





# SAFETY DATA SHEET

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards      SDS Revision: 4.0      SDS Revision Date: 12/26/2014

## 1. PRODUCT & COMPANY IDENTIFICATION

1.1	Product Name:	<b>K &amp; N AIR FILTER OIL AEROSOL</b>
1.2	Chemical Name:	See ingredients listed in section 3
1.3	Synonyms:	None
1.4	Trade Names:	K & N Air Filter Oil Aerosol
1.5	Product Use:	Automotive Lubricant
1.6	Distributor's Name:	K&N Engineering, Inc.
1.7	Distributor's Address:	P.O. Box 1329, Riverside, CA 92502-1329 USA
1.8	Emergency Phone:	<b>CHEMTREC +1 (800) 424-9300 / +1 (703) 527-3887 (CCN 632715)</b>
1.9	Business Phone / Fax:	+1 (800) 858-3333 / +1 (951) 826-4001

## 2. HAZARDS IDENTIFICATION

2.1	Hazard Identification:	<p>This product is classified as a <b>HAZARDOUS SUBSTANCE</b> and as <b>DANGEROUS GOODS</b> according to the classification criteria of NOHSC:1088 (2004) and ADG Code (Australia).  <b>DANGER! EXTREMELY FLAMMABLE AEROSOL. PRESSURIZED CONTAINER: MAY BURST IF HEATED. MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.</b>  <u>Hazard Statements (H):</u> H222 – Extremely flammable aerosol. H229 – Pressurized container: may burst if heated. H304 – May be fatal if swallowed and enters airways.  <u>Precautionary Statements (P):</u> P210 – Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P211 – Do not spray on an open flame or other ignition source. P251 – Do not pierce or burn, even after use. P280 – Wear protective gloves/eye protection. P301+P310 – IF SWALLOWED: Immediately call a POISON CENTER/doctor. P331 – Do NOT induce vomiting. P308+P313 – If exposed or concerned: Get medical advice/attention. P405 – Store locked up. P410+P412 – Protect from sunlight. Do not expose to temperatures exceeding 50 °C (122 °F). P501 - Dispose of contents/ container to an approved waste disposal plant.</p>	 
2.2	Effects of Exposure:	<p><u>Ingestion:</u> If product is swallowed, may cause nausea, vomiting and/or diarrhea.  <u>Eyes:</u> Moderately irritating to the eyes.  <u>Skin:</u> This product can cause mild, transient skin irritation with short-term exposure. This product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) upon prolonged or repeated exposure.  <u>Inhalation:</u> Vapors of this product may be irritating to the nose, throat and other tissues of the respiratory system.</p>	
2.3	Symptoms of Overexposure:	Symptoms of skin overexposure may include redness, itching, and irritation of affected areas. Overexposure in eyes may cause redness, itching and watering. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) upon prolonged or repeated exposure.	
2.4	Acute Health Effects:	Moderate irritation to eyes and skin near affected areas. Additionally, high concentrations of vapors can cause drowsiness, dizziness, headaches and nausea.	
2.5	Chronic Health Effects:	The material may accentuate any pre-existing dermatitis condition.	
2.6	Target Organs:	Eyes, skin & respiratory system.	

## 3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m <sup>3</sup> )									OTHER
					ACGIH		NOHSC			OSHA				
					ppm		ppm			ppm				
TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH							
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC	64742-54-7	PY8035501	265-157-1	≤ 100	5	NF	NF	NF	NF	5	NF	NF	MIST	
	Carc. 1B; H350													
1-DECENE, HOMOPOLYMER, HYDROGENATED	68037-01-4	NA	500-183-1	≤ 3.0	NA	NA	NF	NF	NF	NA	NA	NA		
	Asp. Tox. 1; H304													
PETROLEUM GASES, LIQUIFIED SWEETENED	68476-86-8	NA	270-705-8	NA	10	NA	NF	NF	NF	10	NA	NA	MIST	
	Flam. Gas 1; Carc. 1B; Muta. 1B; H220, H350, H340													
C.I. SOLVENT RED 164 (DYE)	71819-51-7	NA	NA	≤ 0.1	NA	NA	0.42	NF	NF	NA	NA	NA	SKIN	



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## 4. FIRST AID MEASURES

4.1	First Aid:	<p><u>Ingestion:</u> <b>DO NOT INDUCE VOMITING.</b> Contact ChemTrec at +1 (703) 527-3887 or the nearest Poison Control Center or local emergency telephone number for assistance and instructions. Seek immediate medical attention. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration.</p> <p><u>Eyes:</u> If product gets in the eyes, flush eyes thoroughly with copious amounts of water for at least 15 minutes, holding eyelid(s) open to ensure complete flushing. If the eyes or face become swollen during or following use, consult a physician or emergency room immediately.</p> <p><u>Skin:</u> Remove contaminated clothing and wash affected areas with soap and water. If irritation persists, seek prompt medical attention. Do not wear contaminated clothing until after it has been properly cleaned.</p> <p><u>Inhalation:</u> Remove victim to fresh air at once. If breathing is difficult, administer supplemental oxygen and seek immediate medical attention. If breathing stops, perform artificial respiration.</p>										
4.2	Medical Conditions Aggravated by Exposure:	<p>Pre-existing dermatitis, other skin conditions, and disorders of the target organs (eyes, skin, and respiratory system).</p> <table border="1" data-bbox="1055 556 1531 711"> <tr> <td><b>HEALTH</b></td> <td><b>2</b></td> </tr> <tr> <td><b>FLAMMABILITY</b></td> <td><b>4</b></td> </tr> <tr> <td><b>PHYSICAL HAZARDS</b></td> <td><b>0</b></td> </tr> <tr> <td><b>PROTECTIVE EQUIPMENT</b></td> <td><b>X</b></td> </tr> <tr> <td><b>EYES</b></td> <td><b>SKIN</b></td> </tr> </table>	<b>HEALTH</b>	<b>2</b>	<b>FLAMMABILITY</b>	<b>4</b>	<b>PHYSICAL HAZARDS</b>	<b>0</b>	<b>PROTECTIVE EQUIPMENT</b>	<b>X</b>	<b>EYES</b>	<b>SKIN</b>
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## 5. FIREFIGHTING MEASURES

5.1	Fire & Explosion Hazards:	<p>The flammability of an aerosol by WHMIS definition is determined by its flame-extension or its flashback. The flame extension of this product is great than 45 cm. Fire Code: Level 3 Aerosol (as per NFPA 30B). Do not use in presence of open flames or sparks. Do not place in hot water or near radiators, stoves or other sources of heat. Exposure to heat or sunlight may cause cans to burst and propel contents. Water from fog nozzles may be helpful in cooling un-ruptured containers to prevent build-up. Burning may produce hazardous products of combustion including fumes, smoke, carbon dioxide and/or carbon monoxide. Leaking gas fire: Do not extinguish, unless leak can be stopped safely</p>	
5.2	Extinguishing Methods:	Dry chemical, foam, carbon dioxide.	
5.3	Firefighting Procedures:	<p>Cool containing vessels with water spray in order to prevent pressure build-up, auto-ignition or explosion. Avoid spreading burning liquid with water used to cool containers. Keep containers cool until well after the fire is out. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway. Firefighters should wear full-face, self-contained breathing apparatus (MSHA/NIOSH approved or the equivalent) and impervious clothing.</p>	




## 6. ACCIDENTAL RELEASE MEASURES

6.1	Spills:	<p>Before cleaning any spill or leak, individuals involved in spill cleanup must wear appropriate Personal Protective Equipment.</p> <p>For <u>small spills</u> (e.g., &lt; 1 gallon (3.8 L)) wear appropriate personal protective equipment (e.g., goggles, gloves). Maximize ventilation (open doors and windows) and secure all sources of ignition. Remove spilled material with absorbent material and place into appropriate closed container(s) for disposal. Dispose of properly in accordance with local, state and federal regulations. Wash all affected areas and outside of container with plenty of warm water and soap. Remove any contaminated clothing and wash thoroughly before reuse.</p> <p>For <u>large spills</u> (e.g., ≥ 1 gallon (3.8 L)), deny entry to all unprotected individuals. Dike and contain spill with inert material (e.g., sand or earth). Use ONLY non-sparking tools for recovery and cleanup. Transfer liquid to containers for recovery or disposal and solid diking material to separate containers for proper disposal. Remove contaminated clothing promptly and wash affected skin areas with soap and water. Keep spills and cleaning runoffs out of municipal sewers and open bodies of water.</p>
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## 7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Do not use in the presence of open flame, sparks or ignition sources. Keep away from heat. Avoid breathing vapors or spray mists. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. After handling, always wash hand thoroughly with soap and water.
7.2	Storage & Handling:	<p>Store in a cool, dry place. Do not place in hot water or near radiators, stoves or sources of heat. Do not puncture or incinerate container or store at temperatures over 50°C or in direct sunlight.</p> <p><u>Maximum Recommended Shelf-Life:</u> 60 months.</p>
7.3	Special Precautions:	Contents under pressure. Container may explode if heated. Direct inhalation of spray may be harmful. Keep out of reach of children.

## 8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls:	Not required under normal conditions of use. Use with adequate ventilation (e.g., open doors and windows, local exhaust ventilation).	
8.2	Respiratory Protection:	Vaporization or misting is not expected at ambient temperatures. Therefore, the need for respiratory protection is not anticipated under normal use conditions and with adequate ventilation. If elevated airborne concentrations above applicable workplace exposure levels are anticipated, a NIOSH-approved organic vapor respirator equipped with a dust/mist pre-filter should be used. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).	
8.3	Eye Protection:	Safety glasses with side shields must be used when handling or using this product. A protective face shield is also recommended. Wear goggles and face shield if material is heated above 125°F (51°C). Have suitable eye wash water available.	
8.4	Hand Protection:	Wear protective, chemical-resistant gloves (e.g., neoprene) when using or handling this product. Use heat-protective gloves when handling product at elevated temperatures.	
8.5	Body Protection:	Avoid prolonged and/or repeated skin contact. Use clean and impervious protective clothing (e.g., neoprene or Tyvek®) if splashing or spraying conditions are present. Protective clothing should include long-sleeves, apron, boots and additional facial protection. Remove oil contaminated clothing. Launder oil contaminated clothing before reusing. Contaminated leather goods should be removed promptly and discarded.	

## 9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Appearance:	Red Oily Liquid
9.2	Odor:	Characteristic Petroleum Odor
9.3	Odor Threshold:	NA
9.4	pH:	NA
9.5	Melting Point/Freezing Point:	NA
9.6	Initial Boiling Point/Boiling Range:	> 260 °C (500 °F)
9.7	Flashpoint:	> 232 °C (450 °F) liquid
9.8	Upper/Lower Flammability Limits:	NA
9.9	Vapor Pressure:	NA
9.10	Vapor Density:	NA
9.11	Relative Density:	0.864 (7.197 lbs/gallon) - liquid
9.12	Solubility:	Negligible @ 25 °C
9.13	Partition Coefficient (log P <sub>ow</sub> ):	NA
9.14	Autoignition Temperature:	NA
9.15	Decomposition Temperature:	NA
9.16	Viscosity:	≥ 7.5 cSt @ 100 °C
9.17	Other Information:	NA

## 10. STABILITY & REACTIVITY

10.1	Stability:	Stable, when used as intended.
10.2	Hazardous Decomposition Products:	Carbon, nitrogen and sulfur oxides, hydrocarbons, phosgene.
10.3	Hazardous Polymerization:	Will not occur.
10.4	Conditions to Avoid:	Heat, sparks, open flame and all possible ignition sources.
10.5	Incompatible Substances:	Avoid contact with strong oxidizing agents, strong reducing agents, strong acids and strong alkalis.

## 11. TOXICOLOGICAL INFORMATION

11.1	Routes of Entry:	Inhalation: YES	Absorption: NO	Ingestion: YES
11.2	Toxicity Data:	This product has NOT been tested on animals to obtain toxicology data. Toxicology data, found in scientific literature, is available for some of the components of the product and is presented below:  Based on animal testing from similar materials & products, the acute toxicity of this product is expected to be: <u>Distillates, Petroleum, Solvent-Refined, Heavy Paraffinic</u> – LD <sub>50</sub> (oral, rat) > 5000 mg/kg; LD <sub>50</sub> (dermal, rabbit) > 2000 mg/kg.		
11.3	Acute Toxicity:	Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects.		



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## 11. TOXICOLOGICAL INFORMATION – cont'd

11.4	Chronic Toxicity:	In long term studies (up to two years) no carcinogenic effects have been reported in any animal species tested.
11.5	Suspected Carcinogen:	Carc. Cat. 2 – suspected human carcinogen (Annex I of EU Directive 67/548/EEC); Not listed by OSHA, NTP or ACGIH.
11.6	Reproductive Toxicity:	This product is not reported to produce reproductive toxicity in humans.
	Mutagenicity:	This product is not reported to produce mutagenic effects in humans.
	Embryotoxicity:	This product is not reported to produce embryotoxic effects in humans.
	Teratogenicity:	This product is not reported to produce teratogenic effects in humans.
	Reproductive Toxicity:	This product is not reported to produce reproductive effects in humans.
11.7	Irritancy of Product:	See section 2.3
11.8	Biological Exposure Indices:	NE
11.9	Physician Recommendations:	The viscosity range of the product(s) represented by this MSDS is between 100 and 400 SUS at 100°F. Accordingly, upon ingestion there is a moderate risk of aspiration. Careful gastric lavage or emesis may be considered to evacuate large quantities of material. Subcutaneous or intramuscular injection requires prompt surgical debridement.

## 12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	Analysis for ecological effects has not been conducted on this product. However, if spilled, this product and any contaminated soil or water may be harmful to human, animal, and aquatic life. Also, the coating action associated with petroleum and petroleum products can be harmful or fatal to aquatic life and waterfowl.
12.2	Effects on Plants & Animals:	An environmental fate analysis has not been conducted on this specific product. However, plants and animals may experience harmful or fatal effects when coated with petroleum-based products.
12.3	Effects on Aquatic Life:	Petroleum-based (mineral) lube oils will normally float on water. In stagnant or slow-flowing waterways, an oil layer can cover a large surface area. As a result, this oil layer might limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway can result in a loss of marine life or create an anaerobic environment. This material contains phosphorus which is a controlled element for disposal in effluent waters in most sections of North America. Phosphorus is known to enhance the formation of algae. Severe algae growth can reduce oxygen content in the water possibly below levels necessary to support marine life.

## 13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal:	Dispose of in accordance with local & state or provincial hazardous waste laws. U.S. EPA Characteristic Hazardous Waste: D001 (ignitability)
13.2	Special Considerations:	If the material is unsuitable for recycling or reclamation, enclosed-controlled incineration is recommended unless otherwise prohibited by local ordinance.

## 14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND):	UN1950, AEROSOLS, 2.1 (LTD QTY, IP VOL ≤ 1.0 L); or CONSUMER COMMODITY, ORM-D – until 12/31/2020	
14.2	IATA (AIR):	UN1950, AEROSOLS, FLAMMABLE, 2.1 (LTD QTY, IP VOL ≤ 0.5 L); or ID8000, CONSUMER COMMODITY, 9 (IP VOL ≤ 0.5 L)	
14.3	IMDG (OCN):	UN1950, AEROSOLS, 2.1 (LTD QTY, IP VOL ≤ 1.0 L)	
14.4	TDGR (Canadian GND):	UN1950, AEROSOLS, 2.1 (LTD QTY, IP VOL ≤ 1.0 L); or "LIMITED QUANTITY" or "QUANTITÉ LIMITÉE" or "LTD QTY" or "QUANT LTÉE" (IP VOL ≤ 1.0 L)	
14.5	ADR/RID (EU):	UN1950, AEROSOLS, 2.1 (LTD QTY, IP VOL ≤ 1.0 L)	
14.6	SCT (MEXICO):	UN1950, AEROSOLS, 2.1 (CANTIDAD LIMITADA, IP VOL ≤ 1.0 L)	
14.7	ADGR (AUS):	UN1950, AEROSOLS, 2.1 (LTD QTY, IP VOL ≤ 1.0 L)	



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## 15. REGULATORY INFORMATION

15.1	SARA Reporting Requirements:	This product does not contain any substances subject to SARA Title III, section 313 reporting requirements.	
15.2	SARA Threshold Planning Quantity:	There are no specific Threshold Planning Quantities for the components of this product.	
15.3	TSCA Inventory Status:	The components of this product are listed on the TSCA Inventory.	
15.4	CERCLA Reportable Quantity (RQ):	NA	
15.5	Other Federal Requirements:	This material does not contain any hazardous air pollutants. None of the components in this product are listed as priority pollutants under the CWA. None of the components in this product are listed as toxic pollutants under the CWA.	
15.6	Other Canadian Regulations:	This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDSL. None of the components of this product are listed on the Priorities Substances List. WHMIS B5, D2B (Flammable Aerosol, Other Toxic Effects)	
15.7	State Regulatory Information:	No ingredients in this product, present in a concentration of 1.0% or greater, are listed on any of the following state criteria lists: California Proposition 65 (CA65), Delaware Air Quality Management List (DE), Florida Toxic Substances List (FL), Massachusetts Hazardous Substances List (MA), Michigan Critical Substances List (MI), Minnesota Hazardous Substances List (MN), New Jersey Right-to-Know List (NJ), New York Hazardous Substances List (NY), Pennsylvania Right-to-Know List (PA), Washington Permissible Exposures List (WA), Wisconsin Hazardous Substances List (WI).	
15.8	Other Requirements:	The primary components of this product are not listed in Annex I of EU Directive 67/548/EEC: <u>Distillates (Petroleum), Hydrotreated Heavy Paraffinic</u> : Toxic (T). <u>Risk Phrases (R)</u> : 45 – May cause cancer. <u>Safety Phrases (S)</u> : 53-45 – Avoid exposure – obtain special instructions before use. In case of accident or if you feel unwell seek medical advice immediately (show the label where possible). <u>Petroleum Gases, Liquefied Sweetened</u> : Extremely flammable (F+); Toxic (T). <u>Risk Phrases (R)</u> : 12-45-46 – Extremely flammable. May cause cancer. May cause inheritable genetic damage. <u>Safety Phrases (S)</u> : 53-45 – Avoid exposure – obtain special instructions before use. In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).	

## 16. OTHER INFORMATION

16.1	Other Information:	<b>DANGER! EXTREMELY FLAMMABLE AEROSOL. PRESSURIZED CONTAINER: MAY BURST IF HEATED. MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.</b> Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Wear protective gloves/eye protection. IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. If exposed or concerned: Get medical advice/attention. Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50 °C (122 °F). <b>KEEP OUT OF REACH OF CHILDREN.</b>	
16.2	Terms & Definitions:	See next page of this Safety Data Sheet.	
16.3	Disclaimer:	This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate's and K&N Engineering, Inc.'s knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.	
16.4	Prepared for:	<b>K&amp;N Engineering, Inc.</b> P.O. Box 1329 Riverside, CA 92502-1329 USA Tel: +1 (800) 858-3333 Fax: +1 (951) 826-4001 E-Mail: tech@knfilters.com http://www.knfilters.com	
16.5	Prepared by:	<b>ShipMate, Inc.</b> P.O. Box 787 Sisters, Oregon 97759-0787 USA Tel: +1 (310) 370-3600 Fax: +1 (310) 370-5700 http://www.shipmate.com	





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## DEFINITION OF TERMS

A large number of abbreviations and acronyms appear on a SDS. Some of these that are commonly used include the following:

### GENERAL INFORMATION:

CAS No.	Chemical Abstract Service Number
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### EXPOSURE LIMITS IN AIR:

ACGIH	American Conference on Governmental Industrial Hygienists
C	Ceiling Limit
IDLH	Immediately Dangerous to Life and Health
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
TLV	Threshold Limit Value

### FIRST AID MEASURES:

CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.
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### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

### HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard

<b>HEALTH</b>
<b>FLAMMABILITY</b>
<b>PHYSICAL HAZARDS</b>
<b>PERSONAL PROTECTION</b>

### PERSONAL PROTECTION RATINGS:

A	
B	
C	
D	
E	
F	

G	
H	
I	
J	
K	
X	Consult your supervisor or SOPs for special handling directions.

Safety Glasses	Splash Goggles	Face Shield & Protective Eyewear	Gloves
Boots	Synthetic Apron	Protective Clothing & Full Suit	Dust Respirator
Full Face Respirator	Dust & Vapor Half-Mask Respirator	Full Face Respirator	Airline Hood/Mask or SCBA

### OTHER STANDARD ABBREVIATIONS:

ML	Maximum Limit
NA	Not Available
ND	Not Determined
NE	Not Established
NF	Not Found
NR	No Results
SCBA	Self-Contained Breathing Apparatus

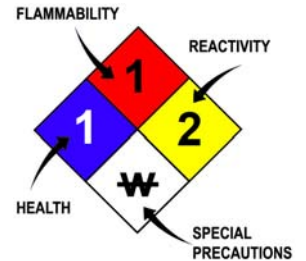
### NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

### FLAMMABILITY LIMITS IN AIR:

Autoignition Temperature	Minimum temperature required to initiate combustion in air with no other source of ignition
LEL	Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source
UEL	Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source

### HAZARD RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard
ACD	Acidic
ALK	Alkaline
COR	Corrosive
W	Use No Water
OX	Oxidizer
TREFOIL	Radioactive



### TOXICOLOGICAL INFORMATION:

LD <sub>50</sub>	Lethal Dose (solids & liquids) which kills 50% of the exposed animals
LC <sub>50</sub>	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD <sub>01</sub>	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD <sub>01</sub> , LD <sub>01</sub> & LD <sub>01</sub> or TC, TC <sub>01</sub> , LC <sub>01</sub> & LC <sub>01</sub>	Lowest dose (or concentration) to cause lethal or toxic effects
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances
BCF	Bioconcentration Factor
TL <sub>m</sub>	Median threshold limit
log K <sub>ow</sub> or log K <sub>oc</sub>	Coefficient of Oil/Water Distribution

### REGULATORY INFORMATION:

WHMIS	Canadian Workplace Hazardous Material Information System
DOT	U.S. Department of Transportation
TC	Transport Canada
EPA	U.S. Environmental Protection Agency
DSL	Canadian Domestic Substance List
NDSL	Canadian Non-Domestic Substance List
PSL	Canadian Priority Substances List
TSCA	U.S. Toxic Substance Control Act
EU	European Union (European Union Directive 67/548/EEC)
WGK	Wassergefährdungsklassen (German Water Hazard Class)

### WORKPLACE HAZARDOUS MATERIALS IDENTIFICATION (WHMIS) SYSTEM:

Class A	Class B	Class C	Class D1	Class D2	Class D3	Class E	Class F
Compressed	Flammable	Oxidizing	Toxic	Irritation	Infectious	Corrosive	Reactive

### EC (67/548/EEC) INFORMATION:

C	E	F	N	O	T	Xi	Xn
Corrosive	Explosive	Flammable	Harmful	Oxidizing	Toxic	Irritant	Harmful

### CLP/GHS (1272/2008/EC) PICTOGRAMS:

GHS01	GHS02	GHS03	GHS04	GHS05	GHS06	GHS07	GHS08	GHS09
Explosive	Flammable	Oxidizer	Pressurized	Corrosive	Toxic	Harmful Irritating	Health Hazard	Environment

<b>CHEMTREC</b> In-Country Dial Numbers	Local # Provided in Country	Toll Free in Country*	Greeting Language
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<b>AFRICA</b>			
CHEMTREC South Africa*		0-800-983-611	English

<b>SOUTH AMERICA</b>			
CHEMTREC Argentina (Buenos Aires)	+(54)-1159839431		Latin American Spanish
CHEMTREC Brazil (Rio De Janeiro)	+(55)-2139581449		Portuguese
CHEMTREC Chile (Santiago)	+(56)-225814934		Latin American Spanish
CHEMTREC Colombia *		01800-710-2151	Latin American Spanish
CHEMTREC Mexico*		01-800-681-9531	Latin American Spanish
CHEMTREC Peru (Lima)	+(51)-17071295		Latin American Spanish

<b>ASIA</b>			
CHEMTREC China*	4001-204937		Mandarin
CHEMTREC Hong Kong (Hong Kong)*		800-968-793	Cantonese
CHEMTREC India *		000-800-100-7141	Hindi
CHEMTREC Indonesia*		001-803-017-9114	Indonesian
CHEMTREC Japan (Tokyo)	+(81)-345209637		Japanese
CHEMTREC Malaysia *		1-800-815-308	Malay
CHEMTREC Philippines *		1-800-1-116-1020	Tagalog
CHEMTREC Philippines (Manila)	+(63) 632-395-3308		Tagalog
CHEMTREC Singapore*		800-101-2201	English and Mandarin
CHEMTREC Singapore	+(65)-31581349		English and Mandarin
CHEMTREC South Korea*		00-308-13-2549	Korean
CHEMTREC Taiwan*		00801-14-8954	Mandarin
CHEMTREC Thailand *		001-800-13-203-9987	Thai

<b>AUSTRALASIA</b>			
CHEMTREC Australia (Sydney)	+(61)-290372994		English
CHEMTREC New Zealand (Auckland)*	+(64)-98010034		English

<b>EUROPE</b>			
<b>CHEMTREC Belgium (Brussels)</b>	+ (32)-28083237		French and Flemish
<b>CHEMTREC Czech Republic (Prague)</b>	+ (420)-228880039		Czech
<b>CHEMTREC Denmark</b>	+ (45)-69918573		Danish
<b>CHEMTREC France</b>	+ (33)-975181407		French
<b>CHEMTREC Germany *</b>		0800-181-7059	German
<b>CHEMTREC Hungary (Budapest)</b>	+ (36)-18088425		Hungarian
<b>CHEMTREC Italy *</b>		800-789-767	Italian
<b>CHEMTREC Italy (Milan)</b>	+ (39)-0245557031		Italian
<b>CHEMTREC Netherlands</b>	+ (31)-858880596		Dutch
<b>CHEMTREC Poland (Warsaw)</b>	+ (48)-223988029		Polish
<b>CHEMTREC Portugal</b>	+ (351)-308801773		Portuguese
<b>CHEMTREC Russia*</b>		8-800-100-6346	Russian
<b>CHEMTREC Slovakia (Bratislava)</b>	+ (421)-233057972		Slovak
<b>CHEMTREC Spain*</b>		900-868538	European Spanish
<b>CHEMTREC Sweden (Stockholm)</b>	+ (46)-852503403		Swedish
<b>CHEMTREC Switzerland (Zurich)</b>	+ (41)-435016715		Swiss German, French and Italian
<b>CHEMTREC UK (London)</b>	+ (44)-870-8200418		English

<b>MIDDLE EAST</b>			
<b>CHEMTREC Bahrain (Bahrain)</b>	+ (973)-16199372		Arabic
<b>CHEMTREC Israel (Tel Aviv)</b>	+ (972)-37630639		Hebrew

**\*Phone numbers for countries marked with an asterisk must be dialed within the country**