1. PRODUCT & COMPANY IDENTIFICATION

1.1	Product Name:	**AA NiMH RECHARGEABLE BATTERIES**
1.2	Chemical Name:	Nickel Metal Hydride Battery
1.3	Synonyms:	P/N 97866
1.4	Trade Names:	Thunderbolt Magnum
1.5	Product Uses & Restrictions:	Electric Storage Battery
1.6	Distributor's Name:	Harbor Freight Tools USA, Inc.
1.7	Distributor's Address:	26541 Agoura Road, Calabasas, CA 91302 USA
1.8	Emergency Phone:	**CHEMTREC: +1 (703) 527-3887 / +1 (800) 424-9300 (CCN 676687)**
1.9	Business Phone / Fax:	+1 (805) 388-1000

2. HAZARDS IDENTIFICATION

2.1 Hazard Identification:

This product is classified as a HAZARDOUS SUBSTANCE and as DANGEROUS GOODS according to the classification criteria of [NOHSC: 1088 (2004)] and ADG Code (Australia).

The materials contained in this product may only represent the hazards below if the if the integrity of the battery is compromised, physically or electrically abused:

DANGER! CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. HARMFUL IF SWALLOWED.

Hazard Statements (H): H314 – Causes severe skin burns and eye damage. H302 – Harmful if swallowed. H411 – Toxic to aquatic life with long lasting effects.

Precautionary Statements (P): P260 – Do not breathe fumes/mist/vapor/spray. P264 – Wash hands and exposed skin areas with soap and warm water thoroughly after handling. P273 – Avoid release to the environment. P280 – Wear protective gloves/eye protection. P301+P330+P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P363 - Wash contaminated clothing before reuse. P304+P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P310 – Immediately call a POISON CENTER or doctor/physician. P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. P405 – Store locked up. P501 – Dispose of contents/container to licenses treatment, storage and disposal facility (TSDF).



3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m³) ACGIH ppm TLV	ACGIH ppm STEL	NOHSC ppm ES-TWA	NOHSC ppm ES-STEL	NOHSC ppm ES-PEAK	OSHA ppm PEL	OSHA ppm STEL	OSHA ppm IDLH	OTHER
POSITIVE ELECTRODE:				30-60									
NICKEL HYDROXIDE	12054-48-7	QR7040000	235-008-5		10	NA	NF	NF	NF	5	NA	NA	
	Acute Tox. 4; Skin Irrit. 2; Skin Sens. 1; Acute Tox. 4; Resp. Sens. 1; Muta. 2; Carc. 1A; Repr. 1B; STOT RE 1; Aquatic Acute 1; Aquatic chronic 1; H302, H315, H317, H332, H334, H341, H350, H360, H372, H400, H410H351												
NEGATIVE ELECTRODE:				30-60									
MISCH METAL ALLOY													
LANTHANUM	7439-91-0	NA	231-099-0		NA	NA	NF	NF	NF	NA	NA	NA	
CERIUM	7440-45-1	FK485000	231-154-9		NA	NA	NF	NF	NF	NA	NA	NA	
	Flam. Sol. 1; H228												
NEODYMIUM	7440-00-8	QO8575000	231-109-3		NA	NA	NF	NF	NF	NA	NA	NA	
PRASEODYMIUM	7440-10-0	NA	231-120-3		NA	NA	NF	NF	NF	NA	NA	NA	
	Pyr. Sol. 1; H250												
NICKEL METAL ALLOY													
NICKEL	7440-02-0	QR5950000	231-111-4	30-60	1.5	NA	1	NA	NA	1	NA	10	
	Skin Sens. 1, Carc. 2, CTOT RE 1, Aquatic Chronic 3, H317, H351, H372, H412												
COBALT	7440-48-4	GF8750000	231-158-0		(.02)	NA	(.05)	NA	NA	(.01)	NA	NA	DUST
	Skin Sens. 1, Resp. Sens. 1, Aquatic Chronic 4; H317, H334, H413												
MANGANESE	7439-96-5	OO9275000	231-105-1		5	NA	1	NF	3	5	NA	NA	FUME
ALUMINUM	7429-90-5	BD0330000	231-072-3		10	NA	5	NF	NF	10	15	5	RESP FRAC
	Pyr. Sol. 1, Water React. 2; H250, H261												
ZINC	7440-66-6	ZG8600000	231-175-3	15-40	NA	NA	NF	NF	NF	NA	NA	NA	
	Aquatic Acute 1; Aquatic Chronic 1; H400, H410												
ELECTROLYTE:				7-13									
POTASSIUM HYDROXIDE	1310-58-3	TT2100000	215-181-3		2	NA	2	NF	NF	NE	NA	NA	
	Acute Tox. 4, Skin Corr. 1A												
SODIUM HYDROXIDE	1310-73-2	WB4900000	215-185-5		2	NA	2	NF	NF	2	NA	10	
	Skin Corr. 1A; H314												
LITHIUM HYDROXIDE	1310-65-2	OJ6307070	215-183-4		NA	NA	NF	NF	NF	NA	NA	NA	
	Acute Tox. 4, Skin Corr. 1B												

4. FIRST AID MEASURES

4.1	First Aid:	Ingestion:	Give large quantities of water, but do NOT induce vomiting. Never give anything by mouth to an unconscious person. Contact 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.
		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 become swollen during or following use, consult a physician or emergency room immediately.
		Skin:	If an open battery cell: Remove contaminated clothing and wash affected areas with soap and water. If discomfort persists and/or the skin reaction worsens, contact a physician immediately. Do not wear contaminated clothing until after it has been properly cleaned.
		Inhalation:	Remove victim to fresh air at once. Under extreme conditions, if breathing stops, perform artificial respiration. Seek immediate medical attention.
4.2	Effects of Exposure:	Eyes:	Severe irritation, burns, cornea damage, blindness. Nickel compounds may cause irritation.
		Skin:	Severe irritation, burns, and ulceration if open battery cell comes into contact with skin.
		Ingestion:	May cause severe irritation of mouth, throat, esophagus, and stomach. Acute ingestion of lead compounds may cause abdominal pain, nausea, vomiting, diarrhea, and severe cramping. This may lead rapidly to systemic toxicity.
		Inhalation:	Breathing of vapors or mists may cause severe respiratory irritation. Inhalation of fumes may cause irritation of upper respiratory tract and lungs.
4.3	Symptoms of Overexposure:	Ingestion:	Severe discomfort, nausea, vomiting and headache. Symptoms of nickel toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances, and irritability.
		Eyes:	Severe irritation, redness, and watering, damage to cornea and possible blindness.
		Skin:	Severe skin irritation, red, itching skin, burns and ulceration, if open battery cell comes into contact with skin.
		Inhalation:	May cause irritation to the upper respiratory system. Overexposure to sprays or mists may cause chemical pneumonitis.
4.4	Acute Health Effects:	Hazardous exposure can occur only when product is heated above the melting point, oxidized or otherwise processed or damaged to create dust, vapor, or fume.	
4.5	Chronic Health Effects:	NA	
4.6	Target Organs:	Eyes, Skin, Respiratory System	
4.7	Medical Conditions Aggravated by Exposure:	Overexposure to electrolyte mist may cause lung damage and aggravate pulmonary conditions. Contact of electrolyte (water and hydroxide solution) with skin may aggravate skin diseases such as eczema and contact dermatitis. Contact of electrolyte (water and metal hydroxide solution) with eyes may damage cornea and/or cause blindness.	

HEALTH	2
FLAMMABILITY	1
PHYSICAL HAZARDS	1
PROTECTIVE EQUIPMENT	B
EYES / SKIN	

5. FIREFIGHTING MEASURES

5.1	Fire & Explosion Hazards:	This material can burn but will not readily ignite. However, if involved in a fire, this product may decompose at high temperatures to form toxic gases (e.g., CO, CO_2, Hydrocarbons).
5.2	Extinguishing Methods:	CO_2, Dry Chemical, Alcohol Foam. Use water spray to cool containers.
5.3	Firefighting Procedures:	In case of fire where nickel metal hydride batteries are present, apply a smothering agent such as METL-X, sand, dry grand dolomite, or soda ash, or flood the area with water .A smothering agent will extinguish burning nickel metal hydride batteries. Water may not extinguish burning batteries but will cool the adjacent batteries can be controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended. Fire fighters should wear self-contained breathing apparatus. Burning nickel metal hydride batteries can produce toxic fumes including oxides of nickel, cobalt, aluminum, manganese, lanthanum, cerium, neodymium, and praseodymium.



6. ACCIDENTAL RELEASE MEASURES

6.1	Spills:	Before cleaning any spill or leak, individuals involved in spill cleanup must wear appropriate Personal Protective Equipment, including protective gloves and eyewear. Plastic or rubber gloves, respirator, eye/face protection and chemical-resistant apron may be required for clean-up of large spills. Small Spills: Wear appropriate protective equipment including gloves and protective eyewear. Use a non-combustible material such as vermiculite or sand to soak up the product and place into a container for later disposal. Do not use water or a material such as "speedy dry" to soak up material. Sweep up material using non-sparking materials (e.g., plastic brooms, shovels, dustpans) and place into a plastic container or plastic liner within another container. Large Spills: Keep incompatible materials away from spill. Stay upwind and away from spill or release. Isolate immediate hazard area and keep unauthorized personnel out of area. Stop spill or release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant. Recover as much free liquid as possible and collect in alkali-resistant container. Use absorbent to pick up residue. Keep spills and cleaning runoffs out of drains, municipal sewers and open bodies of water.

7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Do not eat, drink or smoke when handling this product. Handle as to avoid puncturing container(s).
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. Keep away from incompatible substances. Protect containers from physical damage. Storage and handling areas should have equipment to capture and neutralize spills.
7.3	Special Precautions:	NA

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	
NICKEL HYDROXIDE	10	NA	NF	NF	NF	5	NA	NA	
NICKEL	1.5	NA	1	NA	NA	1	NA	10	
COBALT	(.02)	NA	(.05)	NA	NA	(.01)	NA	NA	
MANGANESE	5	NA	1	NF	3	5	NA	NA	
SODIUM HYDROXIDE	2	NA	2	NF	NF	2	NA	10	
POTASSIUM HYDROXIDE	2	NA	2	NF	NF	NE	NA	NA	

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

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Appearance:	Grayish, greenish color (positive electrode).
9.2	Odor:	Electrolyte is clear liquid with sharp pungent odor.
9.3	Odor Threshold:	NA
9.4	pH:	> 12 (electrolyte)
9.5	Melting Point/Freezing Point:	Melting point of misch metal alloy begins at 995°F (manganese).
9.6	Initial Boiling Point/Boiling Range:	Boiling point of electrolyte is 212°F (100°C) (water).
9.7	Flashpoint:	259 °C (498 °F) - Hydrogen
9.8	Upper/Lower Flammability Limits:	NA
9.9	Vapor Pressure:	11 mm Hg @ 77 °F
9.10	Vapor Density:	NA
9.11	Relative Density:	< 1.3 (water = 1.0)
9.12	Solubility:	Electrolyte: 100% soluble in water
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:	Metal hydroxides (e.g., $Ni(OH)_2$, $Mn(OH)_2$, etc.) and metal oxides (MnO, NiO, etc.) may form if involved in a fire.
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. Do not exceed rated capacity.

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:	See Section 4.4					
11.4	Chronic Toxicity:	See Section 4.5					
11.5	Suspected Carcinogen:	Nickel metal and its compounds are suspected carcinogens; however, the acute and chronic effects of nickel alloys are not known. Nickel (metal) is a suspected carcinogen, IARC Group 2B, NTP 97-2. There are no known chronic health effects for nickel metal alloys.					
11.6	Reproductive Toxicity:	This product is not reported to cause reproductive effects 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:	May cause damage to organs through prolonged or repeated exposure.					
11.9	Physician Recommendations:	Treat symptomatically.					

12. ECOLOGICAL INFORMATION

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

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORTATION INFORMATION

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

14.1	49 CFR (GND):	NOT REGULATED	
14.2	IATA (AIR):	UN3496, BATTERIES, NICKEL-METAL HYDRIDE, 9	
14.3	IMDG (OCN):	UN3496, BATTERIES, NICKEL-METAL HYDRIDE, 9	
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 Nickel Hydroxide, Nickel, Magnesium, Aluminum, Sodium Hydroxide, which are subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373. Nickel, Cobalt, Manganese (metals), and Aluminum (fumes and dusts) are subject to SARA Title 313 (EPCRA).	
15.2	SARA Threshold Planning Quantity:	This product does not contain any substances with a SARA threshold planning quantity.	
15.3	TSCA Inventory Status:	The components of this product are listed on the TSCA inventory or are otherwise exempt.	
15.4	CERCLA Reportable Quantity (RQ):	Nickel Hydroxide: 4.5 kg (10 lbs); Nickel: 45.4 kg (100 lbs); Potassium Hydroxide: 454kg (1,000 lbs); Sodium Hydroxide: 454 kg (1,000 lbs).	
15.5	Other Federal Requirements:	Nickel Hydroxide (listed as Nickel compounds), Nickel is listed as a hazardous air pollutant (HAP). Nickel Hydroxide, Potassium Hydroxide and Sodium Hydroxide are listed as a Hazardous Substance under the CWA. Nickel Hydroxide is listed as a Toxic Pollutant under the Clean Water Act. Nickel is listed as a Priority Pollutant under the Clean Water Act. Nickel is listed as a Toxic Pollutant under the Clean Water Act.	
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 E, D2B (Corrosive, Other Toxic Effects)	

15. REGULATORY INFORMATION – cont'd

15.7	State Regulatory Information:	Nickel Hydroxide is found on the following state criteria lists: California Proposition 65 (CA65), Massachusetts Hazardous Substances List (MA), Minnesota Hazardous Substances List (MN), New Jersey Right-to-Know List (NJ) and Pennsylvania Right-to-Know List (PA). Nickel is found on the following state criteria lists: CA65, MA, MN, NJ and PA. Aluminum is found on the following state criteria lists: MA, MN, NJ and PA. Potassium Hydroxide is found on the following state criteria lists: Florida Toxic Substances List (FL), MA, MN, NJ, PA and Washington Permissible Exposures List (WA). Sodium Hydroxide is found on the following state criteria lists: FL, MA MN, NJ, PA and WA. Lithium Hydroxide is found on the following state criteria lists: MN. **NOTE**: This product contains a substance(s) known to the State of California to cause cancer, birth defects or other reproductive harm. No other ingredients in this product, present in a concentration of 1.0% or greater, are listed on any of the following state criteria lists: California Proposition 65 (CA65), Delaware Air Quality Management List (DE), Florida Toxic Substances List (FL), Massachusetts Hazardous Substances List (MA), Michigan Critical Substances List (MI), Minnesota Hazardous Substances List (MN), New Jersey Right-to-Know List (NJ), New York Hazardous Substances List (NY), Pennsylvania Right-to-Know List (PA), Washington Permissible Exposures List (WA), Wisconsin Hazardous Substances List (WI).
15.8	Other Requirements:	The primary components of this product are not listed in Annex I of EU Directive 67/548/EEC. Nickel Oxyhydroxide: Harmful (Xn). Risk Phrases (R): 40-43 - Limited evidence of carcinogenic effect. May cause sensitization by skin contact. Safety Phrases (S): 36-60-61 Wear suitable protective clothing. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions. Potassium Hydroxide: Corrosive (C). Risk Phrases (R): 22-43 - Harmful if swallowed. Causes severe burns. Safety Phrases (S): 26-36/37/39-45 - 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). Sodium Hydroxide: Corrosive (C). Risk Phrases (R): 22-43 - Harmful if swallowed. Causes severe burns. Safety Phrases (S): 26-36/37/39-45 - 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).



16. OTHER INFORMATION

16.1	Other Information:	**DANGER! CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. HARMFUL IF SWALLOWED.** Do not breathe fumes/mist/vapour/spray. Wash hands and exposed skin areas with soap and warm water thoroughly after handling. Avoid release to the environment. Wear protective gloves/eye protection. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. **KEEP OUT OF REACH OF CHILDREN.** **WARNING:** Use only the specified chargers according to device manufacturer's instructions. Do not open battery, dispose of in fire or short circuit-may explode, leak or get hot causing personal injury. Caution: do not use if case is cracked. NON-SPILLABLE BATTERY. **WARNING:** This product contains a substance(s) known to the State of California to cause cancer, birth defects or other reproductive harm.
16.2	Terms & Definitions:	See last page of this Safety Data Sheet.
16.3	Disclaimer:	This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate's & Harbor Freight Tools USA, Inc.'s knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.
16.4	Prepared for:	**Harbor Freight Tools USA, Inc.** 26541 Agoura Road Calabasas, CA 91302 USA Tel: +1 (805) 388-1000 http://www.harborfreight.com/
16.5	Prepared by:	**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

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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:

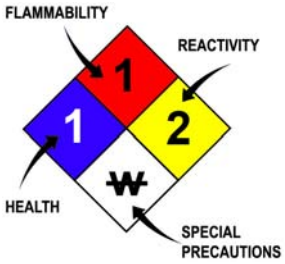
ML	Maximum Limit
mg/m3	milligrams per cubic meter
NA	Not Available
ND	Not Determined
NE	Not Established
NF	Not Found
NR	No Results
ppm	parts per million
SCBA	Self-Contained Breathing Apparatus

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:

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

REGULATORY INFORMATION:

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

WORKPLACE HAZARDOUS MATERIALS IDENTIFICATION (WHMIS) SYSTEM:



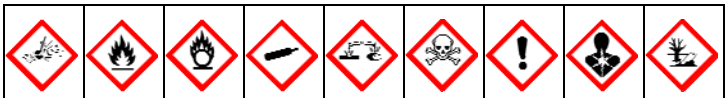
Class A	Class B	Class C	Class D1	Class D2	Class D3	Class E	Class F
Compressed	Flammable	Oxidizing	Toxic	Irritation	Infectious	Corrosive	Reactive

EC (67/548/EEC) INFORMATION:



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

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



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