

Page 1 of 6 **HFT-61272**

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

SDS Revision: 1.0

SDS Revision Date: 4/30/2015

1. PRODUCT & COMPANY IDENTIFICATIO

	1. I RODOOT & COMM ANTIDENTINICATION				
1.1	Product Name:	C ALKALINE BATTERIES			
1.2	Chemical Name:	Alkaline Battery			
1.3	Synonyms:	P/N 61272			
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).

WARNING! HARMFUL IF SWALLOWED. TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

<u>Hazard Statements</u> (H): H302 – Harmful if swallowed. H411 – Toxic to aquatic life with long lasting effects.

<u>Precautionary Statements</u> (P): P264 – Wash hands and exposed skin areas with soap and warm water thoroughly after handling. P270 – Do not eat, drink or smoke while sing this product. P273 – Avoid release to the environment. P280 – Wear protective gloves/eye protection. P301+P312 – IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. P330 – Rinse mouth. P391 – Collect spillage. P501 – Dispose of contents/container to licenses treatment, storage and disposal facility (TSDF).

<u>IF INGESTED</u>: Call the NATIONAL BATTERY INGESTION HOTLINE at +1 (202) 625-3333 collect, day or night. In Canada, call +1 (416) 813-5900.



3. COMPOSITION & INGREDIENT INFORMATION

								EXPO	SURE L	IMITS IN	N AIR (m	a/m³)	
					AC	ACGIH		NOHSC		OSHA			
					ppm		ppm		ppm			1	
							ES-	ES-	ES-				
CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	TLV	STEL	TWA	STEL	PEAK	PEL	STEL	IDLH	OTHER
MANGANESE DIOXIDE	1313-13-9	OP0350000	215-202-6	20-60	(5)	NA	(5)	NF	NF	(5)	NA	NA	
W W W W W W W W W W W W W W W W W W W	Acute Tox. Or	al 4; Acute Tox.	Inh. 4; H302, H3	32									
IRON (STEEL)	7439-89-6	NO4565500	231-096-4	10-20	(5)	NA	NF	NF	NF	(10)	NA	NA	0.5 - NIOSH
IRON (STEEL)	Acute Tox. 4 *	; Skin Corr. 1A; I	H302, H314										
ZINC	7440-66-6	ZG8600000	231-175-3	10-20	NA	NA	NF	NF	NF	NA	NA	NA	
ZINC	Aquatic Acute	1; Aquatic Chroi	nic 1; H400, H41	0									
WATER	7732-18-5	ZC0110000	231-791-2	10-20	NA	NA	NF	NF	NF	NA	NA	NA	
WATER													
POTASSIUM HYDROXIDE	1310-58-3	TT2100000	215-181-3	5-10	NA	NA	(2)	NF	NF	NA	NA	NA	
POTASSION HYDROXIDE	Acute Tox. Oral 4; Acute Tox. Inh. 4; H302, H332												
GRAPHITE	7782-42-5	MD9659600	231-955-3	1-5	(2.0)	NA	(2.0)	NF	NF	(5)*	NA	NA	RESP FRAC
GRAPHILE													
DD400	12597-71-6	NA	NA	1-5	(1)	NA	NF	NF	NF	(1)	NA	NA	
BRASS													
NIOVE	7440-02-0	QR5950000	231-111-4	0.1-1	(1.5)	NA	(1)	NF	NA	NA	NA	(10)	
NICKEL	Carc. 2; STOT RE 1; Skin Sens. 1; Aquatic Chronic 3; H351, H372**, H317, H412												
LEAD	7439-92-1	OF7525000	231-100-4	< 0.0030	(0.05)	NA	NF	(0.15)	NF	NA	100	NA	
LEAD	Acute Tox. 4; Acute Tox. 4; Repr. 1A; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H302, H332, H360, H373, H400, H410												
0.1.0.1	7440-43-9	NA	231-152-8	< 0.0003	(0.01)	NA	NF	NF	NF	(0.1)	0.3	(9)	(0.02) RESP FRAG
CADMIUM	Acute Tox. 2;	Muta. 2; Carc. 1l	B; Repr. 2; STOT	SE 1; Aq.	Acute 1	; Aq. C	hronic 1	; H330	H341,	H350,	H361fd	, H372,	H400, H410
MEDOUDY	7439-97-6	OV4550000	231-106-7	< 0.0001	NA	NA	(0.003)	(0.025)	NA	NA	NA	(10)	
MERCURY	Repr. 1B: Acu	te Tox. 2 *: STO	T RE 1; Aquatic A	Acute 1: Aa	uatic Cl	ronic 1	I: H360I	D***. H3	330. H3	72**. H	1400. H	110	
	7440-38-2	CG0525000	231-148-6	< 0.0001		NA		(0.05)				5	
ARSENIC	Acute Tox 3 *	; Acute Tox. 3 *;	Aquatic Acute 1:	Aquatic Ch	ronic 1	· H331	H301	H400 F	1410		а		



Page 2 of 6 **HFT-61272**

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SDS Revision Date: 4/30/2015

			4. FIRST AID MEASURES		
1	First Aid:	Ingestion:	Give large quantities of water, but do NOT induce vomiting. Never give unconscious person. Contact the nearest Poison Control Center or local emergassistance and instructions. Seek immediate medical attention. If vomiting civictim's head lowered (forward) to reduce the risk of aspiration.	gency telephone	number
		Eyes:	If product gets in the eyes, flush eyes thoroughly with copious amounts of wa holding eyelid(s) open to ensure complete flushing. If the eyes or face become use, consult a physician or emergency room immediately.		
		Skin:	If an open battery cell: Remove contaminated clothing and wash affected are discomfort persists and/or the skin reaction worsens, contact a physician contaminated clothing until after it has been properly cleaned.		
		Inhalation:	Remove victim to fresh air at once. Under extreme conditions, if breathi respiration. Seek immediate medical attention.	ng stops, perfo	rm artific
4.2	Effects of Exposure:	Ingestion:	May cause severe irritation of mouth, throat, esophagus, and stomach. compounds may cause abdominal pain, nausea, vomiting, diarrhea, and severe		ion of zi
		Eyes:	Severe irritation, burns, cornea damage, blindness. Lead compounds may caus	se irritation.	
		Skin:	Severe irritation, burns, and ulceration if open battery cell comes into contact w		
		Inhalation:	Inhalation of lead dust or fumes may cause irritation of upper respiratory tract a		
	Symptoms of Overexposure:	Ingestion:	Severe discomfort, nausea, vomiting and headache. Harmful if swallowed permanent tissue destruction of the esophagus and digestive tract.	•	
		Eyes:	May cause irreversible eye injury. Contact with eyes may cause severe irritation severe irritation, redness, and watering.	•	,
		Skin:	Severe skin irritation, red, itching skin, burns and ulceration, if open battery of skin.		
		Inhalation:	May cause cyanosis (bluish discoloration of skin due to deficient oxygenation lead to chemical pneumonitis and pulmonary edema. Inhalation of fumes may which is characterized by flu-like symptoms with metallic taste, fever, chills, comuscle pain and increased white blood cell count. Causes respiratory tract irritation.	ay cause metal ough, weakness,	fume fev chest pa
	Acute Health Effects:		exposure can occur only when product is heated above the melting point, oxidize o create dust, vapor, or fume.	d or otherwise p	rocessed
5	Chronic Health Effects:	Chronic exp	posure may cause effects similar to those of acute exposure.		
;	Target Organs:	Skin, Respir	iratory System, Central Nervous System (CNS)		
,	Medical Conditions Aggravated by Exposure:	NA	HEALTH FLAMMABILITY		1
			PHYSICAL HAZA	ARDS	0
			PROTECTIVE EC		X
			EYES SKIN	LUNGS	1 12
					· ·
			5. FIREFIGHTING MEASURES		
	Fire & Explosion Hazards:		ial can burn but will not readily ignite. However, if involved in a fire, this produce at high temperatures to form toxic gases (e.g., CO, CO _x Hydrocarbons).	uct may	
	Extinguishing Methods:		hemical, Alcohol foam, Dry Chemical. Use water spray to cool containers.		
3	Firefighting Procedures:	containers. I	juishing media most appropriate for the surrounding fire. Do NOT get water For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, carbon dioxide, alcohol-resistant foam, or water spray. Cool containers with of water until well after fire is out. Prevent runoff from fire control or dilution from the control of dilution from the contro	use dry flooding	0
			ains, drinking water supply, or any natural waterway. Firefighters must use full	bunker	
			fing NIOSH-approved positive pressure self-contained breathing apparatus to ential hazardous combustion or decomposition products and oxygen deficiencies.	protect	
			ential hazardous combustion or decomposition products and oxygen deficiencies.	protect	
1	Spills:	Before clea Equipment,	ACCIDENTAL RELEASE MEASURES aning any spill or leak, individuals involved in spill cleanup must wear appropriately including protective gloves and eyewear. Plastic or rubber gloves, respirate	opriate Persona	l Protect
.1	Spills:	Before clea Equipment, chemical-res Small Spills	ential hazardous combustion or decomposition products and oxygen deficiencies. 6. ACCIDENTAL RELEASE MEASURES aning any spill or leak, individuals involved in spill cleanup must wear appro	opriate Persona or, eye/face pro ar. Use a non-	otection a



Page 3 of 6 **HFT-61272**

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SDS Revision: 1.0

SDS Revision Date: 4/30/2015

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		7. HANDLIN	IG & S	ΓOR A	AGE IN	FORM	ATION					
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 d sunlight. Keep away from incompatible substances. Protect containers from physical damage. Store product in filled, appropriate coated and tightly closed containers avoiding influence of oxygen/air, light and humidity. Store cool and constant temperature.								re product in well-		
										•		
7.3	3 Special Precautions: This battery is not designed for recharging. Recharging can cause battery leakage or high pressure ruptu cases. Inadvertent charging can happen if a battery is installed backwards. Accidental short circuit for a fine case.											
		will not seriously affect the base safety release vent to open.										
		covered tables or metal belts						S III DUIK	Contail	icis, ilie	ciai jeweliy, illetai	
	l .	Toolog (aprile of motal porte	<u> </u>	,,,,,,	0. 50	JO GO						
		8. EXPOSURE CO	NTROL	S &	PERSO	DNAL F	PROTE	CTIO	N			
8.1						OTHER						
	ppm (mg/m ³)	CHEMICAL NAME(S)	TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH		
		MANGANESE DIOXIDE	(5)	NA	(5)	NF	NF	(5)	NA	NA		
		GRAPHITE	(2.0)	NA	(2.0)	NF	NF	(5)*	NA	NA	RESP FRAC	
		POTASSIUM HYDROXIDE	NA	NA	(2)	NF	NF	NA	NA	NA		
		IRON (STEEL)	(5)	NA	NF	NF	NF	(10)	NA	NA	0.5 – NIOSH	
		LEAD	(0.05)	NA	NF	(0.15)	NF	NA	100	NA		
		CADMIUM	(0.01)	NA	NF	NF	NF	(0.1)	0.3	(9)	(0.02) RESP FRAC	
		MERCURY	NA	NA	(0.003)	(0.025)	NA	NA	NA	(10)		
8.2	Mantilation O Fanis and a	ARSENIC	NA	NA	NF	(0.05)	NF	(0.002)	NA · ·	5	<u> </u>	
0.2	Ventilation & Engineering Controls:	General mechanical (e.g., far exhaust ventilation to effective product. Ensure appropriate of	ely remov	e and	prevent bu	uildup of v	vapors or	mist ger	nerated	from th	e handling of this	
8.3	Respiratory Protection:	No special respiratory protect										
	, ,	instances where mist or vapo										
		use only protection authorize										
		States, or Australia.	Canadian CAS Standard Z94.4-93 and applicable standards of Canadian Provinces, EC member States, or Australia.									
8.4	Eye Protection:	Wear protective eyewear (e.	q., safety	glasses	s with side	e-shield) a	at all time	s when	handlin	g this		
		product. Always use protect protection tested and approve	ive eyewe	ar whe	n cleaning	spills or	leaks. Us	se equip	ment fo	or eye		
		166(EU).										
8.5	Hand Protection:	Where contact is likely, imper- When handling large quantitie	s of fluid (e	e.g., ≥ 1	gallon (3.8	3 L)), wear	corrosion-	resistan	t glovés	. ,		
8.6	Body Protection:	No apron required when han resistant apron, clothing and the beavailable.										
	•									1		
		9. PHYSICA	AL & CI	HEMI	ICAL P	ROPE	RTIES					
9.1	Appearance:	Stainless steel top battery. Co	ontents dar	k and g	ray in colo	r.						
9.2	Odor:	No apparent odor (sealed).										
9.3	Odor Threshold:	NA										
9.4	pH:	NA										
9.5	Melting Point/Freezing Point:	NA										
9.6	Initial Boiling Point/Boiling	NA										
0.7	Range:											
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:	NA										
9.12	Solubility:	Sealed electric battery: Insolul	ble.									
9.13	Partition Coefficient (log Pow):	NA										
9.14	Autoignition Temperature:	NA										
		1										
9.15	Decomposition Temperature:	NA										
	Decomposition Temperature: Viscosity:	NA NA										
9.15	Decomposition Temperature: Viscosity: Other Information:	NA NA NA										



(RQ):

SAFETY DATA SHEET

Page 4 of 6 HFT-61272

SDS Revision: 1.0 Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards SDS Revision Date: 4/30/2015 10. STABILITY & REACTIVITY 10.1 Stability: Stable under normal conditions; unstable with heat or contamination. 10.2 Hazardous Decomposition Oxides of carbon (CO, CO₂). Thermal degradation may produce hazardous fumes of zinc and manganese, hydrogen Products: gas, caustic vapors of potassium hydroxide and other hazardous by-products 10.3 Hazardous Polymerization: 10.4 Conditions to Avoid: Open flames, sparks, high heat, incompatible substances and direct sunlight, and incompatible substances. 10.5 Incompatible Substances: Avoid extreme heat and ignition sources. Store away from oxidizers. Do not exceed heat, crush, disassemble, shortcircuit or recharge. 11. TOXICOLOGICAL INFORMATION 11.1 Routes of Entry Ingestion: YFS 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 and is presented below: Manganese Dioxide: LD₅₀ (oral, rat): 3,478 mg/kg. 11.3 Acute Toxicity: See section 4.4 11 4 Chronic Toxicity See section 4.5 11.5 Suspected Carcinogen: Nickel is listed as IARC Group 2B (Possibly carcinogenic to humans); NTP13 Group 1 (Known human carcinogen); CA65 (cancer). Lead is listed as ACGIH Group A3 (Confirmed animal carcinogen with unknown relevance to human); IARC Group 2B (Possibly carcinogenic to humans): NTP13 Group 2 (Reasonably Anticipated to be a Human Carcinogen); CA65 (cancer). Cadmium is listed as ACGIH Group A2 (Suspected human carcinogen); IARC Group 1 (Carcinogenic to humans); NTP13 Group 1 (Known human carcinogen); CA65 (cancer). Arsenic is listed as ACGIH Group A1 (Confirmed human carcinogen); IARC Group 1 (Carcinogenic to humans); NTP13 Group 1 (Known human carcinogen); CA65 (cancer) Reproductive Toxicity: 11.6 This product contains Lead, which is suspected of causing 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 contains Lead, which is suspected of causing reproductive toxicity 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 NΑ 11.9 Physician Recommendations: Treat symptomatically and supportively. 12. ECOLOGICAL INFORMATION 12 1 Environmental Stability: There are no specific data available for this product. Effects on Plants & Animals: 122 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. Special Considerations 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. 49 CFR (GND): NOT REGULATED NOT REGULATED IATA (AIR): 14 2 IMDG (OCN): **NOT REGULATED** 14.3 TDGR (Canadian GND): 14.4 **NOT REGULATED** NOT REGULATED 14.5 ADR/RID (EU): 14.6 SCT (MEXICO): **NOT REGULATED** 14.7 ADGR (AUS): **NOT REGULATED** 15. REGULATORY INFORMATION 15.1 SARA Reporting This product contains Lead, Mercury, Zinc and Nickel, substances subject to SARA Title III, section 313 reporting Requirements requirements 15.2 SARA Threshold Planning There are no specific Threshold Planning Quantities for the components of this product. Quantity: TSCA Inventory Status: 15.3 The components of this product are listed on the TSCA Inventory or are otherwise exempt. CERCLA Reportable Quantity 15.4 Zinc: 454 kg (1,000 lbs); Mercury: 0.454 kg (1.0 lbs); Nickel: 45.4 kg (100 lbs)



Page 5 of 6

HFT-61272 Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards SDS Revision: 1.0 SDS Revision Date: 4/30/2015 15. REGULATORY INFORMATION – cont'd 15.5 Other Federal Requirements: Mercury, Lead, Cadmium and Nickel are listed as Hazardous Air Pollutants (HAPs) under the Clean Air Act (CAA). Zinc, Nickel, Arsenic, Cadmium and Mercury are listed as Priority Pollutants under the Clean Water Act (CWA). Zinc. Lead. Arsenic, Cadmium and Mercury are listed as Toxic Pollutants under the CWA. This product does not contain any Class 1 or Class 2 ozone depletors. 15.6 Other Canadian Regulations: This product has been classified according to the hazard criteria of the CPR and the Safety Data Sheet 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) 15.7 State Regulatory Information: Lead can be found on the following state criteria list: California Proposition 65 (CA65), 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), and Washington Permissible Exposures List (WA). Nickel is listed on the following state criteria lists: fl, MA, MI, MN, NJ, PA, and WA. Potassium Hydroxide is found on the following state criteria lists: FL, MA, MN, PA, and WA. Graphite is found on the following state criteria lists: FL, MA, MN, PA, and WA. Manganese Dioxide is found on the following state criteria lists: IL, MA, PA, and RI. Zinc is found on the following state criteria lists: IL, MA, NJ, and PA. Mercury is found on the following state criteria lists: FL, MA, MI, MN, NJ, PA, WA, and WI. 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), Illinois Hazardous Substances List (IL), 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), Rhode Island Hazardous Substances List (RI), Washington Permissible Exposures List (WA), Wisconsin Hazardous Substances List (WI). WARNING: This product contains a substance(s) known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires this warning be given to customers in the State of California. 15.8 Other Requirements: The primary component of this product is listed in Annex I of EU Directive 67/548/EEC: Harmful, Environmental Danger (Xn, N). Risk Phrases (R): 22-34-50/53 - Harmful if swallowed. Causes burns. Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment. Safety Phrases (S): 1/2-26-36/37/39-45-60-61 - Keep locked up and out of 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 label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/SDS. 16. OTHER INFORMATION 16 1 Other Information: WARNING! HARMFUL IF SWALLOWED. TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS. Wash hands and exposed skin areas with soap and warm water thoroughly after handling. Do not eat, drink or smoke while sing this product. Avoid release to the environment. P280 - Wear protective gloves/eye protection. IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. Collect spillage. IF INGESTED: Call the NATIONAL BATTERY INGESTION HOTLINE at +1 (202) 625-3333 collect, day or night. In Canada, call +1 (416) 813-5900. KEEP OUT OF REACH OF CHILDREN. WARNING: This product contains a substance(s) known to the State of California to cause cancer, birth defects or other reproductive harm. Terms & Definitions: 16.2 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 HARBOR FREIGHT TOOL
Quality Tools at Ridiculously Low Prices Calabasas, CA 91302 USA Tel: +1 (805) 388-1000 http://www.harborfreight.com/ 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

Page 6 of 6 **HFT-61272**

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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
С	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:

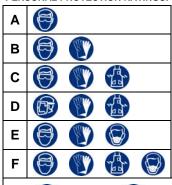
CPR	Cardiopulmonary resuscitation - method in which a person whose heart has
	stopped receives manual chest compressions and breathing to circulate blood
	and provide oxygen to the body.

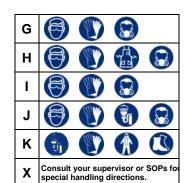
HMIS-III HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

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



PERSONAL PROTECTION RATINGS:





















Dust & Vapor Half-Mask Respirator

Full Face Respirator

Airline Hood/Mask or SCBA

OTHER STANDARD ABBREVIATIONS:

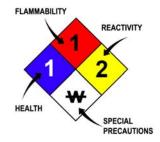
ML	Maximum Limit
mg/m3	milligrams per cubic meter
NA	Not Available
ND	Not Determined
NE	Not Established
NF	Not Found
NR	No Results
ppm	parts per million
SCBA	Self-Contained Breathing Apparatus

NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

FLAMMABILI [*]	TY LIMITS IN AIR:
	Minimum temperature required to initiate combustion in air with no other
Temperature	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
₩	Use No Water
ОХ	Oxidizer
TREFOIL	Radioactive



TOXICOLOGICAL INFORMATION:

LD ₅₀	Lethal Dose (solids & liquids) which kills 50% of the exposed animals
LC ₅₀	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD _{Io}	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD _{Io} , LD _{Io} , & LD _o or	Lowest dose (or concentration) to cause lethal or toxic effects
TC, TC _o , LC _{io} , & LC _o	
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:

	*	(\odot	(18)		
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:

		M	*		®	×	×
С	E	F	N	0	Т	Xi	Xn
Corrosive	Explosive	Flammable	Harmful	Oxidizing	Toxic	Irritant	Harmful

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

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