

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

MSDS Revision: 1.0

MSDS Revision Date: 01/01/2005

## 1. PRODUCT IDENTIFICATION

|     |                                                                                     |
|-----|-------------------------------------------------------------------------------------|
| 1.1 | Product Name:<br><b>BONDEX</b>                                                      |
| 1.2 | Chemical Name:<br><b>SOLVENT MIXTURE</b>                                            |
| 1.3 | Synonyms:<br><b>NA</b>                                                              |
| 1.4 | Trade Names:<br><b>BB034, BB032, BB031, BB030</b>                                   |
| 1.5 | Product Use:<br><b>COSMETIC USE ONLY</b>                                            |
| 1.6 | Manufacturer's Name:<br><b>OPI PRODUCTS, INC.</b>                                   |
| 1.7 | Manufacturer's Address:<br><b>13034 SATICOY STREET, NO. HOLLYWOOD, CA 91605 USA</b> |
| 1.8 | Emergency Phone:<br><b>CHEMTREC: (703) 527-3887</b>                                 |
| 1.9 | Business Phone:<br><b>(818) 759-2400</b>                                            |

## 2. COMPOSITION &amp; INGREDIENT INFORMATION

| CHEMICAL NAME(S)            | CAS No.    | RTECS No. | EINECS No. | %      | EXPOSURE LIMITS IN AIR (mg/m <sup>3</sup> ) |      |            |      |      |         |
|-----------------------------|------------|-----------|------------|--------|---------------------------------------------|------|------------|------|------|---------|
|                             |            |           |            |        | ACGIH - ppm                                 |      | OSHA - ppm |      |      | OTHER   |
|                             |            |           |            |        | TLV                                         | STEL | PEL        | STEL | IDLH |         |
| ETHYL ACETATE               | 141-86-4   | AH5425000 | 205-500-4  | ≤ 80.0 | 400                                         | NE   | 400        | NE   | 2000 | 400 TWA |
| METHACRYOYLOXYETHYL MALEATE | 51978-15-5 | NA        | 257-569-5  | ≤ 10.0 | NE                                          | NE   | NE         | NE   | NE   |         |
| HYDROXYETHYL METHACRYLATE   | 868-77-9   | OZ4725000 | 212-782-2  | ≤ 10.0 | 10                                          | NA   | 10         | NA   | NA   |         |
|                             |            |           |            |        |                                             |      |            |      |      |         |

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.

## 3. HAZARD IDENTIFICATION

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1 | Hazard Identification:<br><b>NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 3.2 | Routes of Entry:<br>Inhalation: <b>YES</b> Absorption: <b>YES</b> Ingestion: <b>YES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3.3 | Effects of Exposure:<br><b>INGESTION:</b> If product is swallowed, may cause nausea, vomiting and/or diarrhea and central nervous system depression.<br><b>SKIN &amp; EYES:</b> Mildly to moderately irritating to the eyes. Symptoms of overexposure may include redness, itching, irritation and watering. May be irritating to skin in some sensitive individuals, especially after prolonged and/or repeated contact.<br><b>INHALATION:</b> Vapors of this product may be slightly irritating to the nose, throat and other tissues of the respiratory system. Symptoms of overexposure can include coughing, wheezing, nasal congestion, and difficulty breathing. Inhalation of vapors exceeding the levels listed in Section 2 (Composition & Ingredient Information) can cause central nervous system depression (e.g., drowsiness, dizziness, headaches, nausea). |
| 3.4 | Symptoms of Overexposure:<br><b>Symptoms of skin overexposure in some sensitive individuals may include redness, itching, and irritation of affected areas. Overexposure in eyes may cause redness, itching and watering.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 3.5 | Acute Health Effects:<br><b>Mild to moderate irritation to eyes and skin near affected areas. Additionally, high concentrations of vapors can cause drowsiness, dizziness, headaches and nausea.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 3.6 | Chronic Health Effects:<br><b>None known.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 3.7 | Target Organs:<br><b>Eyes, skin &amp; respiratory system.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

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

MSDS Revision: 1.0

MSDS Revision Date: 01/01/2005

## 4. FIRST AID MEASURES

- 4.1 First Aid:
- INGESTION:** If ingested, do not induce vomiting. If product has been swallowed, drink plenty of water or milk IMMEDIATELY. If the patient is vomiting, continue to offer water or milk. Never give water or milk to an unconscious person. 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. Open and close eyelid(s) to ensure thorough irrigation. If irritation occurs, contact a physician.
- SKIN:** If irritation occurs and product is on the skin, rinse thoroughly with lukewarm water, followed by a thorough washing of the effected area with soap and water. Do not wear contaminated clothing until after it has been properly cleaned. If irritation, redness or swelling persists, contact a physician immediately.
- INHALATION:** Remove victim to fresh air at once. If breathing stops, perform artificial respiration. Seek immediate medical attention.

4.2 Medical Conditions Aggravated by Exposure:

None known.

**HEALTH****1****FLAMMABILITY****3****REACTIVITY****1****PROTECTIVE EQUIPMENT****A****EYES**

## 5. FIREFIGHTING MEASURES

5.1 Flashpoint &amp; Method:

**-3°C (26°F) TCC**

5.2 Autoignition Temperature:

**ND**

5.3 Flammability Limits:

Lower Explosive Limit (LEL):

**2.2%**

Upper Explosive Limit (UEL):

**11.4%**

5.4 Fire &amp; Explosion Hazards:

**WARNING: Flammable!** Keep away from heat, lit cigarettes, sparks & open flame. Keep container closed. When heated above the flashpoint, emits flammable vapors which, when mixed with air, can burn or be explosive. Mists or sprays may be flammable at temperatures below the flashpoint.

5.5 Extinguishing Methods:

**CO<sub>2</sub>, Halon, Dry Chemical, Foam**

5.6 Firefighting Procedures:

This product is a Class IB flammable liquid. When involved in a fire, this product will ignite readily and decompose to produce carbon oxides. Vapors of this product are heavier than air and may travel to a source of ignition and flash back to a leaking or open container.

First responders should wear eye protection. Structural firefighters must wear SCBAs and full protective equipment. Use a water spray or fog to reduce or direct vapors. Water may not be effective in actually extinguishing a fire involving this product.



## 6. ACCIDENTAL RELEASE MEASURES

6.1 Spills:

Before cleaning any spill or leak, individuals involved in spill cleanup must wear appropriate Personal Protective Equipment.

For small spills (e.g., <1 gallon) 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.

For spills ≥ 1 gallon, 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.

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

MSDS Revision: 1.0

MSDS Revision Date: 01/01/2005

**7. HANDLING & STORAGE INFORMATION**

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7.1 | Work & Hygiene Practices:<br><b>Avoid prolonged contact with the product. Avoid breathing vapors of this product. Use in a well-ventilated location (e.g., local exhaust ventilation, fans). After use, wash hands and exposed skin with soap &amp; water. Do not eat, drink or smoke while handling product.</b>                                                                                                               |
| 7.2 | Storage & Handling:<br><b>Keep this material away from heat, sparks and open flame. Open containers slowly on a stable surface. Keep container closed tightly when not in use. Empty container may contain residual amounts of this product; therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight, other light sources, or sources of intense heat.</b> |
| 7.3 | Special Precautions:<br><b>Open containers slowly on a stable surface. Keep container tightly closed when not in use. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care.</b>                                                                                                                                                                               |

**8. EXPOSURE CONTROLS & PERSONAL PROTECTION**

|     |                                                                                                                                                                                                                                                                                                                                                                          |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8.1 | Ventilation & Engineering Controls:<br><b>When working with large quantities of product, provide adequate ventilation (e.g., local exhaust ventilation, fans). Ensure that an eyewash station, sink or washbasin is available in case of exposure to eyes.</b>                                                                                                           |
| 8.2 | Respiratory Protection:<br><b>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, E.C. member states, or Australia.</b> |
| 8.3 | Eye Protection:<br><b>Avoid eye contact. None required under normal conditions of use. However, may cause eye irritation in some sensitive individuals. When handling large quantities (e.g., ≥ 1 gallon), safety glasses with side shields should be used.</b>                                                                                                          |
| 8.4 | Hand Protection:<br><b>None required under normal conditions of use. However, may cause skin irritation in some sensitive individuals. When handling large quantities (e.g., ≥ 1 gallon), wear rubber or impervious plastic gloves.</b>                                                                                                                                  |
| 8.5 | Body Protection:<br><b>No apron required when handling small quantities.<br/>When handling large quantities (e.g., ≥ 1 gallon), eye wash stations and deluge showers should be available. Upon completion of work activities involving large quantities of this product, wash any exposed areas thoroughly with soap and water.</b>                                      |

**9. PHYSICAL & CHEMICAL PROPERTIES**

|      |                     |                                                                |
|------|---------------------|----------------------------------------------------------------|
| 9.1  | Density:            | <b>0.902</b>                                                   |
| 9.2  | Boiling Point:      | <b>172°F</b>                                                   |
| 9.3  | Melting Point:      | <b>NA</b>                                                      |
| 9.4  | Evaporation Rate:   | <b>NA</b>                                                      |
| 9.5  | Vapor Pressure:     | <b>NA</b>                                                      |
| 9.6  | Molecular Weight:   | <b>NA</b>                                                      |
| 9.7  | Appearance & Color: | <b>Clear liquid with characteristic fragrant, fruity odor.</b> |
| 9.8  | Odor Threshold:     | <b>ND</b>                                                      |
| 9.9  | Solubility:         | <b>Slightly miscible with water.</b>                           |
| 9.10 | pH                  | <b>NA</b>                                                      |
| 9.11 | Viscosity:          | <b>Non-viscous.</b>                                            |
| 9.12 | Other Information:  | <b>NA</b>                                                      |

**10. STABILITY & REACTIVITY**

|      |                                   |                                                                                                                                                                                                  |
|------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10.1 | Stability:                        | <b>Stable under ambient conditions when stored properly (see Section 7, Storage and Handling).</b>                                                                                               |
| 10.2 | Hazardous Decomposition Products: | <b>If exposed to extremely high temperatures, the products of thermal decomposition may include irritating vapors and carbon oxide gases (e.g., CO, CO<sub>2</sub>).</b>                         |
| 10.3 | Hazardous Polymerization:         | <b>May occur, if exposed to extremely high temperatures.</b>                                                                                                                                     |
| 10.4 | Conditions to Avoid:              | <b>None reported.</b>                                                                                                                                                                            |
| 10.5 | Incompatible Substances:          | <b>This product is incompatible with strong oxidizers (e.g., peroxides, superoxides), strong acids (e.g., hydrochloric or muriatic acids), or strong bases (e.g., lye, potassium hydroxide).</b> |

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

MSDS Revision: 1.0

MSDS Revision Date: 01/01/2005

## 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:        | No                                                                                                                                                                                                                                         |
| 11.5 | 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 cause teratogenic effects in humans.                                                                                                                                                                       |
|      | Reproductive Toxicity:       | This product is not reported to cause 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:     | The components of this product will slowly degrade over time into a variety of organic compounds. Specific environmental data available for the components of this product are as follows:<br><br>Ethyl Acetate: $K_{oc} = 0.73$ . Water solubility: 64,000 mg/l. Bioconcentration Factor = 4-14. Bioconcentration is not anticipated to be significant. This compound can be removed from contaminated environments from volatilization, and biodegradation. This compound's half-life in water is 6.1 hours. |
| 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; however, very large releases of this product may be harmful or fatal to overexposed aquatic life.                                                                                                                                                                                                                                                                                                                                                       |

## 13. DISPOSAL CONSIDERATIONS

|      |                         |                                                                                              |
|------|-------------------------|----------------------------------------------------------------------------------------------|
| 13.1 | Waste Disposal:         | Waste disposal must be in accordance with appropriate Federal, state, and local regulations. |
| 13.2 | Special Considerations: | U.S. EPA WASTE NUMBER: D001 (characteristic - ignitable)                                     |

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

MSDS Revision: 1.0

MSDS Revision Date: 01/01/2005

## 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>CONSUMER COMMODITY, ORM-D (<math>\leq 1.0</math> L)</b><br><b>UN1173, ETHYL ACETATE, 3, II (<math>&gt; 1.0</math> L)</b>                                                                 |  |
| 14.2 | IATA (AIR):<br><b>CONSUMER COMMODITY, 9, ID8000 (<math>\leq 0.5</math> L)</b><br><b>UN1173, ETHYL ACETATE, 3, II (<math>&gt; 0.5</math> L)</b>                                                               |                                                                                     |
| 14.3 | IMDG (OCN):<br><b>UN1173, ETHYL ACETATE, 3, II, LTD QTY (<math>\leq 1.0</math> L)</b><br><b>UN1173, ETHYL ACETATE, 3, II (<math>&gt; 1.0</math> L)</b>                                                       |                                                                                     |
| 14.4 | TDGR (Canadian GND):<br><b>MARK PACKAGE "LIMITED QUANTITY" or "QUANTITÉ LIMITÉE" or "LTD QTY" or "QUANT LTÉE" (<math>\leq 1.0</math> L)</b><br><b>UN1173, ETHYL ACETATE, 3, II (<math>&gt; 1.0</math> L)</b> |                                                                                     |
| 14.5 | ADR/RID (EU):<br><b>UN1173, ETHYL ACETATE, 3, II, ADR, LTD QTY (<math>\leq 1.0</math> L)</b>                                                                                                                 |                                                                                     |

## 15. REGULATORY INFORMATION

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                             |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15.1 | SARA Reporting Requirements:<br><b>SARA 304 (40 CFR Table 302.4) - Ethyl Acetate</b>                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                             |
| 15.2 | SARA Threshold Planning Quantity:<br><b>There are no specific Threshold Planning Quantities for the components of this product.</b>                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                             |
| 15.3 | TSCA Inventory Status:<br><b>The components of this product are listed on the TSCA Inventory.</b>                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                             |
| 15.4 | CERCLA Reportable Quantity (RQ):<br><b>Ethyl Acetate – 5000 lbs</b>                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                             |
| 15.5 | Other Federal Requirements:<br><b>This product complies with the appropriate sections of the Food and Drug Administration's 21 CFR subchapter G (Cosmetics).</b>                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                             |
| 15.6 | Other Canadian Regulations:<br><b>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. All components of this product, except Methacryloyloxyethyl Maleate (CAS No. 51978-15-5), are listed on the DSL/NDL. None of the components of this product are listed on the Priorities Substances List. Class B2 Flammable Liquid.</b>                                                                                 |   |
| 15.7 | State Regulatory Information:<br><b>Ethyl Acetate is covered under specific state criteria. No component of this product is listed on the California Proposition 65 lists.</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:</b><br><b>Ethyl Acetate: Flammable (F). R: 11-36/37/38 – Highly flammable. Irritating to eyes, respiratory system and skin. S: 2-16-23-29-33 – Keep out of the reach of children. Keep away from sources of ignition - No smoking. Do not breathe gas, fumes, vapor or spray. Do not empty into drains. Take precautionary measures against static discharges.</b> |   |

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

MSDS Revision: 1.0

MSDS Revision Date: 01/01/2005

## 16. OTHER INFORMATION

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16.1 | Other Information:<br><b>Keep out of reach of children. Do not take internally. Keep away from heat and open flame.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 16.2 | Terms & Definitions:<br><b>See page 8 of this MSDS.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 16.3 | Disclaimer:<br>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 & OPI Products' 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 | <div>Prepared for:<br/><b>OPI Products, Inc.</b><br/>13034 Saticoy Street<br/>No. Hollywood, CA 91605 USA<br/>(818) 759-2400 phone<br/>(818) 759-5770 fax<br/><a href="http://www.opi.com/">http://www.opi.com/</a></div> <div>O·P·I</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 16.5 | <div>Prepared by:<br/><b>ShipMate, Inc.</b><br/>18436 Hawthorne Boulevard, Suite 201<br/>Torrance, CA 90504<br/>310-360-3700 phone<br/>310-360-5700 fax<br/><a href="http://www.shipmate.com/">http://www.shipmate.com/</a></div> <div> <b>ShipMate®</b><br/><i>Dangerous Goods<br/>Training &amp; Consulting</i></div>                                                                                                                                                                                                                                                                                                                                              |

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

MSDS Revision: 1.0

MSDS Revision Date: 01/01/2005

## 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

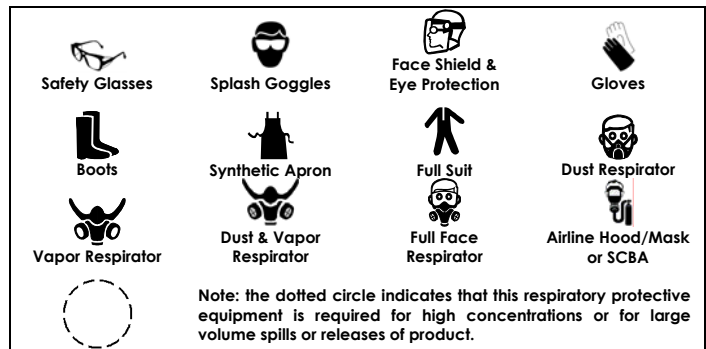
## HEALTH, FLAMMABILITY &amp; REACTIVITY RATINGS:

|   |                 |
|---|-----------------|
| 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 |

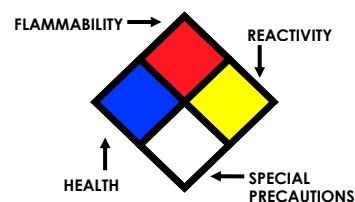
## NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

## 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>50</sub> or TC, TC <sub>10</sub> , LC <sub>10</sub> , & LC <sub>50</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 |