIC DISTILLATE:
Species : Rabbit
Result : No skin irritation

POLYALKYLMETHACRYLATE:
Result : No skin irritation

MINERAL OIL:
Assessment : Slight, transient irritation
Result : Slight, transient irritation

HYDROTREATED LIGHT PARAFFINIC DISTILLATE:
Assessment : Slight, transient irritation
Result : Slight, transient irritation

METHACRYLATE COPOLYMER:
Result : No skin irritation

ALKYL METHACRYLATE:
Assessment : Irritating to skin.
Result : Irritating to skin.

Serious eye damage/eye irritation
Causes serious eye irritation.
Product:
Remarks : Vapours may cause irritation to the eyes, respiratory system and the skin.
Causes serious eye irritation.

Components:
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC:
Result : No eye irritation
Assessment : No eye irritation

HYDROTREATED LIGHT PARAFFINIC DISTILLATE:
Species : Rabbit
Result : No eye irritation

POLYALKYLMETHACRYLATE:
Result : Irritating to eyes.

MINERAL OIL:
Result : Slight, transient irritation
Assessment : Slight, transient irritation

HYDROTREATED LIGHT PARAFFINIC DISTILLATE:
Result : Slight, transient irritation
Assessment : Slight, transient irritation

METHACRYLATE COPOLYMER:
Result : Irritating to eyes.

ALKYL METHACRYLATE:
Result : Irritating to eyes.
Assessment : Irritating to eyes.

Respiratory or skin sensitisation
Skin sensitisation
May cause an allergic skin reaction.
Respiratory sensitisation
Not classified based on available information.
Product:
Remarks : May cause allergic skin reaction.

Components:
HYDROTREATED LIGHT PARAFFINIC DISTILLATE:
Test Type : Buehler Test
Species : Guinea pig
Assessment : Does not cause skin sensitisation.

ALKYL METHACRYLATE:
Assessment : May cause sensitisation by skin contact.

Germ cell mutagenicity
Not classified based on available information.
Carcinogenicity
Not classified based on available information.
Components:
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC:
Carcinogenicity - Assessment : Classified based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L)

MINERAL OIL:
Carcinogenicity - Assessment : Classified based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L)

HYDROTREATED LIGHT PARAFFINIC DISTILLATE:
Carcinogenicity - Assessment : Classified based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L)

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 on OSHA's list of regulated carcinogens.

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.

Reproductive toxicity
Not classified based on available information.
STOT - single exposure
Not classified based on available information.
Components:
ALKYL METHACRYLATE:
Assessment : May cause respiratory irritation.

STOT - repeated exposure
Not classified based on available information.
Aspiration toxicity
May be fatal if swallowed and enters airways.

Components:
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC:
No aspiration toxicity classification

HYDROTREATED LIGHT PARAFFINIC DISTILLATE:
May be fatal if swallowed and enters airways.

HYDROTREATED LIGHT PARAFFINIC DISTILLATE:
May be fatal if swallowed and enters airways.

Further information
Product:
Remarks : No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity
Product:
Ecotoxicology Assessment
Short-term (acute) aquatic hazard : Not classified based on available information.

Long-term (chronic) aquatic : Not classified based on available information.

hazard

Components:

DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC:

Toxicity to fish	:	LL50 (Fish): > 100 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Aquatic invertebrates): > 10,000 mg/l Exposure time: 48 h
Toxicity to algae	:	EL50 (Algae, algal mat (Algae)): > 100 mg/l Exposure time: 72 h
Toxicity to fish (Chronic toxicity)	:	NOEC (Fish): 10 mg/l
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Aquatic invertebrates): 10 mg/l
Ecotoxicology Assessment Short-term (acute) aquatic hazard	:	Not classified based on available information.
Long-term (chronic) aquatic hazard	:	Not classified based on available information.

HYDROTREATED LIGHT PARAFFINIC DISTILLATE:

Toxicity to fish	:	LL50 (Pimephales promelas (fathead minnow)): > 100 mg/l Exposure time: 96 h Test Type: static test Test substance: WAF Method: OECD Test Guideline 203 Remarks: No toxicity at the limit of solubility
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 10,000 mg/l Exposure time: 48 h Test Type: static test Test substance: WAF Method: OECD Test Guideline 202
Toxicity to algae	:	NOEL (Pseudokirchneriella subcapitata (green algae)): >= 100 mg/l End point: Growth inhibition Exposure time: 72 h Test Type: static test Test substance: WAF Method: OECD Test Guideline 201
Toxicity to fish (Chronic toxicity)	:	NOELR (Oncorhynchus mykiss (rainbow trout)): Calculated >= 1,000 mg/l

Exposure time: 14 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEL (Daphnia (water flea)): 10 mg/l
Exposure time: 21 d
Test substance: WAF
Method: OECD Test Guideline 211

ALKYL METHACRYLATE**:**
Ecotoxicology Assessment
Short-term (acute) aquatic hazard : Very toxic to aquatic life.

Long-term (chronic) aquatic hazard : Very toxic to aquatic life with long lasting effects.

Persistence and degradability
Components:
HYDROTREATED LIGHT PARAFFINIC DISTILLATE**:**
Biodegradability : Result: Not readily biodegradable.
Biodegradation: 2 - 4 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

No data available
Bioaccumulative potential
Components:
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC**:**
Partition coefficient: n-octanol/water : log Pow: Expected > 7

No data available
Mobility in soil
Components:
No data available
Other adverse effects
No data available
Product:
Additional ecological information : No data available

Components:

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
General advice : Do not dispose of waste into sewer.
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

CFR_RAIL_C

Not dangerous goods

U.S. DOT - INLAND WATERWAYS

Not dangerous goods

TDG_ROAD_C

Not dangerous goods

TDG_RAIL_C

Not dangerous goods

TDG_INWT_C

Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods

MX_DG

Not dangerous goods

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

Marine pollutant		no

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

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

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
XYLENE	1330-20-7	100	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Serious eye damage or eye irritation
Respiratory or skin sensitisation
Aspiration hazard

California Prop. 65

This product contains a chemical that is at or below California Propositions 65's "safe harbor level" for carcinogenicity as determined via a risk assessment. Therefore, the chemical is not required to be listed as a Prop 65 chemical on the SDS or label.

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

DSL : All components of this product are on the Canadian DSL

AICS : Not in compliance with the inventory

ENCS : On the inventory, or in compliance with the inventory

KECI : On the inventory, or in compliance with the inventory

PICCS : On the inventory, or in compliance with the inventory

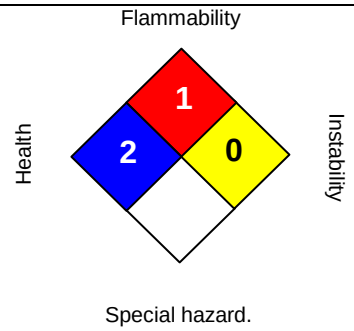
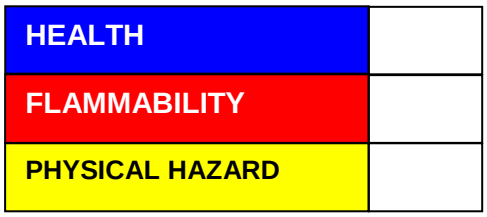
IECSC	:	Not in compliance with the inventory
TCSI	:	Not in compliance with the inventory
TSCA	:	On TSCA Inventory

TSCA list
No substances are subject to TSCA 12(b) export notification requirements.

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

SECTION 16. OTHER INFORMATION

Further information
Revision Date: 02/14/2019

NFPA:	HMIS III:
	 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

H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Sources of key data used to compile the Safety Data Sheet
Valvoline 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 Valvoline's Environmental Health and Safety Department (1-800-VALVOLINE).

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
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