## 1. PRODUCT & COMPANY IDENTIFICATION

| | | |
|---|---|---|
| 1.1 | Product Name: | **K & N AIR FILTER OIL** |
| 1.2 | Chemical Name: | See ingredients listed in section 3 |
| 1.3 | Synonyms: | None reported by the manufacturer |
| 1.4 | Trade Names: | K & N Air Filter Oil |
| 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: | **CHEMTREC +1 (800) 424-9300 / +1 (703) 527-3887 (CCN 632715)** |
| 1.9 | Business Phone / Fax: | +1 (800) 858-3333 / +1 (951) 826-4001 |

## 2. HAZARDS IDENTIFICATION

| | | |
|---|---|---|
| 2.1 | Hazard Identification: | This product is classified as a **HAZARDOUS SUBSTANCE** but not as **DANGEROUS GOODS** according to the classification criteria of NOHSC:1088 (2004) and ADG Code (Australia).<br>**DANGER! MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.**<br>Classification: Asp. Tox. 1<br>Hazard Statements (H): H304 – May be fatal if swallowed and enters airways.<br>Precautionary Statements (P): P280 – Wear protective gloves/eye protection. P301+P310 – IF SWALLOWED: Immediately call a POISON CENTER/doctor. P331 – Do NOT induce vomiting. P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. P405 – Store locked up. P501 - Dispose of contents/ container to an approved treatment, storage or disposal facility (TSDF). |
| 2.2 | Effects of Exposure: | Ingestion: If product is swallowed, may cause nausea, vomiting and/or diarrhea.<br>Eyes: May cause transient mild-eye irritation with short-term contact with liquid, spray or mist.<br>Skin: 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.<br>Inhalation: No significant adverse health effects are expected to occur upon short-term exposure to this product. Aspiration of liquid into the lungs can cause severe lung damage or death. |
| 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: | Contains a petroleum-based mineral oil. Prolonged or repeated skin contact can cause mild irritation and inflammation characterized by drying, cracking, (dermatitis) or oil acne. Repeated or prolonged inhalation of petroleum-based mineral oil mists at concentrations above applicable workplace exposure levels can cause respiratory irritation or other pulmonary effects. |
| 2.6 | Target Organs: | Eyes, skin & respiratory system. |

## 3. COMPOSITION & INGREDIENT INFORMATION

| | | | | | EXPOSURE LIMITS IN AIR (mg/m$^3$) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ACGIH | | NOHSC | | | OSHA | | | |
| | | | | | ppm | | ppm | | | ppm | | | |
| CHEMICAL NAME(S) | CAS No. | RTECS No. | EINECS No. | % | TLV | STEL | ES-TWA | ES-STEL | ES-PEAK | PEL | STEL | IDLH | OTHER |
| DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC | 64742-54-7 | PY8035501 | 265-157-1 | 60-100 | 5 | NF | NF | NF | NF | 5 | NF | NF | MIST |
| | Asp. Tox.1; H304 | | | | | | | | | | | | |
| 1-DECENE, HOMOPOLYMER, HYDROGENATED | 68037-01-4 | NA | 500-183-1 | 1-5 | NA | NA | NF | NF | NF | NA | NA | NA | |
| | Asp. Tox.1; H304 | | | | | | | | | | | | |
| C.I. SOLVENT RED 164 (DYE) | 71819-51-7 | NA | NA | 0-0.1 | NA | NA | 0.42 | NF | NF | NA | NA | NA | SKIN |
| | | | | | | | | | | | | | |

## 4. FIRST AID MEASURES

| | | |
|---|---|---|
| 4.1 | First Aid: | Ingestion: **DO NOT INDUCE VOMITING.** 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.<br>Eyes: 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.<br>Skin: 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.<br>Inhalation: 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. |
| 4.2 | Medical Conditions Aggravated by Exposure: | Pre-existing dermatitis, other skin conditions, and disorders of the target organs (eyes, skin, and respiratory system). |

| | |
|---|---|
| HEALTH | 1 |
| FLAMMABILITY | 1 |
| PHYSICAL HAZARDS | 0 |
| PROTECTIVE EQUIPMENT | B |
| EYES / SKIN | |

## 5. FIREFIGHTING MEASURES

| | | |
|---|---|---|
| 5.1 | Fire & Explosion Hazards: | This material can burn but will not readily ignite. This material will release vapors when heated above the flash point temperature that can ignite when exposed to a source of ignition. In enclosed spaces, heated vapor can ignite with explosive force. Mists or sprays may burn at temperatures below the flash point. Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and trace oxides of sulfur, phosphorus, zinc and nitrogen. Also, depending upon the conditions of use, low concentrations of hydrogen sulfide can be released. |
| 5.2 | Extinguishing Methods: | Dry chemical, foam, carbon dioxide, and water fog. |
| 5.3 | Firefighting Procedures: | Keep containers cool until well after the fire is out. Use water spray to cool fire-exposed surfaces and to protect personal. Avoid spraying water directly into storage containers because of danger of boil over. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway. Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. |


## 6. ACCIDENTAL RELEASE MEASURES

| | | |
|---|---|---|
| 6.1 | Spills: | Before cleaning any spill or leak, individuals involved in spill cleanup must wear appropriate Personal Protective Equipment.<br>For small spills (e.g., < 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.<br>For large spills (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. |

## 7. HANDLING & STORAGE INFORMATION

| | | |
|---|---|---|
| 7.1 | Work & Hygiene Practices: | Use normal hygiene practices. Avoid breathing vapors. Avoid direct skin contact. Wash hands thoroughly after using this product and before eating, drinking, or smoking. |
| 7.2 | Storage & Handling: | Use and store in a cool, dry, well-ventilated area. Keep away from excessive heat, open flames, sparks, and other possible sources of ignition. Do not store in unmarked containers or storage devices.<br>Maximum Recommended Shelf-Life: 60 months. |
| 7.3 | Special Precautions: | Empty containers may contain product residue. Do not pressurize, cut, heat or weld empty containers. Do not reuse empty containers without commercial cleaning or reconditioning. |

## 8. EXPOSURE CONTROLS & PERSONAL PROTECTION

| | | | |
|---|---|---|---|
| 8.1 | Ventilation & Engineering Controls: | The use of mechanical dilution ventilation is recommended to maintain airborne concentrations below the recommended occupational exposure limits, whenever this material is used in a confined space, is heated above normal temperatures (up to 38 ºC) or is agitated. | |
| 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 equipped with side shields should be adequate protection under most conditions of use. Wear goggles and/or face shield if splashing or spraying is anticipated. Wear goggles and face shield if material is heated above 125°F (51°C). Have suitable eye wash water available. |  |
| 8.4 | Hand Protection: | Use gloves constructed of chemical resistant materials such as neoprene or heavy nitrile rubber if frequent or prolonged contact is expected. 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) |
| 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) |
| 9.12 | Solubility: | Negligible @ 25 °C |
| 9.13 | Partition Coefficient (log $P_{ow}$): | 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 at normal temperatures. |
| 10.2 | Hazardous Decomposition Products: | Fumes, smoke, carbon monoxide, silicon oxides. |
| 10.3 | Hazardous Polymerization: | Will not occur. |
| 10.4 | Conditions to Avoid: | Open flames, sparks, high heat, and close proximity to incompatible substances. |
| 10.5 | Incompatible Substances: | Strong oxidizing agents. |

## 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:<br>Based on animal testing from similar materials & products, the acute toxicity of this product is expected to be: Distillates, Petroleum, Solvent-Refined, Heavy Paraffinic – $LD_{50}$ (oral, rat) > 5000 mg/kg; $LD_{50}$ (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. | | | | | |

## 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 federal & provincial hazardous waste laws. |
| 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): | NOT REGULATED |
| 14.2 | IATA (AIR): | NOT REGULATED |
| 14.3 | IMDG (OCN): | NOT REGULATED |
| 14.4 | TDGR (Canadian GND): | NOT REGULATED |
| 14.5 | ADR/RID (EU): | NOT REGULATED |
| 14.6 | SCT (MEXICO): | NOT REGULATED |
| 14.7 | ADGR (AUS): | NOT REGULATED |

## 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.<br>WHMIS D2B (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. REGULATORY INFORMATION – cont'd

| | | | |
|---|---|---|---|
| 15.8 | Other Requirements: | The primary components of this product are not listed in Annex I of EU Directive 67/548/EEC: Distillates (Petroleum), Hydrotreated Heavy Paraffinic: Harmful (Xn). Risk Phrases (R): 65 – Harmful: may cause lung damage if swallowed. Safety Phrases (S): 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: | **DANGER! MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.** Wear protective gloves/eye protection. IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Store locked up. Store in a well-ventilated place. Keep cool. Use only as directed. **KEEP OUT OF REACH OF CHILDREN.** | |
| 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: | **K&N Engineering, Inc.**<br>P.O. Box 1329<br>Riverside, CA 92502-1329 USA<br>Tel: +1 (800) 858-3333<br>Fax: +1 (951) 826-4001<br>E-Mail: tech@knfilters.com<br>http://www.knfilters.com | THE WORLD'S BEST AIR FILTER |
| 16.5 | Prepared by: | **ShipMate, Inc.**<br>P.O. Box 787<br>Sisters, Oregon 97759-0787 USA<br>Tel: +1 (310) 370-3600<br>Fax: +1 (310) 370-5700<br>http://www.shipmate.com | ShipMate® Dangerous Goods Training & Consulting |

## 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 |

### 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. |

### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

### HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

| | |
|---|---|
| **0** | Minimal Hazard |
| **1** | Slight Hazard |
| **2** | Moderate Hazard |
| **3** | Severe Hazard |
| **4** | Extreme Hazard |

**HEALTH**
**FLAMMABILITY**
**PHYSICAL HAZARDS**
**PERSONAL PROTECTION**

### PERSONAL PROTECTION RATINGS:

| | |
|---|---|
| **A** | |
| **B** | |
| **C** | |
| **D** | |
| **E** | |
| **F** | |
| **G** | |
| **H** | |
| **I** | |
| **J** | |
| **K** | |
| **X** | **Consult your supervisor or SOPs for special handling directions.** |


### OTHER STANDARD ABBREVIATIONS:

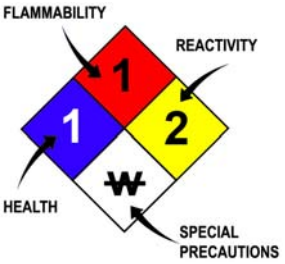
| | |
|---|---|
| **ML** | Maximum Limit |
| **NA** | Not Available |
| **ND** | Not Determined |
| **NE** | Not Established |
| **NF** | Not Found |
| **NR** | No Results |
| **SCBA** | Self-Contained Breathing Apparatus |

### 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:

| | |
|---|---|
| **$LD_{50}$** | Lethal Dose (solids & liquids) which kills 50% of the exposed animals s |
| **$LC_{50}$** | Lethal concentration (gases) which kills 50% of the exposed animal |
| **ppm** | Concentration expressed in parts of material per million parts |
| **$TD_{Lo}$** | Lowest dose to cause a symptom |
| **TCLo** | Lowest concentration to cause a symptom |
| **$TD_{Lo}$, $LD_{Lo}$, & $LD_{o}$ or TC, $TC_{o}$, $LC_{Lo}$, & $LC_{o}$** | 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 |
| **$TL_{m}$** | Median threshold limit |
| **log $K_{OW}$ or log $K_{OC}$** | 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) |

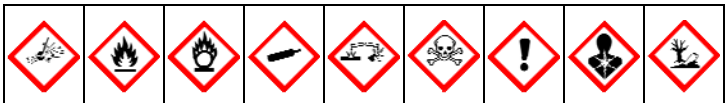
### WORKPLACE HAZARDOUS MATERIALS IDENTIFICATION (WHMIS) SYSTEM:

| 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 |

| CHEMTREC In-Country Dial Numbers | Local # Provided in Country | Toll Free in Country* | Greeting Language |
|---|---|---|---|
| **AFRICA** | | | |
| **CHEMTREC South Africa*** | | 0-800-983-611 | English |
| **SOUTH AMERICA** | | | |
| **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 |
| **ASIA** | | | |
| **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 |
| **AUSTRALASIA** | | | |
| **CHEMTREC Australia (Sydney)** | +(61)-290372994 | | English |
| **CHEMTREC New Zealand (Auckland)*** | +(64)-98010034 | | English |

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

| MIDDLE EAST | | | |
|---|---|---|---|
| **CHEMTREC Bahrain (Bahrain)** | +(973)-16199372 | | Arabic |
| **CHEMTREC Israel (Tel Aviv)** | +(972)-37630639 | | Hebrew |

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