



# MATERIAL SAFETY DATA SHEET

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CW100P  
(640-4339)

Prepared to OSHA, ACC, ANSI, WHMIS & 2001/58 EC Standards

MSDS Revision: 2.0

MSDS Revision Date: 02/24/2005

## 1. PRODUCT IDENTIFICATION

CHEMICAL RESPONSE CARD: **04**

|      |                         |                                               |
|------|-------------------------|-----------------------------------------------|
| 1.1  | Product Name:           | <b>CircuitWriter CW100P</b>                   |
| 1.2  | Chemical Name:          | See ingredients listed in section 2           |
| 1.3  | Synonyms:               | CircuitWriter CW100P                          |
| 1.4  | Trade Names:            | CircuitWriter CW100P                          |
| 1.5  | Product Use:            | NA                                            |
| 1.6  | Manufacturer's Name:    | CAIG Laboratories, Inc.                       |
| 1.7  | Manufacturer's Address: | 12200 Thatcher Court, Poway, CA 92064-6876    |
| 1.8  | Business Phone:         | +1 (800)-224-4123                             |
| 1.9  | Emergency Phone:        | <b>CHEMTREC 1-800-424-9300/1-703-527-3887</b> |
| 1.10 | Other Product Names:    |                                               |

|                      |                                                                                     |                                                                                     |                                                                                     |          |
|----------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------|
| RESPONSE TEAM PPE:   |  |  |  |          |
| WHMIS:               |  |  |                                                                                     |          |
| HEALTH:              |                                                                                     |                                                                                     |                                                                                     | <b>2</b> |
| FLAMMABILITY:        |                                                                                     |                                                                                     |                                                                                     | <b>3</b> |
| REACTIVITY:          |                                                                                     |                                                                                     |                                                                                     | <b>1</b> |
| PERSONAL PROTECTION: |                                                                                     |                                                                                     |                                                                                     | <b>B</b> |

## 2. COMPOSITION & INGREDIENT INFORMATION

| CHEMICAL NAME(S)         | CAS No.    | RTECS No. | EINECS No. | %     | EXPOSURE LIMITS IN AIR (mg/m³) |          |         |          |          |       |
|--------------------------|------------|-----------|------------|-------|--------------------------------|----------|---------|----------|----------|-------|
|                          |            |           |            |       | ACGIH                          |          | OSHA    |          |          | OTHER |
|                          |            |           |            |       | TLV ppm                        | STEL ppm | PEL ppm | STEL ppm | IDLH ppm |       |
| SILVER                   | 7440-22-4  | VW3500000 | 2311313    | 30-60 | (0.01)                         | NE       | NE      | NE       | NE       |       |
| 4-CHLOROBENZOTRIFLUORIDE | 98-56-6    | XS9145000 | 202-681-1  | 20-30 | NE                             | NE       | NE      | NE       | NE       |       |
| ACETONE                  | 67-64-1    | AL3150000 | 200-662-2  | 10-20 | 1000                           | NE       | 750     | NE       | NE       |       |
| ACRYLIC RESIN            | UNK        | UNK       | UNK        | 3-5   | NA                             | NA       | NA      | NA       | NA       |       |
| ORGANOPHILIC CLAY        | 71011-27-3 | NA        | 275-128-5  | 1-2   | (1.0)                          | NE       | NE      | NE       | NE       |       |

NA = Not Available; ND = Not Determined; NE = Not Established; C = Ceiling Limit; See Section 16 for Additional Definitions of Terms Used  
NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-2003 format.



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## 3. HAZARD IDENTIFICATION

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |     |             |     |            |     |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----|-------------|-----|------------|-----|
| 3.1 | <b>Hazard Identification:</b><br><b>Thin silver fluid with a mild odor. Flammable liquid. Breathing high concentrations of product above permissible exposure limits may result in severe or permanent toxic effects.</b>                                                                                                                                                                                                          |             |     |             |     |            |     |
| 3.2 | Routes of Entry:                                                                                                                                                                                                                                                                                                                                                                                                                   | Inhalation: | YES | Absorption: | YES | Ingestion: | YES |
| 3.3 | <b>Effects of Exposure:</b><br><b>EYES:</b> May cause severe eye irritation, burning, blurred vision.<br><b>SKIN:</b> Prolonged or repeated contact can cause moderate irritation, defatting, dermatitis.<br><b>INGESTION:</b> May result in severe or permanent toxic effects.<br><b>INHALATION:</b> Not harmful in low quantities.                                                                                               |             |     |             |     |            |     |
| 3.4 | <b>Symptoms of Overexposure:</b><br><b>EYES:</b> May cause severe eye irritation, burning, blurred vision.<br><b>SKIN:</b> Prolonged or repeated contact can cause moderate irritation, defatting, dermatitis.<br><b>INGESTION:</b> May result in severe or permanent toxic effects.<br><b>INHALATION:</b> Repeated inhalation of concentration above permissible exposure limits may result in severe or permanent toxic effects. |             |     |             |     |            |     |
| 3.5 | <b>Acute Health Effects:</b><br><b>EYES:</b> May cause severe eye irritation, burning, blurred vision.<br><b>SKIN:</b> Prolonged or repeated contact can cause moderate irritation, defatting, dermatitis.<br><b>INGESTION:</b> May result in severe or permanent toxic effects.<br><b>INHALATION:</b> Repeated inhalation of concentration above permissible exposure limits may result in severe or permanent toxic effects.     |             |     |             |     |            |     |
| 3.6 | <b>Chronic Health Effects:</b><br><b>EYES:</b> May cause severe eye irritation, burning, blurred vision.<br><b>SKIN:</b> Prolonged or repeated contact can cause moderate irritation, defatting, dermatitis.<br><b>INGESTION:</b> May result in severe or permanent toxic effects.<br><b>INHALATION:</b> Repeated inhalation of concentration above permissible exposure limits may result in severe or permanent toxic effects.   |             |     |             |     |            |     |
| 3.7 | <b>Target Organs:</b><br><b>Eyes, skin and respiratory system.</b>                                                                                                                                                                                                                                                                                                                                                                 |             |     |             |     |            |     |

## 4. FIRST AID MEASURES

|                      |                                            |                                                                                                                                                                                                              |
|----------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.1                  | First Aid:                                 |                                                                                                                                                                                                              |
|                      | EYES:                                      | Flush eyes thoroughly with copious amounts of water for at least 15 minutes, holding eyelid(s) open to ensure complete flushing. If irritation persists, seek immediate medical attention.                   |
|                      | 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. |
|                      | INGESTION:                                 | keep person warm, quiet, and get medical attention immediately.                                                                                                                                              |
|                      | INHALATION:                                | Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.                                                                          |
| 4.2                  | Medical Conditions Aggravated by Exposure: |                                                                                                                                                                                                              |
|                      | None reported by the manufacturer.         |                                                                                                                                                                                                              |
|                      | HEALTH                                     |                                                                                                                                                                                                              |
|                      | 2                                          |                                                                                                                                                                                                              |
|                      | FLAMMABILITY                               |                                                                                                                                                                                                              |
| 3                    |                                            |                                                                                                                                                                                                              |
| REACTIVITY           |                                            |                                                                                                                                                                                                              |
| 1                    |                                            |                                                                                                                                                                                                              |
| PROTECTIVE EQUIPMENT |                                            |                                                                                                                                                                                                              |
| B                    |                                            |                                                                                                                                                                                                              |
| EYES                 |                                            |                                                                                                                                                                                                              |
| SKIN                 |                                            |                                                                                                                                                                                                              |
|                      |                                            |                                                                                                                                                                                                              |
|                      |                                            |                                                                                                                                                                                                              |



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## 5. FIREFIGHTING MEASURES

|     |                                                                                                                                                                                                                                                                      |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.1 | Flashpoint & Method:<br><b>-15°C 5°F</b>                                                                                                                                                                                                                             |
| 5.2 | Autoignition Temperature:<br><b>NA</b>                                                                                                                                                                                                                               |
| 5.3 | Flammability Limits:<br>Lower Explosive Limit (LEL): <b>1.2</b> Upper Explosive Limit (UEL): <b>10.7</b>                                                                                                                                                             |
| 5.4 | Fire & Explosion Hazards:<br><b>CO and CO2</b>                                                                                                                                                                                                                       |
| 5.5 | Extinguishing Methods:<br><b>CO<sub>2</sub>, Alcohol foam, Dry Chemical</b>                                                                                                                                                                                          |
| 5.6 | Firefighting Procedures:<br><b>Wear NIOSH/MSHA approved self-contained breathing apparatus and protective clothing. Do not use water. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway.</b> |



## 6. ACCIDENTAL RELEASE MEASURES

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.1 | Spills:<br><b>Secure spill area and deny entry to all unprotected individuals. Individuals involved in the cleanup should wear appropriate personal protective equipment. Area may become slippery. Absorb product onto porous material, such as sand, clay, diatomaceous earth or commercial absorbent material. Place into leak-proof, U.S. DOT-approved containers. If necessary, cover all drains and dike well ahead of the spill to prevent runoff into sewers, drains, and all waterways. Contact appropriate local or provincial authorities for assistance and/or reporting requirements.</b> |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 7. HANDLING & STORAGE INFORMATION

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7.1 | Work & Hygiene Practices:<br><b>Wash hands thoroughly after using this product and before eating, drinking, or smoking. Remove soiled clothing to prevent prolonged skin contact.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 7.2 | Storage & Handling:<br><b>Keep away from all sources of ignition and hot surfaces. Do not expose to sunlight or elevated temperatures to prevent possible bursting. Use and store in cool, dry, well ventilated areas away from heat, hot surfaces and all sources of ignition. Protect containers from physical damage. Indoor storage should meet OSHA standards and appropriate codes. Keep container tightly closed when not in use. Keep out of reach of children. Avoid prolonged or repeated contact with skin; eyes or clothing. Avoid breathing product vapor for extended periods of time. Avoid activities that could cause splashing of the spilled material or create mists.</b> |
| 7.3 | Special Precautions:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## 8. EXPOSURE CONTROLS & PERSONAL PROTECTION

|     |                                                                                                                                                                                                                                                 |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8.1 | Ventilation & Engineering Controls:<br><b>Use with adequate ventilation (e.g., open doors and windows, local exhaust ventilation). Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).</b> |
| 8.2 | Respiratory Protection:<br><b>Not necessary unless used in an unventilated area or in high concentrations. If exceeded, a mechanical or self contained breathing apparatus is advised.</b>                                                      |
| 8.3 | Eye Protection:<br><b>Wear splash goggles or other appropriate eye protection.</b>                                                                                                                                                              |
| 8.4 | Hand Protection:<br><b>Wear chemically resistant rubber gloves with repeated exposure.</b>                                                                                                                                                      |
| 8.5 | Body Protection:<br><b>None required for normal conditions of use.</b>                                                                                                                                                                          |



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## 9. PHYSICAL & CHEMICAL PROPERTIES

|      |                     |                            |
|------|---------------------|----------------------------|
| 9.1  | Density:            | 1.1                        |
| 9.2  | Boiling Point:      | 56.2°C – 133°F             |
| 9.3  | Melting Point:      | NA                         |
| 9.4  | Evaporation Rate:   | > 1                        |
| 9.5  | Vapor Pressure:     | 184 mm Hg                  |
| 9.6  | Specific Gravity:   | 1.62                       |
| 9.7  | Appearance & Color: | Thin silver fluid          |
| 9.8  | Odor Threshold:     | Mild odor                  |
| 9.9  | Solubility:         | Does not dissolve in water |
| 9.10 | pH                  | ND                         |
| 9.11 | VOC (grams/liter):  | 60                         |
| 9.12 | Other Information:  | NA                         |

## 10. STABILITY & REACTIVITY

|      |                                   |                                                       |
|------|-----------------------------------|-------------------------------------------------------|
| 10.1 | Stability:                        | Stable under normal conditions of use (see section 7) |
| 10.2 | Hazardous Decomposition Products: | CO, CO <sub>2</sub>                                   |
| 10.3 | Hazardous Polymerization:         | Will not occur                                        |
| 10.4 | Conditions to Avoid:              | Avoid all possible sources of ignition                |
| 10.5 | Incompatible Substances:          | Strong oxidizing agents                               |

## 11. TOXICOLOGICAL INFORMATION

|      |                              |                                                                                                                                                                                                                                            |
|------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11.1 | Toxicity Data:               | This product has not been tested on animals to obtain toxicological data. There are toxicology data for the components of this product, which are found in the scientific literature. These data have not been presented in this document. |
| 11.2 | Acute Toxicity:              | See section 3.5                                                                                                                                                                                                                            |
| 11.3 | Chronic Toxicity:            | See section 3.6                                                                                                                                                                                                                            |
| 11.4 | Suspected Carcinogen:        | NE                                                                                                                                                                                                                                         |
| 11.5 | 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.                                                                                                                                                                    |
| 11.6 | Irritancy of Product:        | See Section 3.3                                                                                                                                                                                                                            |
| 11.7 | Biological Exposure Indices: | NE                                                                                                                                                                                                                                         |
| 11.8 | Physician Recommendations:   | Treat symptomatically.                                                                                                                                                                                                                     |

## 12. ECOLOGICAL INFORMATION

|      |                              |                                                                                                                       |
|------|------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 12.1 | Environmental Stability:     | This product will slowly volatile from soil. Components of this product will slowly decompose into organic compounds. |
| 12.2 | Effects on Plants & Animals: | There is no specific data available for this product.                                                                 |
| 12.3 | Effects on Aquatic Life:     | Releases of large volumes of this product are expected to be harmful or fatal to overexposed aquatic life.            |

## 13. DISPOSAL CONSIDERATIONS

|      |                         |                                                                    |
|------|-------------------------|--------------------------------------------------------------------|
| 13.1 | Waste Disposal:         | Dispose of in accordance with federal, state or local regulations. |
| 13.2 | Special Considerations: | EPA Waste Code: D001 (characteristic – ignitability)               |



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## 14. TRANSPORTATION INFORMATION

The basic description (proper shipping name, hazard class & division, ID Number, 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):<br><b>SMALL QUANTITY - PACKAGE MARKED "THIS PACKAGE CONFORMS TO 49 CFR §173.4" (≤ 30 ml)<br/>CONSUMER COMMODITY, ORM-D (&gt; 30 ml, &lt;1.0L)</b>                                                | <br> |
| 14.2 | IATA (AIR):<br><b>EXCEPTED QUANTITY - PACKAGE LABELED WITH EXCEPTED QUANTITIES LABEL PER IATA §2.7 (≤ 30 ml)<br/>CONSUMER COMMODITY, 9, ID8000 (≤ 500 ml)<br/>ACETONE SOLUTION, 3, UN1090, II (&gt;500 ml)</b> |      |
| 14.3 | IMDG (OCN):<br><b>ACETONE SOLUTION, 3, UN1090, II, LTD QTY</b>                                                                                                                                                 |      |
| 14.4 | TDGR (Canadian GND):<br><b>MARK PACKAGE "LIMITED QUANTITY" or "QUANTITÉ LIMITÉE" or "LTD QTY" or "QUANT LTÉE" (≤ 1.0 L)<br/>ACETONE SOLUTION, 3, UN1090, II (&gt; 1.0 L)</b>                                   |      |
| 14.5 | ADR/RID (EU):<br><b>1090 ACETONE SOLUTION, 3, II ADR, LTD QTY (≤ 1.0 L)<br/>1090 ACETONE SOLUTION, 3, II, ADR (&gt; 1.0 L)</b>                                                                                 |      |

## 15. REGULATORY INFORMATION

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 15.1 | SARA Reporting Requirements:<br><b>NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| 15.2 | SARA Threshold Planning Quantity:<br><b>NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| 15.3 | TSCA Inventory Status:<br><b>All chemical substances of this product are listed on the TSCA inventory or are otherwise exempt from inventory status.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 15.4 | CERCLA Reportable Quantity (RQ):<br><b>Acetone: 5000 lbs</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| 15.5 | Other Federal Requirements:<br><b>NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 15.6 | Other Canadian Regulations<br><b>This product has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDL. None of the components of this product are listed on the Priorities Substances List.</b>                                                                                                                                                                                                                                                                               |  |
| 15.7 | State Regulatory Information:<br><b>The primary components of this product is listed on the following state lists: California OSHA; Massachusetts Right to Know List of Chemicals; New Jersey Right to Know List 8:59 Appendix A; Pennsylvania Hazardous Substances List 34 323 Appendix A</b>                                                                                                                                                                                                                                                                                                                                                     |  |
| 15.8 | 67/548/EEC (European Union) Requirements:<br><b>The primary component of this product is listed in Annex I of EU Directive 67/548/EEC:<br/>Acetone: Highly Flammable (F+, Xn). R: 11-36/37/38-66-67- Flammable. Irritating to eyes, respiratory system and skin. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness. S: 9-16-23-26-33 - Keep container in a well-ventilated place. Keep away from sources of ignition. Do not breathe vapor. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take precautionary measures against static discharges.</b> |  |



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## 16. OTHER INFORMATION

16.1 Other Information:

**NA**

16.2 Terms & Definitions:

**See page 7 of this MSDS.**

16.3 Disclaimer:

This Material 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 & CAIG Laboratories, 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:

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**+1 (858) 486-8398 fax**  
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16.5 Prepared by:

**ShipMate, Inc.**  
**18436 Hawthorne Blvd., Suite 201**  
**Torrance, CA 90504**  
**310-370-3600 phone**  
**310-370-5700 fax**  
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## DEFINITION OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. 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 |
| TLV   | Threshold Limit Value                                     |
| OSHA  | U.S. Occupational Safety and Health Administration        |
| PEL   | Permissible Exposure Limit                                |
| IDLH  | Immediately Dangerous to Life and Health                  |

### 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

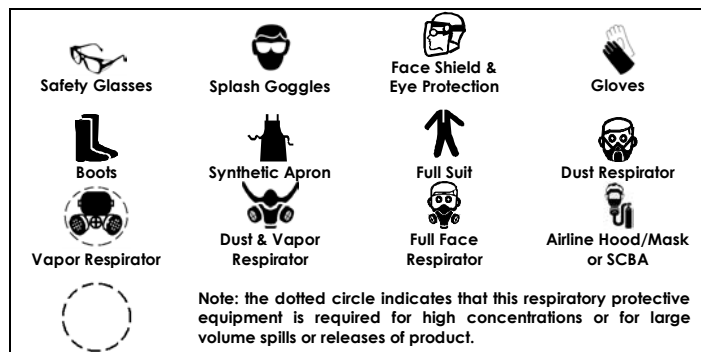
#### HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

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



#### PERSONAL PROTECTION RATINGS:

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



#### OTHER STANDARD ABBREVIATIONS:

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

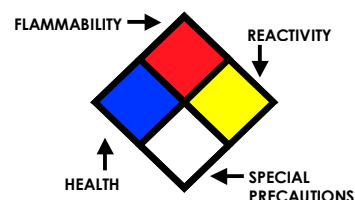
### NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

#### 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        |



#### 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>10</sub>                                                                                                      | Lowest dose to cause a symptom                                        |
| TCLo                                                                                                                  | Lowest concentration to cause a symptom                               |
| TD <sub>10</sub> , LD <sub>10</sub> , & LD <sub>0</sub> or TC, TC <sub>0</sub> , LC <sub>10</sub> , & LC <sub>0</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)     |

#### EC INFORMATION:

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