# SAFETY DATA SHEET



Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards | SDS Revision: 1.0 | SDS Revision Date: 12/24/2015

## 1. PRODUCT & COMPANY IDENTIFICATION

| | | |
|---|---|---|
| 1.1 | Product Name: | **IRON ARMOR® BLACK RUST REFORMER SPRAY PAINT** |
| 1.2 | Chemical Name: | Aerosol |
| 1.3 | Synonyms: | P/N 60788 |
| 1.4 | Trade Names: | Iron Armor® Black Rust Reformer Spray Paint |
| 1.5 | Product Uses & Restrictions: | Aerosol Paint |
| 1.6 | Distributor's Name: | Harbor Freight Tools USA, Inc. |
| 1.7 | Distributor's Address: | 26541 Agoura Road, Calabasas, CA 91302 USA |
| 1.8 | Emergency Phone: | **CHEMTREC: +1 (703) 527-3887 / +1 (800) 424-9300 (CCN 676687)** |
| 1.9 | Business Phone / Fax: | +1 (805) 388-1000 |

## 2. HAZARDS IDENTIFICATION

2.1 Hazard Identification:

This product is classified as a hazardous substance and as dangerous goods according to the classification criteria of [NOHSC: 1088 (2004)] and ADG Code (Australia).

**DANGER! EXTREMELY FLAMMABLE AEROSOL. PRESSURIZED CONTAINER MAY BURST IF HEATED. HARMFUL IF SWALLOWED. CAUSES SKIN IRRITATION. CAUSES SERIOUS EYE IRRITATION.**

Classification: Aerosol 1; Acute Tox. 4; Asp. Tox. 1; Skin Irrit. 2; Eye Irrit. 2.

Hazard Statements (H): H222 – Extremely flammable aerosol. H229 – Pressurized container may burst if heated. H302 – Harmful if swallowed. H315 – Causes skin irritation. H319 – Causes serious eye irritation.

Precautionary Statements (P): P210 – Keep away from heat, hot surface, 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. P410+P412 – Protect from sunlight. Do not expose to temperatures exceeding 50 °F (122 °F). P264 – Wash thoroughly with soap and water after handling. P270 – Do not eat, drink or smoke when using this product. P301+P312 – IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. P330 – Rinse mouth. P501 – Dispose of contents/container to licenses treatment, storage and disposal facility (TSDF). P280 – Wear protective gloves/protective clothing/eye protection/face protection. P302+P352 – IF ON SKIN: Wash with plenty of soap and water. P321 – Specific treatment – See Section 4 of this Safety Data Sheet. P332+P313 – If skin irritation occurs: Get medical advice/attention. P362+P364 – Take off contaminated clothing and wash it before reuse. P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 – If eye irritation persists: get medical advice/attention.

## 3. COMPOSITION & INGREDIENT INFORMATION

| | | | | | EXPOSURE LIMITS IN AIR (mg/m³) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 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 |
| DIMETHYL ETHER | 115-10-6 | NA | 204-065-8 | 10-20 | NA | NA | 400 | 760 | NF | NA | NA | NA | |
| | Flam. Gas 1; Press. Gas; H220 | | | | | | | | | | | | |
| ACETONE | 67-64-1 | AL3150000 | 200-662-2 | 10-30 | 1800 | NA | 1185 | 2375 | NF | 2400 | NA | 2500 | |
| | Flam. Liq. 2; Eye Irrit. 2; STOT SE 3, H225, H319, H336 | | | | | | | | | | | | |
| 2-BUTOXYETHANOL | 111-76-2 | KJ8575000 | 203-905-0 | 0-0.1 | 50 | 75 | (20) | 96.9 | NF | 50 | 75 | 700 | |
| | Acute Tox. 4 *; Acute Tox. 4 *; Acute Tox. 4 *; Eye Irrit. 2; Skin Irrit. 2; H332, H312, H302, H319, H315 | | | | | | | | | | | | |

## 4. FIRST AID MEASURES

4.1 First Aid:

Ingestion: If ingested, do not induce vomiting. Contact the nearest Poison Control Center or local emergency number. Provide an estimate of the time at which the material was ingested and the amount of the substance that was swallowed.

Eyes: Splashes are not likely; however, if product gets in the eyes, flush with copious amounts of lukewarm water for at least 15 minutes lifting upper and lower lids, occasionally.

Skin: Wash thoroughly with soap and water. In case of contact, immediately flush skin with plenty of water for at least 15 minutes.

Inhalation: Remove victim to fresh air at once. If breathing is difficult, administer oxygen. If breathing stops give artificial respiration. Keep person warm, quiet and get medical attention.

## 4. FIRST AID MEASURES – cont'd

| | | |
|---|---|---|
| 4.2 | Effects of Exposure: | Ingestion: If product is swallowed, may cause gastrointestinal disturbance.<br>Eyes: Exposure to dust may cause eye irritation. Symptoms of overexposure may include redness, itching, irritation and watering.<br>Skin: May be irritating to skin. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) in some sensitive individuals.<br>Inhalation: Coughing, wheezing, shortness of breath, impaired pulmonary function. Irritation or soreness in throat, nose and respiratory tract. Drowsiness, dizziness, headaches and nausea. |
| 4.3 | Symptoms of Overexposure: | Ingestion: If product is swallowed, may cause gastrointestinal disturbance.<br>Eyes: Exposure to dust may cause eye irritation. Symptoms of overexposure may include redness, itching, irritation and watering.<br>Skin: May be irritating to skin. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) in some sensitive individuals.<br>Inhalation: Coughing, wheezing, shortness of breath, impaired pulmonary function. Irritation or soreness in throat, nose and respiratory tract. Additionally, high concentrations of vapors can cause drowsiness, dizziness, headaches and nausea. |
| 4.4 | Acute Health Effects: | Non-irritating when used as directed. Moderate irritation to eyes and skin near affected areas. Additionally, high concentrations of dust can cause coughing, wheezing, shortness of breath, impaired pulmonary function. Irritation or soreness in throat, nose and respiratory tract. |
| 4.5 | Chronic Health Effects: | Non-irritating when used as directed. Possible allergic dermatitis in some sensitive individuals. |
| 4.6 | Target Organs: | Eyes, Skin, Respiratory System, Central Nervous System (CNS) |
| 4.7 | Medical Conditions Aggravated by Exposure: | Pre-existing dermatitis, other skin conditions, and disorders of the target organs (eyes, skin, respiratory system, CNS) or impaired kidney function may be more susceptible to the effects of this substance. |

| | |
|---|---|
| HEALTH | 3 |
| FLAMMABILITY | 3 |
| PHYSICAL HAZARDS | 1 |
| PROTECTIVE EQUIPMENT | X |

| EYES | SKIN | LUNGS |
|---|---|---|

## 5. FIREFIGHTING MEASURES

| | | |
|---|---|---|
| 5.1 | Fire & Explosion Hazards: | Level 3 Aerosol (NFPA 30B). Aerosols may burst at temperatures above 120 °F. Cool uninvolved containers to prevent possible bursting. Aerosols may be projectile hazards when bursting. If aerosols are bursting, stay clear until bursting is complete. 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. |
| 5.2 | Extinguishing Methods: | Water Fog, Foam, Dry Chemical, $CO_2$ |
| 5.3 | Firefighting Procedures: | As in any fire, wear MSHA/NIOSH approved self-contained breathing apparatus (pressure-demand) and full protective gear. Keep containers cool until well after the fire is out. Use water spray to cool fire-exposed surfaces and to protect personal. Fight fire upwind. 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 drains, municipal sewers and open bodies of water. |

## 7. HANDLING & STORAGE INFORMATION

| | | |
|---|---|---|
| 7.1 | Work & Hygiene Practices: | Do not eat, drink or smoke when handling this product. Handle as to avoid puncturing container(s). Wash unintentional residues with soap and warm water. Keep tightly closed when not in use. Avoid contact with skin and clothing. |
| 7.2 | Storage & Handling: | Use and store in a cool, dry, well-ventilated location (e.g., local exhaust ventilation, fans) away from heat and direct sunlight. Avoid temperatures above 120 °F. Keep away from incompatible substances. Protect containers from physical damage. Avoid breathing vapor. |
| 7.3 | Special Precautions: | Clean all spills promptly. Spilled material may present a slipping hazard. |

## 8. EXPOSURE CONTROLS & PERSONAL PROTECTION

| 8.1 | Exposure Limits: ppm ($mg/m^3$) | | ACGIH | | NOHSC | | | OSHA | | | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CHEMICAL NAME(S) | TLV | STEL | ES-TWA | ES-STEL | ES-PEAK | PEL | STEL | IDLH | |
| | | ACETONE | 1800 | NA | 1185 | 2375 | NF | 2400 | NA | 2500 | |
| | | DIMETHYL ETHER | NA | NA | 400 | 760 | NF | NA | NA | NA | |
| | | 2-BUTOXYETHANOL | 50 | 75 | (20) | 96.9 | NF | 50 | 75 | 700 | |

| | | | |
|---|---|---|---|
| 8.2 | Ventilation & Engineering Controls: | Use local or general exhaust ventilation to effectively remove and prevent buildup of vapors or mist generated from the handling of this product. Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station). | |
| 8.3 | Respiratory Protection: | No special respiratory protection is required under typical circumstances of use or handling. If necessary, use only respiratory protection authorized per U.S. OSHA's requirement in 29 CFR §1910.134, or applicable U.S. state regulations, or the appropriate standards of Canada, its provinces, EU member states, or Australia. | |
| 8.4 | Eye Protection: | Wear protective eyewear (e.g., safety glasses with side-shield) at all times when handling this product. Always use protective eyewear when cleaning spills or leaks. Wear goggles and/or face shield if splashing or spraying is anticipated. Contact lenses pose a special hazard; soft lenses may absorb and concentrate irritants. Have suitable eye wash water available. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). |  |
| 8.5 | Hand Protection: | Use gloves constructed of chemical-resistant materials such as neoprene or heavy nitrile rubber if frequent or prolonged contact is expected. If necessary, refer to U.S. OSHA 29 CFR §1910.138, the appropriate standards of Canada, or the EU member states. |  |
| 8.6 | 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. If necessary, refer to appropriate standards of Canada, the EU member states, or U.S. OSHA. |  |

## 9. PHYSICAL & CHEMICAL PROPERTIES

| | | |
|---|---|---|
| 9.1 | Appearance: | Aerosol |
| 9.2 | Odor: | Solvent-like |
| 9.3 | Odor Threshold: | NA |
| 9.4 | pH: | NA |
| 9.5 | Melting Point/Freezing Point: | NA |
| 9.6 | Initial Boiling Point/Boiling Range: | - 18 °C – 172 °C (0 °F - 343 °F) |
| 9.7 | Flashpoint: | < -18 ºC (< 0 ºF) |
| 9.8 | Upper/Lower Flammability Limits: | LEL: 1.1% / UEL: 27.0 % |
| 9.9 | Vapor Pressure: | NA |
| 9.10 | Vapor Density: | > 1.0 (air = 1.0) |
| 9.11 | Relative Density: | 0.76 |
| 9.12 | Solubility: | NA |
| 9.13 | Partition Coefficient (log $P_{ow}$): | NA |
| 9.14 | Autoignition Temperature: | NA |
| 9.15 | Decomposition Temperature: | NA |
| 9.16 | Viscosity: | NA |
| 9.17 | Other Information: | Evaporation Rate: Faster than Ether; VOC: 51.54 % w/w |

## 10. STABILITY & REACTIVITY

| | | |
|---|---|---|
| 10.1 | Stability: | Stable under normal conditions; unstable with heat or contamination. |
| 10.2 | Hazardous Decomposition Products: | Oxides of Carbon (CO, $CO_2$) and Nitrogen ($NO_x$) |
| 10.3 | Hazardous Polymerization: | Will not occur. |
| 10.4 | Conditions to Avoid: | Open flames, sparks, high heat, incompatible substances and direct sunlight. |
| 10.5 | Incompatible Substances: | Avoid extreme heat and ignition sources. Store away from oxidizers. |

## 11. TOXICOLOGICAL INFORMATION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 11.1 | Routes of Entry: | Inhalation: | YES | Absorption: | YES | 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, but is not presented in this document. | | | | | |
| 11.3 | Acute Toxicity: | Moderate irritation to eyes and skin near affected areas. Additionally, high concentrations of vapors can cause drowsiness, dizziness, headaches and nausea. | | | | | |
| 11.4 | Chronic Toxicity: | This material may aggravate any pre-existing skin condition (e.g., dermatitis). | | | | | |
| 11.5 | Suspected Carcinogen: | NA | | | | | |
| 11.6 | Reproductive Toxicity: | This product is not reported to cause 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 cause reproductive effects in humans. | | | | | |
| 11.7 | Irritancy of Product: | The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) upon prolonged or repeated exposure. | | | | | |
| 11.8 | Biological Exposure Indices: | NE | | | | | |
| 11.9 | Physician Recommendations: | Treat symptomatically. | | | | | |

## 12. ECOLOGICAL INFORMATION

| | | |
|---|---|---|
| 12.1 | Environmental Stability: | There are no specific data available for this product. |
| 12.2 | Effects on Plants & Animals: | There are no specific data available for this product. |
| 12.3 | Effects on Aquatic Life: | There are no specific data available for this product. |

## 13. DISPOSAL CONSIDERATIONS

| | | |
|---|---|---|
| 13.1 | Waste Disposal: | Dispose of in accordance with federal, state, provincial and local regulations. |
| 13.2 | Special Considerations: | NA |

## 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): | CONSUMER COMMODITY, ORM-D (IP VOL ≤ 1.0 L) – until 12/31/20<br>UN1950, AEROSOLS, 2.1 (LTD QTY, IP VOL ≤ 1.0 L) |  |
| 14.2 | IATA (AIR): | CONSUMER COMMODITY, 9, ID8000 (IP VOL ≤ 0.5 L)<br>UN1950, AEROSOLS, FLAMMABLE, 2.1 (LTD QTY, IP VOL ≤ 1.0 L) |  or |
| 14.3 | IMDG (OCN): | UN1950, AEROSOLS, 2.1 (LTD QTY, IP VOL ≤ 1.0 L) |  |
| 14.4 | TDGR (Canadian GND): | MARK PACKAGE ("LIMITED QUANTITY" or "QUANTITÉ LIMITÉE" or "LTD QTY" or "QUANT LTÉE" (IP VOL ≤ 1.0 L) or UN1950, AEROSOLS, FLAMMABLE, 2.1 (LTD QTY, 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, AEROSOLES, 2.1 (CANTIDAD LIMITADA, IP VOL ≤ 1.0 L) |  |
| 14.7 | ADGR (AUS): | UN1950, AEROSOLS, 2.1 ( LTD QTY, IP VOL ≤ 1.0 L) |  |

## 15. REGULATORY INFORMATION

| | | | |
|---|---|---|---|
| 15.1 | SARA Reporting Requirements: | This product contains Toluene, Methanol, and Isopropanol, substances subject to SARA Title III, section 313 reporting requirements. | |
| 15.2 | SARA Threshold Planning Quantity: | Dimethyl Ether TPQ: 4535 kg (10,000 lbs) | |
| 15.3 | TSCA Inventory Status: | The components of this product are listed on the TSCA Inventory or are otherwise exempt. | |
| 15.4 | CERCLA Reportable Quantity (RQ): | Acetone: 2270 kg (5,000 lbs) | |
| 15.5 | Other Federal Requirements: | None of the ingredients are listed as Hazardous Air Pollutants (HAPs). None of the ingredients are listed as Toxic Pollutants under the Clean Water Act (CWA). None of the ingredients are listed as Priority Pollutants under the Clean Water Act (CWA). This product does not contain any Class 1 or Class 2 ozone depletors. | |
| 15.6 | Other Canadian Regulations: | This product has been classified according to the hazard criteria of the CPR and the SDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDSL. None of the ingredients are listed on the Priorities Substances List.<br>WHMIS Class B5, D2B (Flammable Aerosols, Other Toxic Effects). |  |

## 15. REGULATORY INFORMATION – cont'd

| | | |
|---|---|---|
| 15.7 | State Regulatory Information: | Acetone is found on the following state criteria lists: California OSHA Hazardous Substances List (CA), Delaware Air Quality Management List (DE), Massachusetts Hazardous Substances List (MA), 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) and Wisconsin Hazardous Substances List (WI).<br>Dimethyl Ether is found on the following state criteria lists: FL, MA, MN, NJ and PA.<br>2-Butoxyethanol is found on the following state criteria lists: FL, MA, MN, NJ, PA and WA.<br>No other 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 listed in Annex I of EU Directive 67/548/EEC:<br>Dimethyl Ether: Acetone: Flammable, Harmful (F, Xn). Risk Phrases (R): 12 – Extremely flammable. Safety Phrases (S): (2-)9-16-33 – Keep out of the reach of children. Keep container in a well-ventilated place. Keep away from sources of ignition – No smoking. Take precautionary measures against static discharges.  |

## 16. OTHER INFORMATION

| | | |
|---|---|---|
| 16.1 | Other Information: | **DANGER! EXTREMELY FLAMMABLE AEROSOL. PRESSURIZED CONTAINER MAY BURST IF HEATED. HARMFUL IF SWALLOWED. CAUSES SKIN IRRITATION. CAUSES SERIOUS EYE IRRITATION.** Keep away from heat, hot surface, 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. Protect from sunlight. Do not expose to temperatures exceeding 50 °F (122 °F). Wash thoroughly with soap and water after handling. Do not eat, drink or smoke when using this product. IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. Wear protective gloves/protective clothing/eye protection/face protection. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical advice/attention. **KEEP OUT OF REACH OF CHILDREN.** |
| 16.2 | Terms & Definitions: | See last 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 & Harbor Freight Tools USA, Inc.'s knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is 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: | **Harbor Freight Tools USA, Inc.**<br>26541 Agoura Road<br>Calabasas, CA 91302 USA<br>Tel: +1 (805) 388-1000<br>http://www.harborfreight.com |
| 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 |

## 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 |
| **ES** | Exposure Standard (Australia) |
| **IDLH** | Immediately Dangerous to Life and Health |
| **OSHA** | U.S. Occupational Safety and Health Administration |
| **PEL** | Permissible Exposure Limit |
| **STEL** | Short-Term Exposure Limit |
| **TLV** | Threshold Limit Value |
| **TWA** | Time Weighted Average |

### FIRST AID MEASURES:

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|---|---|
| **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. |

### HMIS-III 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** | | **G** | |
| **B** | | **H** | |
| **C** | | **I** | |
| **D** | | **J** | |
| **E** | | **K** | |
| **F** | | **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:

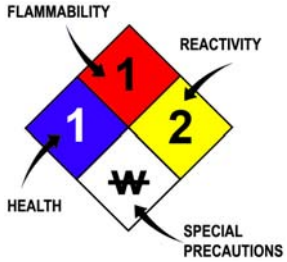
| | |
|---|---|
| **ML** | Maximum Limit |
| **mg/m3** | milligrams per cubic meter |
| **NA** | Not Available |
| **ND** | Not Determined |
| **NE** | Not Established |
| **NF** | Not Found |
| **NR** | No Results |
| **ppm** | parts per million |
| **SCBA** | Self-Contained Breathing Apparatus |

### 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 |
| **NOHSC** | National Occupational Health and Safety Commission (Australia) |
| **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) |
| **HMIS-III** | National Paint & Coatings Association Hazardous Materials Identification System |

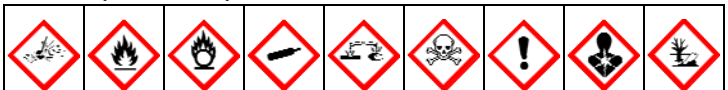
### WORKPLACE HAZARDOUS MATERIALS IDENTIFICATION (WHMIS) SYSTEM:

| 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 |