1. PRODUCT IDENTIFICATION

1.1 Product Name:
OPI START TO FINISH BASE COAT, TOP COAT & NAIL STRENGTHENER REGULAR FORMULA

1.2 Chemical Name:
Solvent Mixture

1.3 Synonyms:
NA

1.4 Trade Names:
NTT70-EU

1.5 Product Use:
COSMETIC USE ONLY

1.6 Distributor’s Name:
OPI PRODUCTS, INC

1.7 Distributor’s Address:
13034 SATICOY STREET, NO. HOLLYWOOD, CA 91605 USA

1.8 Emergency Phone:
CHEMTREC: +1 (703) 527-3887 / +1 (800) 424-9300

1.9 Business Phone:
+1 (818) 759-2400 / +1 (800) 341-9999

2. HAZARD IDENTIFICATION

2.1 Hazard Identification:
Flammable liquid. This product is classified as a hazardous substance and as dangerous goods according to the classification criteria of NOHSC and ADG Code (Australia).

2.2 Routes of Entry:
Inhalation: YES
Absorption: YES
Ingestion: YES

2.3 Effects of Exposure:
INGESTION: If product is swallowed, may cause nausea, vomiting and/or diarrhea and central nervous system depression.
EYES: Irritating to eyes. Symptoms of overexposure may include redness, itching, irritation and watering.
SKIN: May be irritating to skin in some sensitive individuals, especially after prolonged and/or repeated contact.
INHALATION: 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 3 (Composition and Ingredient Information) can cause central nervous system depression (e.g., drowsiness, dizziness, headaches, nausea).

2.4 Symptoms of Overexposure:
Symptoms of skin overexposure in individuals may include redness, itching, and irritation of affected areas. Overexposure in eyes may cause redness, itching and watering.

2.5 Acute Health Effects:
Mild to moderate irritation to eyes and skin near affected areas. Additionally, high concentrations of vapors can cause drowsiness, dizziness, headaches and nausea.

2.6 Chronic Health Effects:
No chronic health effects are known, although symptoms and discomfort may occur for several days following overexposure.

2.7 Target Organs:
Eyes, skin and respiratory system.

3. COMPOSITION & INGREDIENT INFORMATION

<table>
<thead>
<tr>
<th>CHEMICAL NAME(S)</th>
<th>CAS No.</th>
<th>RTECS No.</th>
<th>EINECS No.</th>
<th>%</th>
<th>EXPOSURE LIMITS IN AIR (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ACGIH - ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TLV</td>
</tr>
<tr>
<td>TOLUENE</td>
<td>108-88-3</td>
<td>XS5250000</td>
<td>203-625-9</td>
<td>≤ 25.0</td>
<td>50</td>
</tr>
<tr>
<td>ALCOHOL DENATURED</td>
<td>64-17-5</td>
<td>KQ3000000</td>
<td>200-578-6</td>
<td>≤ 20.0</td>
<td>1900</td>
</tr>
<tr>
<td>ETHYL ACETATE</td>
<td>141-78-6</td>
<td>AH5425000</td>
<td>205-500-4</td>
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<td>400</td>
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<tr>
<td>BUTYL ACETATE</td>
<td>123-86-4</td>
<td>AF7350000</td>
<td>205-658-1</td>
<td>≤ 20.0</td>
<td>150</td>
</tr>
</tbody>
</table>

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 Z400.1-2004 format.
3. COMPOSITION & INGREDIENT INFORMATION- continued

<table>
<thead>
<tr>
<th>CHEMICAL NAME(S)</th>
<th>CAS No.</th>
<th>RTECS No.</th>
<th>EINECS No.</th>
<th>%</th>
<th>TLV</th>
<th>STEL</th>
<th>PEL</th>
<th>STEL</th>
<th>IDLH</th>
<th>ACGIH - ppm</th>
<th>OSHA - ppm</th>
<th>OTHER</th>
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<tbody>
<tr>
<td>NITROCELLULOSE</td>
<td>9004-70-0</td>
<td>FJ60000000</td>
<td>NA</td>
<td>≤ 10.0</td>
<td>NA</td>
<td>NA</td>
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<td>NA</td>
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<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>TOSYLAMIDE EPOXY RESIN</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>≤ 5.0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>≤ 5.0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>ISOPROPYL ALCOHOL</td>
<td>67-63-0</td>
<td>NT80500000</td>
<td>200-661-7</td>
<td>≤ 5.0</td>
<td>400</td>
<td>500</td>
<td>400</td>
<td>500</td>
<td>2000</td>
<td>400 TWA</td>
<td>400 TWA</td>
<td>400 TWA</td>
</tr>
<tr>
<td>POLYVINYL BUTYRAL</td>
<td>63148-65-2</td>
<td>TR49550000</td>
<td>NA</td>
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<td>NA</td>
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<td>≤ 3.0</td>
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<tr>
<td>TRIPHENYL PHOSPHATE</td>
<td>115-86-6</td>
<td>TC84000000</td>
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<td>3</td>
<td>NA</td>
<td>3</td>
<td>NA</td>
<td>NA</td>
<td>≤ 2.0</td>
<td>3</td>
<td>NA</td>
</tr>
<tr>
<td>TRIMETHYL PENTANYL DIISOBUTYRATE</td>
<td>6846-50-0</td>
<td>SA142000</td>
<td>229-937-9</td>
<td>≤ 2.0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>≤ 2.0</td>
<td>NA</td>
<td>NA</td>
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<tr>
<td>n-BUTYL ALCOHOL</td>
<td>71-36-3</td>
<td>EO14000000</td>
<td>200-001-8</td>
<td>≤ 1.0</td>
<td>50</td>
<td>NA</td>
<td>100</td>
<td>NA</td>
<td>NA</td>
<td>≤ 1.0</td>
<td>50</td>
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</tr>
<tr>
<td>CAMPHOR</td>
<td>76-22-2</td>
<td>EX12250000</td>
<td>NA</td>
<td>≤ 1.0</td>
<td>NA</td>
<td>NA</td>
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<td>NA</td>
<td>NA</td>
<td>≤ 1.0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>FORMALDEHYDE</td>
<td>50-00-0</td>
<td>LP89250000</td>
<td>200-001-8</td>
<td>≤ 1.0</td>
<td>(0.3)</td>
<td>NA</td>
<td>(0.75)</td>
<td>NA</td>
<td>NA</td>
<td>(0.016)</td>
<td>(0.3)</td>
<td>NA</td>
</tr>
</tbody>
</table>

OTHER COMPONENTS PRESENT IN LESS THAN 1% CONCENTRATION BAL THE REMAINING COMPONENTS DO NOT CONTRIBUTE ANY SIGNIFICANT ADDITIONAL HAZARDS

4. FIRST AID MEASURES

4.1 First Aid:

INGESTION: If ingested, do not induce vomiting. Drink plenty of water or milk IMMEDIATELY. If the patient is vomiting, continue to offer plenty of 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 and amount of the substance that was swallowed.

EYES: If product is 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 problem persists, consult a physician.

SKIN: If redness, dryness or other signs of irritation to the skin develop, wash affected skin areas with plenty of warm water and soap. If irritation persists, consult a physician.

INHALATION: Remove victim to fresh air at once.

4.2 Medical Conditions Aggravated by Exposure:

None known.

5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

- 4 °C (24 °F) estimated.

5.2 Autoignition Temperature:

NA

5.3 Flammability Limits:

Lower Explosive Limit (LEL): NE
Upper Explosive Limit (UEL): NE

5.4 Fire & Explosion Hazards:

WARNING: Flammable! Keep away from heat, lit cigarettes, sparks & open flame. Keep container closed.

5.5 Extinguishing Methods:

HazChem Code: 3YE
Hazard Identification Number: 33
CO2, Halon, Dry Chemical, Foam
5. FIREFIGHTING MEASURES – continued

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). 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). Transfer product to containers for recovery or disposal and solid diking material to separate containers for proper disposal. Remove contaminated clothing promptly and wash affected skin areas with soap and water. Keep spills and cleaning runoffs out of municipal sewers and open bodies of water.

7. HANDLING & STORAGE INFORMATION

7.1 Work & Hygiene Practices:
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 and water. Do not eat, drink or smoke while handling product.

7.2 Storage & Handling:
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. Store away from incompatible materials (see Section 10).

7.3 Special Precautions:
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.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1 Ventilation & Engineering Controls:
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.

8.2 Respiratory Protection:
No special respiratory protection is required under typical circumstances of use or handling. If necessary, use only respiratory protection authorized per U.S. OSHA’s requirement in 29 CFR §1910.134, or applicable U.S. state regulations, or the appropriate standards of Canada, its provinces, E.C. member states, or Australia.

8.3 Eye Protection:
Depending on the use of this product, splash or safety glasses may be worn. If necessary, refer to U.S. OSHA 29 CFR §1910.133, Canadian standards, or the European Standard EN166.

8.4 Hand Protection:
If anticipated that prolonged & repeated skin contact will occur during use of this product, wear latex or rubber gloves for routine industrial use. If necessary, refer to U.S. OSHA 29 CFR §1910.138, the appropriate standards of Canada, of the E.C. member states.

8.5 Body Protection:
No special body protection is required under typical circumstances of use and handling. If necessary, refer to appropriate standards of Canada, the E.C. member states, or U.S. OSHA.
9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Density: 0.9980 TO 1.0008
9.2 Boiling Point: NA
9.3 Melting Point: NE
9.4 Evaporation Rate: NA
9.5 Vapor Pressure: NA
9.6 Molecular Weight: NE
9.7 Appearance & Color: Viscous liquid
9.8 Odor Threshold: ND
9.9 Solubility: Insoluble
9.10 pH: NA
9.11 Viscosity: 1000 cPs TO 3000 cPs
9.12 Other Information: NA

10. STABILITY & REACTIVITY

10.1 Stability:
This product is stable under ambient conditions when stored properly (see Section 7, Storage and Handling).

10.2 Hazardous Decomposition Products:
If exposed to extremely high temperatures, the products of thermal decomposition may include irritating vapors and carbon oxide gases (e.g., CO, CO₂).

10.3 Hazardous Polymerization:
May occur, if exposed to extremely high temperatures.

10.4 Conditions to Avoid:
Open flames, sparks, high heat and direct sunlight. This product is incompatible with strong oxidizers (e.g., peroxides, superoxides), strong acids (e.g., hydrochloric or muriatic acids), strong bases (e.g., lye, potassium hydroxide).

10.5 Incompatible Substances:
None known.

11. TOXICOLOGICAL INFORMATION

11.1 Toxicity Data:
The 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. This data has not been presented in this document.

11.2 Acute Toxicity:
See section 2.5

11.3 Chronic Toxicity:
See section 2.6

11.4 Suspected Carcinogen:
This product contains Formaldehyde which is listed as an OSHA carcinogen, Group 1 carcinogen (IARC) and a Group 2 carcinogen (NTP). This product contains Formaldehyde, a substance known to the State of California to cause cancer (California Proposition 65). This product also contains Toluene and Isopropyl Alcohol, which are not carcinogenic to humans, but are listed as Group 3 carcinogens by IARC.

11.5 Reproductive Toxicity:
This product contains Toluene, a substance known to the State of California to cause reproductive harm (California Proposition 65).

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. TOXICOLOGICAL INFORMATION—continued

11.6 Irritancy of Product:  
See Section 2.3

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: Ethyl Acetate: KOC = 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. Butyl Acetate: KOC = 1.82. Water solubility: 120 parts H2O at 25°C (77°F). 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. Isopropyl Alcohol: Log KOW = 0.05-0.14. Isopropyl alcohol occurs naturally; it is generated during microbial degradation of plant and animal wastes. When released on land or water, it is apt to volatilize and biodegrade. The estimated half-life in water is 5.4 days. Isopropyl alcohol is not expected to bioconcentrate.

12.2 Effects on Plants & Animals:  
There is no specific data available for this product.

12.3 Effects on Aquatic Life:  
There is no specific data available for this product; however, very large release of this product may be harmful or fatal to overexposed aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste Disposal:  
Dispose of in accordance with federal, state and local regulations.

13.2 Special Considerations:  
U.S. EPA WASTE NUMBER: D001 (characteristic - ignitable)

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):  
CONSUMER COMMODITY, ORM-D (≤ 1.0 L) UN1263, PAINT, 3, II (> 1.0 L)

14.2 IATA (AIR):  
CONSUMER COMMODITY, 9, ID8000 (≤ 0.5 L) UN1263, PAINT, 3, II (> 0.5 L)

14.3 IMDG (CCNI):  
UN1263, PAINT, 3, II, LTD QTY (≤ 1.0 L) UN1263, PAINT, 3, II (> 1.0 L)

14.4 TDGR (Canadian GND):  
MARK PACKAGE “LIMITED QUANTITY” or “QUANTITÉ LIMITÉE” or “LTD QTY” or “QUANT LTÉE” (≤ 1.0 L) UN1263, PAINT, 3, II (> 1.0 L)

14.5 ADR/RID (EU):  
UN1263, PAINT, 3, II, ADR, LTD QTY (≤ 1.0 L)

14.6 SCT (MEXICO):  
UN1263, PINTURA, 3, II, CANTIDAD LIMITADA (≤ 1.0 L)
15. REGULATORY INFORMATION

15.1 SARA Reporting Requirements:
SARA 304 (40 CFR Table 302.4) – Butyl Acetate, Ethyl Acetate

15.2 SARA Threshold Planning Quantity:
There are no specific Threshold Planning Quantities for the components of this product.

15.3 TSCA Inventory Status:
All chemical substances of this product are listed on the TSCA inventory or are otherwise exempted from inventory status.

15.4 CERCLA Reportable Quantity (RQ):

15.5 Other Federal Requirements:
This product complies with the appropriate sections of the Food and Drug Administration’s 21 CFR subchapter G (Cosmetics).

15.6 Other Canadian Regulations:
This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDSL. None of the components of this product are listed on the Priorities Substances List. Class B2 Flammable Liquid.

15.7 State Regulatory Information:
Ingredients in this mixture on found on the following state criteria lists:

- California OSHA Hazardous Substances List
  - Butyl Acetate, Toluene, Ethyl Acetate, Isopropanol, Formaldehyde
- California Proposition 65 (Reproductive Harm)
  - Toluene
- Delaware Air Quality Management List
  - Butyl Acetate, Toluene, Ethyl Acetate, Nitrocellulose, Formaldehyde, n-Butanol
- Massachusetts Hazardous Substances List
  - Butyl Acetate, Toluene, Ethyl Acetate, Isopropanol, Formaldehyde, Nitrocellulose, Camphor, Triphenyl Phosphate, n-Butanol
- Michigan Critical Substances List
  - Butyl Acetate, Toluene, Ethyl Acetate, Isopropanol, Formaldehyde, n-Butanol
- Minnesota Hazardous Substances List
  - Butyl Acetate, Toluene, Ethyl Acetate, Isopropanol, Formaldehyde, n-Butanol
- New Jersey Right to Know Hazardous Substances List
  - Butyl Acetate, Toluene, Ethyl Acetate, Isopropanol, Formaldehyde, n-Butanol
- New York List of Hazardous Substances
  - Butyl Acetate, Toluene, Ethyl Acetate, Isopropanol, Formaldehyde, n-Butanol
- Pennsylvania Hazardous Substances List
  - Butyl Acetate, Toluene, Ethyl Acetate, Isopropanol, Formaldehyde, n-Butanol
- Rhode Island Toxic Air Contaminants List
  - Butyl Acetate, Toluene, Ethyl Acetate, Isopropanol, Formaldehyde, n-Butanol
- Washington Permissible Exposure Limits for Air Contaminants
  - Butyl Acetate, Toluene, Ethyl Acetate, Isopropanol, Formaldehyde, n-Butanol
- Wisconsin Hazardous Substances List
  - Butyl Acetate, Toluene, Ethyl Acetate, Isopropanol, Formaldehyde, n-Butanol

15.8 67/548/EEC (European Union) Requirements:
The primary component of this product is not listed in Annex I of EU Directive 67/548/EEC:
- Formaldehyde: R: 23/24/25-34-40-43: Toxic by inhalation, in contact with skin and if swallowed. Can become highly flammable in use. Limited evidence of a carcinogenic effect. May cause sensitization by skin contact. S: (1/2)-26-36/37/39-45-51: Keep locked up and out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell seek medical advice immediately (show the label where possible). Use only in well-ventilated area. Do not empty into drains. Take precautionary measures against static discharges.
16. OTHER INFORMATION

16.1 Other Information:
**EXTREMELY FLAMMABLE!** Keep away from heat or flame. Use only as directed. Avoid eye contact. If contact occurs, flush eye thoroughly with running water. Use only in a well-ventilated area. If redness or other signs of adverse reaction occur, discontinue use immediately. Keep container closed. Store in a cool place. **KEEP OUT OF REACH OF CHILDREN.**

16.2 Terms & Definitions:
See last page 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 & OPI Products 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:
OPI Products, Inc.
13034 Saticoy Street
No. Hollywood, CA 91605 USA
+1 (818) 759-2400 phone
+1 (818) 759-5770 fax
http://www.opi.com/

16.5 Prepared by:
ShipMate, Inc.
18436 Hawthorne Boulevard, Suite 201
Torrance, CA 90504
+1 (310) 370-3600 phone
+1 (310) 370-5700 fax
http://www.shipmate.com
A large number of abbreviations and acronyms appear on a MSDS. Some of these that are commonly used include the following:

**GENERAL INFORMATION:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS No.</td>
<td>Chemical Abstract Service Number</td>
</tr>
</tbody>
</table>

**EXPOSURE LIMITS IN AIR:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference on Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>OSHA</td>
<td>U.S. Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>IDLH</td>
<td>Immediately Dangerous to Life and Health</td>
</tr>
</tbody>
</table>

**PERSONAL PROTECTION RATINGS:**

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<tr>
<th>Letter</th>
<th>Protective Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Safety Glasses</td>
</tr>
<tr>
<td>B</td>
<td>Gloves</td>
</tr>
<tr>
<td>C</td>
<td>Boots</td>
</tr>
<tr>
<td>D</td>
<td>Splash Goggles</td>
</tr>
<tr>
<td>E</td>
<td>Face Shield &amp; Eye Protection</td>
</tr>
<tr>
<td>F</td>
<td>Dust Respirator</td>
</tr>
</tbody>
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**HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS**

**HEALTH, FLAMMABILITY & REACTIVITY RATINGS:**

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<th>Rating</th>
<th>Description</th>
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<tr>
<td>2</td>
<td>Moderate Hazard</td>
</tr>
<tr>
<td>3</td>
<td>Severe Hazard</td>
</tr>
<tr>
<td>4</td>
<td>Extreme Hazard</td>
</tr>
</tbody>
</table>

**FLAMMABILITY LIMITS IN AIR:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoignition Temperature</td>
<td>Minimum temperature required to initiate combustion in air with no other source of ignition</td>
</tr>
<tr>
<td>LEL</td>
<td>Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source</td>
</tr>
<tr>
<td>UEL</td>
<td>Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source</td>
</tr>
</tbody>
</table>

**SPECIAL PRECAUTIONS:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPR</td>
<td>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.</td>
</tr>
</tbody>
</table>

**OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards**

**WHMIS INFORMATION:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACID</td>
<td>Acidic</td>
</tr>
<tr>
<td>ALK</td>
<td>Alkaline</td>
</tr>
<tr>
<td>COR</td>
<td>Corrosive</td>
</tr>
<tr>
<td>NO</td>
<td>Use No Water</td>
</tr>
<tr>
<td>OX</td>
<td>Oxidizer</td>
</tr>
</tbody>
</table>

**EC INFORMATION:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
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</table>

**PRODUCT SPECIFIC INFORMATION:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>Not Available</td>
</tr>
<tr>
<td>NR</td>
<td>No Results</td>
</tr>
<tr>
<td>NE</td>
<td>Not Established</td>
</tr>
<tr>
<td>ND</td>
<td>Not Determined</td>
</tr>
<tr>
<td>ML</td>
<td>Maximum Limit</td>
</tr>
<tr>
<td>SCBA</td>
<td>Self-Contained Breathing Apparatus</td>
</tr>
</tbody>
</table>

**REGULATORY INFORMATION:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHMIS</td>
<td>Canadian Workplace Hazardous Material Information System</td>
</tr>
<tr>
<td>DOT</td>
<td>U.S. Department of Transportation</td>
</tr>
<tr>
<td>TC</td>
<td>Transport Canada</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>DSL</td>
<td>Canadian Domestic Substance List</td>
</tr>
<tr>
<td>NDSL</td>
<td>Canadian Non-Domestic Substance List</td>
</tr>
<tr>
<td>PSL</td>
<td>Canadian Priority Substances List</td>
</tr>
<tr>
<td>TSCA</td>
<td>U.S. Toxic Substance Control Act</td>
</tr>
</tbody>
</table>

**TOXICOLOGICAL INFORMATION:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50</td>
<td>Lethal Dose (solids &amp; liquids) which kills 50% of the exposed animals</td>
</tr>
<tr>
<td>LC50</td>
<td>Lethal concentration (gases) which kills 50% of the exposed animal</td>
</tr>
<tr>
<td>ppm</td>
<td>Parts per million</td>
</tr>
<tr>
<td>TDL0</td>
<td>Lowest dose to cause a symptom</td>
</tr>
<tr>
<td>TCL0</td>
<td>Lowest concentration to cause a symptom</td>
</tr>
<tr>
<td>TDLo, LDLo, &amp; LCLo</td>
<td>Lowest dose (or concentration) to cause lethal or toxic effects</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
</tr>
<tr>
<td>RTECS</td>
<td>Registry of Toxic Effects of Chemical Substances</td>
</tr>
<tr>
<td>BCF</td>
<td>Bioconcentration Factor</td>
</tr>
<tr>
<td>TCLm</td>
<td>Median threshold limit</td>
</tr>
</tbody>
</table>

**OTHER STANDARD ABBREVIATIONS:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>ACD</td>
<td>Acidic</td>
</tr>
<tr>
<td>CM</td>
<td>Corrosive</td>
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**DEFINITION OF TERMS**

**REACTIVITY**

- Harmful
- Oxidizing
- Toxic
- Irritating
- Corrosive
- Reactive

**FLAMMABILITY**

- Flammable
- Harmful
- Explosive
- Oxidizing
- Toxic
- Irritating
- Corrosive

**HEALTH**

- Harmful
- Oxidizing
- Toxic
- Irritating
- Corrosive

**EC INFORMATION:**

- Compressed
- Flammable
- Oxidizing
- Toxic
- Irritating
- Corrosive
- Reactive