

PAUL MITCHELL

SAFETY DATA SHEET

Page 1 of 6
PM-071

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards


SDS Revision: 1.2

SDS Revision Date: 7/1/2016

1. PRODUCT & COMPANY IDENTIFICATION

| | | |
|-----|------------------------------|--|
| 1.1 | Product Name: | PAUL MITCHELL – THE COLOR PERMANENT CREAM HAIR COLOR: UTP ULTRA TONER PLATINUM BLONDE |
| 1.2 | Chemical Name: | NA |
| 1.3 | Synonyms: | JPMS – The Color Permanent Cream Hair Color: UTP Ultra Toner Platinum Blonde |
| 1.4 | Trade Names: | Paul Mitchell – The Color Permanent Cream Hair Color: UTP Ultra Toner Platinum Blonde |
| 1.5 | Product Uses & Restrictions: | Professional Use Only |
| 1.6 | Distributor's Name: | JPMS Manufacturing, LLC |
| 1.7 | Distributor's Address: | 237 Buttonwood Street, Reading, PA 19601 USA |
| 1.8 | Emergency Phone: | CHEMTREC: +1 (703) 527-3887 / +1 (800) 424-9300 (CCN 11977) |
| 1.9 | Business Phone / Fax: | +1 (610) 374-4845 / +1(610) 373-7101 |

2. HAZARDS IDENTIFICATION

| | | | |
|-----|------------------------|---|---|
| 2.1 | Hazard Identification: | <p>This product is classified as a HAZARDOUS SUBSTANCE but NOT as DANGEROUS GOODS according to the classification criteria of NOHSC: 1088 (2004) and ADG Code (Australia).</p> <p>WARNING! MAY CAUSES AN ALLERGIC SKIN REACTION. CAUSES SERIOUS EYE IRRITATION.</p> <p><u>Classification:</u> Skin Sens.1; Eye Irrit. 2A</p> <p><u>Hazard Statements (H):</u> H317 – May cause an allergic skin reaction. H319 – Causes serious eye irritation.</p> <p><u>Precautionary Statements (P):</u> P271 – Use only in well-ventilated area. P280 – Wear protective gloves and eye/face protection. P305+P351+P338 – IF IN EYES: Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 – If eye irritation persists: Get medical advice/attention. P312 – Call a POISON CENTER/doctor if you feel unwell. P332+P313 – If skin irritation occurs: get medical advice/attention. P405 – Store locked up. P501 – Dispose of contents/container to a licensed treatment, storage or disposal facility (TSDF).</p> <p>NOTICE: This product is designed and intended for use by a licensed cosmetologist/professional hairdresser only, and carries no warranty, expressed or implied, if used by others. CAN CAUSE AN ALLERGIC REACTION. Preliminary patch testing is recommended. Tattoos, including black and temporary henna, may increase the risk of allergy. If a severe allergic reaction should occur, seek immediate medical attention. This product must not be used for dyeing the eyelashes or eyebrows - to do so may cause blindness.</p> |  |
|-----|------------------------|---|---|


3. COMPOSITION & INGREDIENT INFORMATION

| CHEMICAL NAME(S) | CAS No. | RTECS No. | EINECS No. | % | EXPOSURE LIMITS IN AIR (mg/m ³) | | | | | | | | | OTHER |
|--|---|-----------|------------|--------|---|------|-------|-----|-----|------|------|------|----------|-------|
| | | | | | ACGIH | | NOHSC | | | OSHA | | | | |
| | | | | | TLV | STEL | ppm | ppm | ppm | PEL | STEL | IDLH | | |
| JPMS PROPRIETARY BLEND | NA | NA | NA | 60-100 | NA | NA | NF | NF | NF | NA | NA | NA | 25 NIOSH | |
| AMMONIUM HYDROXIDE | 1336-21-6 | BQ9625000 | 215-647-6 | < 10.0 | 25 | 35 | 25 | 50 | NF | 25 | NA | NA | 25 NIOSH | |
| | Skin Corr. 1B; H314 | | | | | | | | | | | | | |
| p-PHENYLENEDIAMINE | 106-50-3 | SS8050000 | 203-404-7 | NA | NA | NA | NF | 0.1 | NF | NA | NA | 25 | | |
| | Acute Tox. 3*; Eye Irrit. 2; Skin Sens. 1; H331, H311, H301, H319, H317 | | | | | | | | | | | | | |
| 2,4-DIAMINOPHENOXYETHANOL HCl | 66422-95-5 | NA | 266-357-1 | NA | NA | NA | NF | NF | NF | NA | NA | NA | | |
| RESORCINOL | 108-46-3 | VG9625000 | 203-585-2 | NA | NA | NA | NF | NF | NF | NA | NA | NA | | |
| m-AMINOPHENOL | 591-27-5 | NA | 209-711-2 | NA | NA | NA | NF | NF | NF | NA | NA | NA | | |
| N,N-BIS(2-HYDROXYETHYL)-p-PHENYLENEDIAMINE SULFATE | 54381-16-7 | Na | 259-134-5 | < 1.0 | NA | NA | NF | NF | NF | NA | NA | NA | | |
| | Acute Tox. 3; Skin Sens. 1; Eye Irrit. 2; H301, H317, H319 | | | | | | | | | | | | | |
| TRIETHANOLAMINE | 102-71-6 | NA | 203-049-8 | NA | (5) | NA | NF | NF | NF | NA | NA | NA | | |
| | Skin Irrit. 2; Eye Irrit. 2; H315, H319 | | | | | | | | | | | | | |

4. FIRST AID MEASURES

| | | | | | | | | | | | | | | | | | |
|-----------------------------|--|---|---------------|--|----------|---------------------|--|----------|-------------------------|--|----------|-----------------------------|--|----------|-------------|-------------|--|
| 4.1 | First Aid: | <p>Ingestion: DO NOT INDUCE VOMITING. Contact ChemTrec at +1 (703) 527-3887 or the nearest Poison Control Center or local emergency telephone number for assistance and instructions. Seek immediate medical attention. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration.</p> <p>Eyes: If product gets in the eyes, flush eyes thoroughly with copious amounts of water for at least 15 minutes, holding eyelid(s) open to ensure complete flushing. If the eyes or face becomes swollen during or following use, consult a physician or emergency room immediately.</p> <p>Skin: Remove contaminated clothing and wash affected areas with soap and water. If discomfort persists and/or the skin reaction worsens, contact a physician immediately. In cases where discomfort persists and/or medical attention is sought, do not use hair color products again until the specific nature of the skin reaction and the causative agent has been identified by a dermatologist, and appropriate medical advice provided. Do not wear contaminated clothing until after it has been properly cleaned.</p> <p>Inhalation: Remove victim to fresh air at once. Under extreme conditions, if breathing stops, perform artificial respiration. Seek immediate medical attention.</p> | | | | | | | | | | | | | | | |
| 4.2 | Effects of Exposure: | <p>Ingestion: If product is swallowed may cause nausea, vomiting and/or diarrhea.</p> <p>Eyes: Moderately irritating to the eyes. Symptoms of overexposure may include redness, itching, stinging, irritation and watering.</p> <p>Skin: May be irritating to skin. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) or sensitization in some sensitive individuals.</p> <p>Inhalation: May cause mild, transient respiratory irritation. Avoid prolonged contact with concentrated vapors or mists.</p> | | | | | | | | | | | | | | | |
| 4.3 | Symptoms of Overexposure: | <p>Ingestion: Nausea, intestinal discomfort, vomiting and/or diarrhea.</p> <p>Eyes: Overexposure in eyes may cause redness, itching and watering.</p> <p>Skin: Symptoms of skin overexposure may include redness, itching, and irritation of affected areas. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) in some sensitive individuals.</p> | | | | | | | | | | | | | | | |
| 4.4 | Acute Health Effects: | Moderate irritation to eyes. Symptoms of overexposure may include redness, itching, stinging, irritation and watering. Moderate irritation to skin near affected areas. | | | | | | | | | | | | | | | |
| 4.5 | Chronic Health Effects: | No chronic health effects are expected to occur from a single accidental ingestion. | | | | | | | | | | | | | | | |
| 4.6 | Target Organs: | Eyes, skin. | | | | | | | | | | | | | | | |
| 4.7 | Medical Conditions Aggravated by Exposure: | Pre-existing dermatitis, other skin conditions, and disorders of the target organs (eyes and skin). | | | | | | | | | | | | | | | |
| | | <table border="1"> <tr> <td colspan="2">HEALTH</td> <td>1</td> </tr> <tr> <td colspan="2">FLAMMABILITY</td> <td>0</td> </tr> <tr> <td colspan="2">PHYSICAL HAZARDS</td> <td>1</td> </tr> <tr> <td colspan="2">PROTECTIVE EQUIPMENT</td> <td>B</td> </tr> <tr> <td>EYES</td> <td>SKIN</td> <td></td> </tr> </table> | HEALTH | | 1 | FLAMMABILITY | | 0 | PHYSICAL HAZARDS | | 1 | PROTECTIVE EQUIPMENT | | B | EYES | SKIN | |
| HEALTH | | 1 | | | | | | | | | | | | | | | |
| FLAMMABILITY | | 0 | | | | | | | | | | | | | | | |
| PHYSICAL HAZARDS | | 1 | | | | | | | | | | | | | | | |
| PROTECTIVE EQUIPMENT | | B | | | | | | | | | | | | | | | |
| EYES | SKIN | | | | | | | | | | | | | | | | |

5. FIREFIGHTING MEASURES

| | | | |
|-----|---------------------------|--|---|
| 5.1 | Fire & Explosion Hazards: | This product is not flammable. However, if involved in a fire, this product may decompose at high temperatures to form toxic gases (e.g., CO, CO ₂ , and NO _x). |  |
| 5.2 | Extinguishing Methods: | Water, Foam, CO ₂ , Dry Chemical | |
| 5.3 | Firefighting Procedures: | Fight fires as for surrounding materials. Hazardous decomposition products may be released. Thermal degradation may produce oxides of carbon and/or nitrogen, hydrocarbons and/or derivatives. Firefighters should wear a MSHA/NIOSH approved or equivalent self-contained breathing apparatus (SCBA) and protective clothing. Fire should be fought from a safe distance. Keep containers cool until well after the fire is out. Use water spray to cool fire-exposed surfaces and to protect personal. Fight fire upwind. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway. | |

6. ACCIDENTAL RELEASE MEASURES

| | | |
|-----|---------|---|
| 6.1 | Spills: | <p>Before cleaning any spill or leak, individuals involved in spill cleanup must wear appropriate Personal Protective Equipment.</p> <p>For <u>small spills</u> (e.g., < 1 gallon (3.8 L)) wear appropriate personal protective equipment (e.g., goggles, gloves). Maximize ventilation (open doors and windows) and secure all sources of ignition. Remove spilled material with absorbent material and place into appropriate closed container(s) for disposal. Dispose of properly in accordance with local, state and federal regulations. Wash all affected areas and outside of container with plenty of warm water and soap. Remove any contaminated clothing and wash thoroughly before reuse.</p> <p>For <u>large spills</u> (e.g., ≥ 1 gallon (3.8 L)), deny entry to all unprotected individuals. Dike and contain spill with inert material (e.g., sand or earth). 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.</p> |
|-----|---------|---|

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7. HANDLING & STORAGE INFORMATION

| | | |
|-----|---------------------------|--|
| 7.1 | Work & Hygiene Practices: | Do not eat, drink or smoke when handling this product. Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Do not expose to heat and flame. Use only in ventilated areas. Keep out of the reach of children. Wash unintentional residues with soap and warm water. |
| 7.2 | Storage & Handling: | Use and store in a cool, dry, well-ventilated location (e.g., local exhaust ventilation, fans) away from heat and direct sunlight. Avoid temperatures above 120°F. Keep away from incompatible substances. Protect containers from physical damage. To avoid unintentional spraying keep cap in place when not in use. Keep away from children at all times! |
| 7.3 | Special Precautions: | Spilled material may present a slipping hazard. Clean up all spills promptly. |

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

| | | | | | | | | | | | |
|-----|--|---|-------|------|--------|---------|---------|-------|------|------|---|
| 8.1 | Exposure Limits: ppm (mg/m ³) | | ACGIH | | NOHSC | | | OSHA | | | OTHER |
| | | CHEMICAL NAME(S) | TLV | STEL | ES-TWA | ES-STEL | ES-PEAK | PEL | STEL | IDLH | |
| | | AMMONIUM HYDROXIDE | 25 | 35 | 25 | 50 | NF | 25 | NA | NA | 25 NIOSH |
| | | p-PHENYLENEDIAMINE | NA | NA | NF | (0.1) | NF | (0.1) | NA | 25 | |
| | | TRIETHANOLAMINE | (5) | NA | NF | NF | NF | NA | NA | NA | |
| 8.2 | Ventilation & Engineering Controls: | General mechanical (e.g., fans) or natural ventilation is sufficient when this product is in use. Use local or general exhaust ventilation to effectively remove and prevent buildup of vapors or mist generated from the handling of this product. Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station). | | | | | | | | | |
| 8.3 | Respiratory Protection: | No special respiratory protection is required under typical circumstances of use or handling. In instances where vapors or sprays of this product are generated, and respiratory protection is needed, use only protection authorized by 29 CFR §1910.134, applicable U.S. State regulations, or the Canadian CAS Standard Z94.4-93 and applicable standards of Canadian Provinces, EC member States, or Australia. | | | | | | | | | |
| 8.4 | Eye Protection: | Avoid eye contact. None required under normal conditions of use. When handling large quantities (e.g., ≥ 1 gallon (3.8 L)) safety glasses with side shields should be used. | | | | | | | | |  |
| 8.5 | Hand Protection: | Required under normal conditions of use to prevent staining and keep exposure level to a minimum. Use latex or PVC gloves. When handling large quantities (e.g., ≥ 1 gallon (3.8 L)), wear rubber or impervious plastic gloves must be worn. | | | | | | | | |  |
| 8.6 | Body Protection: | No apron required when handling small quantities. Lab coat or apron should be worn to protect skin and clothing. 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. | | | | | | | | |  |

9. PHYSICAL & CHEMICAL PROPERTIES

| | | |
|------|---|--------------------------------|
| 9.1 | Appearance: | White cream |
| 9.2 | Odor: | Ammoniacal / menthol like odor |
| 9.3 | Odor Threshold: | NA |
| 9.4 | pH: | NA |
| 9.5 | Melting Point/Freezing Point: | 60-65 °C (140-149 °F) |
| 9.6 | Initial Boiling Point/Boiling Range: | NA |
| 9.7 | Flashpoint: | NA |
| 9.8 | Upper/Lower Flammability Limits: | NA |
| 9.9 | Vapor Pressure: | NA |
| 9.10 | Vapor Density: | NA |
| 9.11 | Relative Density: | 0.899 g/mL |
| 9.12 | Solubility: | Slightly soluble |
| 9.13 | Partition Coefficient (log P _{ow}): | NA |
| 9.14 | Autoignition Temperature: | NA |
| 9.15 | Decomposition Temperature: | NA |
| 9.16 | Viscosity: | NA |
| 9.17 | Other Information: | NA |

10. STABILITY & REACTIVITY

| | | |
|------|-----------------------------------|---|
| 10.1 | Stability: | Stable under normal conditions; unstable with heat or contamination. |
| 10.2 | Hazardous Decomposition Products: | Oxides of carbon (CO, CO ₂), nitrogen (NO _x) and sulfur (SO ₂). |
| 10.3 | Hazardous Polymerization: | Will not occur. |
| 10.4 | Conditions to Avoid: | Open flames, sparks, high heat, incompatible substances and direct sunlight. |
| 10.5 | Incompatible Substances: | Avoid extreme heat and ignition sources. Store away from oxidizers. |

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11. TOXICOLOGICAL INFORMATION

| | | | | |
|------|------------------------------|---|-----------------|----------------|
| 11.1 | Routes of Entry: | Inhalation: NO | Absorption: YES | Ingestion: YES |
| 11.2 | Toxicity Data: | This product has NOT been tested on animals to obtain toxicology data. Toxicology data, found in scientific literature, is available for some of the components of the product but is not presented in this document. | | |
| 11.3 | Acute Toxicity: | Moderate irritation to eyes and skin near affected areas. Additionally, high concentrations of vapors can cause drowsiness, dizziness, headaches and nausea. | | |
| 11.4 | Chronic Toxicity: | This material may aggravate any pre-existing skin condition (e.g., dermatitis). | | |
| 11.5 | Suspected Carcinogen: | This product contains <u>p-Phenylenediamine</u> and <u>Resorcinol</u> , which are not carcinogenic to humans, but are listed as Group 3 carcinogens by the IARC. This product contains <u>p-Phenylenediamine</u> listed by ACGIH in group A4. | | |
| 11.6 | Reproductive Toxicity: | This product is not reported to produce reproductive toxicity in humans. | | |
| | Mutagenicity: | This product is not reported to produce mutagenic effects in humans. | | |
| | Embryotoxicity: | This product is not reported to produce embryotoxic effects in humans. | | |
| | Teratogenicity: | This product is not reported to cause teratogenic effects in humans. | | |
| | Reproductive Toxicity: | This product is not reported to cause reproductive effects in humans. | | |
| 11.7 | Irritancy of Product: | The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) upon prolonged or repeated exposure. | | |
| 11.8 | Biological Exposure Indices: | NE | | |
| 11.9 | Physician Recommendations: | Treat symptomatically. | | |

12. ECOLOGICAL INFORMATION

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

13. DISPOSAL CONSIDERATIONS

| | | |
|------|-------------------------|---|
| 13.1 | Waste Disposal: | Products covered by this MSDS, in their original form, when disposed as waste, are considered non hazardous waste according to Federal RCRA regulations (40 CFR 261). Disposal should be in accordance with local, state and federal regulations. Dispose of in accordance with federal, state and local regulations. |
| 13.2 | Special Considerations: | California Waste Code: 331 |

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

| | | |
|------|----------------------|---------------|
| 14.1 | 49 CFR (GND): | NOT REGULATED |
| 14.2 | IATA (AIR): | NOT REGULATED |
| 14.3 | IMDG (OCN): | NOT REGULATED |
| 14.4 | TDGR (Canadian GND): | NOT REGULATED |
| 14.5 | ADR/RID (EU): | NOT REGULATED |
| 14.6 | SCT (MEXICO): | NOT REGULATED |
| 14.7 | ADGR (AUS): | NOT REGULATED |

15. REGULATORY INFORMATION

| | | |
|------|-----------------------------------|--|
| 15.1 | SARA Reporting Requirements: | This product contains <u>p-Phenylenediamine</u> and <u>Ammonium Hydroxide</u> (as ammonia) substances subject to SARA Title III, section 313 reporting requirements. |
| 15.2 | SARA Threshold Planning Quantity: | This product is not subject to the reporting requirements of SARA Title III, Section 302. |
| 15.3 | TSCA Inventory Status: | All components of this product are listed in the TSCA Inventory or are exempt. |
| 15.4 | CERCLA Reportable Quantity (RQ): | <u>Ammonium Hydroxide</u> (Ammonia): 454 kg (1,000 lbs); <u>p-Phenylenediamine</u> : 2,270 kg (5,000 lbs). |
| 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 Controlled Products Regulations (CPR) and the SDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDSL. None of the components of this product are listed on the Priorities Substances List. WHMIS D2B (Other Toxic Effects). |



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15. REGULATORY INFORMATION – cont'd

| | | |
|------|-------------------------------|--|
| 15.7 | State Regulatory Information: | <p><u>Ammonium Hydroxide</u> (as ammonia) can be found on the following state criteria lists: Illinois Hazardous Substances List (IL); Massachusetts Hazardous Substances List (MA); New Jersey Right-to-Know List (NJ); Pennsylvania Right-to-Know List (PA); Rhode Island Hazardous Substances List (RI).</p> <p><u>p-Phenylenediamine</u> is found on the following state criteria list: FL, MA, MN, NJ, PA and WA</p> <p><u>Triethanolamine</u> is found on the following state criteria lists: FL, MA, MN, and PA.</p> <p>No other ingredients in this product, present in a concentration of 1.0% or greater, are listed on any of the following state criteria lists: California Proposition 65 (CA65), Delaware Air Quality Management List (DE), Florida Toxic Substances List (FL), Massachusetts Hazardous Substances List (MA), Michigan Critical Substances List (MI), Minnesota Hazardous Substances List (MN), New Jersey Right-to-Know List (NJ), New York Hazardous Substances List (NY), Pennsylvania Right-to-Know List (PA), Washington Permissible Exposures List (WA), Wisconsin Hazardous Substances List (WI).</p> |
| 15.8 | Other Requirements: | NA |

16. OTHER INFORMATION

| | | | |
|------|----------------------|---|--|
| 16.1 | Other Information: | <p>WARNING! CAUSES MILD SKIN IRRITATION. CAUSES EYE IRRITATION. For external use only. Use only as directed. Discontinue use immediately if irritation develops. Keep away from children. Keep container tightly closed in a cool place. When using do not eat or drink. 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. If case of accident or if you feel unwell seek medical advice immediately (show the label where possible). KEEP LOCKED UP AND OUT OF REACH OF CHILDREN.</p> <p>This product is designed and intended for use by a licensed cosmetologist/professional hairdresser only, and carries no warranty expressed or implied if used by others. CAN CAUSE AN ALLERGIC REACTION. Preliminary patch testing is recommended. Tattoos, including black and temporary henna, may increase the risk of allergy, If a severe allergic reaction should occur, immediately seek medical attention. This product must not be used for dyeing the eyelashes or eyebrows; to do so may cause blindness.</p> | |
| 16.2 | Terms & Definitions: | See last page of this Safety Data Sheet. | |
| 16.3 | Disclaimer: | This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate's & JPMS Manufacturing, LLC's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition. | |
| 16.4 | Prepared for: | <p>JPMS Manufacturing, LLC 237 Buttonwood Street Reading, PA 19601 USA Tel: +1 (610) 374-4845 Fax: +1 (610) 373-7101</p> |  |
| 16.5 | Prepared by: | <p>ShipMate, Inc. P.O. Box 787 Sisters, Oregon 97759-0787 USA Tel: +1 (310) 370-3600 Fax: +1 (310) 370-5700 http://www.shipmate.com</p> |  |

DEFINITION OF TERMS

A large number of abbreviations and acronyms appear on a SDS. Some of these that are commonly used include the following:

GENERAL INFORMATION:

| | |
|--------------------------------|---|
| CAS No. | Chemical Abstract Service Number |
| EXPOSURE LIMITS IN AIR: | |
| ACGIH | American Conference on Governmental Industrial Hygienists |
| C | Ceiling Limit |
| ES | Exposure Standard (Australia) |
| IDLH | Immediately Dangerous to Life and Health |
| OSHA | U.S. Occupational Safety and Health Administration |
| PEL | Permissible Exposure Limit |
| STEL | Short-Term Exposure Limit |
| TLV | Threshold Limit Value |
| TWA | Time Weighted Average |

FIRST AID MEASURES:

| | |
|------------|--|
| CPR | Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body. |
|------------|--|

HMIS-III HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

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

| |
|----------------------------|
| HEALTH |
| FLAMMABILITY |
| PHYSICAL HAZARDS |
| PERSONAL PROTECTION |

PERSONAL PROTECTION RATINGS:

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

| | | | |
|----------------------|-----------------------------------|----------------------------------|---------------------------|
| | | | |
| Safety Glasses | Splash Goggles | Face Shield & Protective Eyewear | Gloves |
| | | | |
| Boots | Synthetic Apron | Protective Clothing & Full Suit | Dust Respirator |
| | | | |
| Full Face Respirator | Dust & Vapor Half-Mask Respirator | Full Face Respirator | Airline Hood/Mask or SCBA |

OTHER STANDARD ABBREVIATIONS:

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

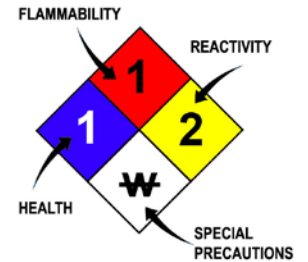
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

FLAMMABILITY LIMITS IN AIR:

| | |
|---------------------------------|---|
| Autoignition Temperature | Minimum temperature required to initiate combustion in air with no other source of ignition |
| LEL | Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source |
| UEL | Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source |

HAZARD RATINGS:

| | |
|----------------|-----------------|
| 0 | Minimal Hazard |
| 1 | Slight Hazard |
| 2 | Moderate Hazard |
| 3 | Severe Hazard |
| 4 | Extreme Hazard |
| ACD | Acidic |
| ALK | Alkaline |
| COR | Corrosive |
| W | Use No Water |
| OX | Oxidizer |
| TREFOIL | Radioactive |



TOXICOLOGICAL INFORMATION:

| | |
|---|---|
| LD₅₀ | Lethal Dose (solids & liquids) which kills 50% of the exposed animals |
| LC₅₀ | Lethal concentration (gases) which kills 50% of the exposed animal |
| ppm | Concentration expressed in parts of material per million parts |
| TD₁₀ | Lowest dose to cause a symptom |
| TCLo | Lowest concentration to cause a symptom |
| TD₁₀, LD₁₀, & LD₀₁ or TC, TC₀₁, LC₁₀, & LC₀₁ | Lowest dose (or concentration) to cause lethal or toxic effects |
| IARC | International Agency for Research on Cancer |
| NTP | National Toxicology Program |
| RTECS | Registry of Toxic Effects of Chemical Substances |
| BCF | Bioconcentration Factor |
| TL_m | Median threshold limit |
| log K_{OW} or log K_{OC} | Coefficient of Oil/Water Distribution |

REGULATORY INFORMATION:

| | |
|-----------------|---|
| WHMIS | Canadian Workplace Hazardous Material Information System |
| DOT | U.S. Department of Transportation |
| TC | Transport Canada |
| EPA | U.S. Environmental Protection Agency |
| DSL | Canadian Domestic Substance List |
| NOHSC | National Occupational Health and Safety Commission (Australia) |
| NDSL | Canadian Non-Domestic Substance List |
| PSL | Canadian Priority Substances List |
| TSCA | U.S. Toxic Substance Control Act |
| EU | European Union (European Union Directive 67/548/EEC) |
| WGK | Wassergefährdungsklassen (German Water Hazard Class) |
| HMIS-III | National Paint & Coatings Association Hazardous Materials Identification System |

WORKPLACE HAZARDOUS MATERIALS IDENTIFICATION (WHMIS) SYSTEM:

| | | | | | | | |
|------------|-----------|-----------|----------|------------|------------|-----------|----------|
| | | | | | | | |
| Class A | Class B | Class C | Class D1 | Class D2 | Class D3 | Class E | Class F |
| Compressed | Flammable | Oxidizing | Toxic | Irritation | Infectious | Corrosive | Reactive |

EC (67/548/EEC) INFORMATION:

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

CLP/GHS (1272/2008/EC) PICTOGRAMS:

| | | | | | | | | |
|-----------|-----------|----------|-------------|-----------|-------|--------------------|---------------|-------------|
| | | | | | | | | |
| GHS01 | GHS02 | GHS03 | GHS04 | GHS05 | GHS06 | GHS07 | GHS08 | GHS09 |
| Explosive | Flammable | Oxidizer | Pressurized | Corrosive | Toxic | Harmful Irritating | Health Hazard | Environment |