1. PRODUCT & COMPANY IDENTIFICATION

1.1	Product Name:	**WSO VALVE REGULATED LEAD-ACID BATTERY**
1.2	Chemical Name:	Valve Regulated Lead Acid (VRLA) Battery
1.3	Synonyms:	Non-Spillable
1.4	Trade Names:	WSO Valve Regulated Lead-Acid Battery
1.5	Product Use:	Automotive Battery
1.6	Distributor's Name:	**Worldpac, Inc.**
1.7	Distributor's Address:	37137 Hickory Street, Newark, CA 94560 USA
1.8	Emergency Phone:	**INFOTRAC: +1 (800) 535-5053 / +1 (352) 323-3500 (CONTRACT 84261)**
1.9	Business Phone / Fax:	+1 (510) 608-5525 / +1 (510) 742-9262

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).

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

Hazard Statements (H): H302 – Harmful if swallowed. H314 – Causes severe skins burns and eye damage.

Precautionary Statements (P): P260 - Do not breathe dust/fume/gas/mist/vapours/spray. P264 - Wash hands and exposed skin areas with soap and warm water thoroughly after handling. 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).

2.2 Effects of Exposure:

Eyes: Direct contact of internal electrolyte gel with eyes may cause severe burns or blindness.

Skin: Direct contact of internal electrolyte gel with the skin may cause skin irritation or damaging burns.

Ingestion: Swallowing this product may cause severe burns to the esophagus and digestive tract and harmful or fatal lead poisoning. Lead ingestion may cause nausea, vomiting, weight loss, abdominal spasms, fatigue, and pain in the arms, legs and joints.

Inhalation: Respiratory tract irritation and possible long term effects.

2.3 Symptoms of Overexposure:

Eyes: Severe irritation, redness, and watering, damage to cornea and possible blindness.

Skin: Sever skin irritation, red, itching skin, burns and ulceration.

Ingestion: Severe discomfort, nausea, vomiting and headache. Symptoms of lead toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances, and irritability.

Inhalation: May cause irritation to the upper respiratory system. Overexposure to sprays or mists may cause chemical pneumonitis.

2.4 Acute Health Effects:

No health effects are expected related to normal use of this product as sold. Repeated or prolonged contact may cause mild skin irritation.

2.5 Chronic Health Effects:

Lead poisoning if persons are exposed to internal components of the batteries. Lead absorption may cause nausea, vomiting, weight loss, abdominal spasms, fatigue, pain in the arms, legs and joints. Other effects may include central nervous system damage, kidney dysfunction, and potential reproductive effects. Chronic inhalation of sulfuric acid mist may increase the risk of lung cancer.

2.6 Target Organs:

Lungs, upper respiratory tract, skin.

3. COMPOSITION & INGREDIENT INFORMATION

					EXPOSURE LIMITS IN AIR (mg/m³)								
					ACGIH		NOHSC			OSHA			
					ppm		ppm			ppm			
CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH	OTHER
LEAD	7439-92-1	OF7525000	231-100-4	40-70	(0.05)	NA	NF	(0.15)	NF	(0.05)	NA	100	(0.05) NIOSH
SULFURIC ACID	7664-93-9	WS5600000	231-639-5	5-15	(1)	(3)	(1)	NF	NF	(1)	(3)	(15)	
	Skin Corr. 1A; H314												
ANTIMONY	7440-36-0	CC4025000	231-146-5	0.1-1	(0.5)	NA	NF	(0.5)	NF	(0.5)	NA	50	
ARSENIC	7440-38-2	CG0525000	231-148-6	≤ 0.1	(0.01)	NA	NF	(0.05)	NF	(0.01)	NA	5	(0.002) NIOSH

NA = Not Available; ND = Not Determined; NE = Not Established; NF = Not Found; 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 Z400.1-2010 format.

3. COMPOSITION & INGREDIENT INFORMATION – cont'd

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m^3) 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
TIN	7440-31-5	XP7320000	231-141-8	0.1-1	(2)	(0.1)	NF	(0.2)	NF	(2)	NA	(100)	

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 Infotrac +1 (800) 535-5053 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.

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: 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 Medical Conditions Aggravated by Exposure:

Respiratory and skin diseases may predispose one to acute and chronic effects of sulfuric acid and/or lead. Children and pregnant women must be protected from lead exposure. Persons with kidney disease may be at increased risk of kidney failure.

HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARDS	2
PROTECTIVE EQUIPMENT	B
EYES	SKIN

5. FIREFIGHTING MEASURES

5.1 Fire & Explosion Hazards:

In operation, batteries generate and release flammable hydrogen gas. They must always be assumed to contain this gas which, if ignited by burning cigarette, naked flame or spark, may cause battery explosion with dispersion of casing fragments and corrosive liquid electrolyte. Carefully follow manufacturer's instructions for installation and service. Keep away all sources of gas ignition and do not allow metallic articles to simultaneously contact the negative and positive terminals of a battery.

5.2 Extinguishing Methods:

Water, Foam, CO_2, Dry Chemical, low velocity water fog, Halon (if permitted),

5.3 Firefighting Procedures:

As with any fire, firefighters should wear appropriate protective equipment including a MSHA/NIOSH approved or equivalent self-contained breathing apparatus (SCBA) and protective clothing. Treat as hot oil. Hazardous decomposition products may be released. Thermal degradation may produce oxides of carbon, and/or nitrogen, hydrocarbons and/or derivatives. 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:

Before cleaning any spill or leak, individuals involved in spill cleanup must wear appropriate Personal Protective Equipment (PPE). Use safety glasses or safety goggles and face shield; use gloves and other protective clothing (e.g., apron, boots, etc.) to prevent skin contact. Wear acid-resistant clothing, boots, gloves, and face shield.

Small Spills: Wear appropriate protective equipment including gloves and protective eyewear. Use a non-combustible, inert material such as vermiculite or sand to soak up the product and place into a container for later disposal. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc.

Large Spills: Keep incompatible materials (e.g., oxidizers, strong alkalis) 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 acid-resistant container. Use absorbent to pick up residue. Avoid discharging liquid directly into a sewer or surface waters. Neutralized acid must be managed in accordance with approved local, state, and federal requirements. Consult state environmental agency and/or federal EPA.

7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Store batteries under roof in cool, dry, well-ventilated areas that are separated from incompatible materials and from activities that may create flames, spark, or heat. Store on smooth, impervious surfaces that are provided with measures for liquid containment in the event of electrolyte spills. Keep away from metallic objects that could bridge the terminals on a battery and create a dangerous short-circuit. Handle carefully and avoid tipping, which may allow electrolyte leakage. Single batteries pose no risk of electric shock but there may be increasing risk of electric shock from strings of connected batteries exceeding three 12-volt units.
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. Store in closed containers. Avoid temperatures above 40°C (120°F). Keep away from incompatible substances (see Section 10). Protect containers from physical damage.
7.3	Special Precautions:	There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas. Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby. Wear face and eye protection when near batteries being charged.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls:	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). In areas where water and sulfuric acid solutions are handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.	
8.2	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.	
8.3	Eye Protection:	Avoid eye contact. Safety glasses with side shields must be used when handling or using this product. A protective face shield is also recommended. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).	
8.4	Hand Protection:	Wear protective, chemical-resistant gloves (e.g., neoprene, nitrile) when using or handling this product. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.	
8.5	Body Protection:	Not required under normal conditions of use. A chemical resistant apron and/or protective clothing are recommended when handling or using large quantities (e.g., > 5 gallons (18.9 L)) of this product. Protective working garments should meet EU Standard EN 344 or equivalent.	

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Appearance:	Industrial/commercial lead acid gel battery
9.2	Odor:	Odorless
9.3	Odor Threshold:	NA
9.4	pH:	< 1.0 (electrolyte)
9.5	Melting Point/Freezing Point:	NA
9.6	Initial Boiling Point/Boiling Range:	110-115.5 °C (235-240 °F)
9.7	Flashpoint:	NA
9.8	Upper/Lower Flammability Limits:	LEL: 4.0%, UEL: 74.2%
9.9	Vapor Pressure:	10 mm Hg
9.10	Vapor Density:	> 1.0 (air=1.0)
9.11	Relative Density:	1.27-1.33
9.12	Solubility:	100% (as sulfuric acid)
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:	This product is stable under normal storage and use conditions.
10.2	Hazardous Decomposition Products:	Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen sulfide. Temperatures above the melting point are likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.
10.3	Hazardous Polymerization:	Will not occur.
10.4	Conditions to Avoid:	Prolonged overcharge at high current; sources of ignition. Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water.
10.5	Incompatible Substances:	Sulfuric Acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers, and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas. Lead Compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen, and reducing agents.

11. TOXICOLOGICAL INFORMATION

11.1	Routes of Entry:	Inhalation:	YES	Absorption:	YES	Ingestion:	YES
11.2	Toxicity Data:	This product has not been tested on animals to obtain toxicological data. Toxicology data for some of the components in this mixture, found in scientific literature, are presented below: Sulfuric Acid: LD_{50} (oral, rat): 2,140 mg/kg; Arsenic: LD50 (oral, rat): 763 ppm; Lead: LD_{50} (oral, rat): 7000 ppm					
11.3	Acute Toxicity:	See section 2.4. Severe skin irritation, damage to cornea may cause blindness, upper respiratory irritation.					
11.4	Chronic Toxicity:	See section 2.5.					
11.5	Suspected Carcinogen:	The National Toxicology Program (NTP) and the International Agency for Research on Cancer (IARC) have classified "strong inorganic acid mist containing sulfuric acid" as a substance that is carcinogenic to humans. This classification does not apply to sulfuric acid solutions in static liquid state or to electrolyte in batteries. Batteries subjected to abusive charging at excessively high currents for prolonged periods of time without vent caps in place may create a surrounding atmosphere of the offensive strong inorganic acid mist containing sulfuric acid. Lead is listed as a 2B carcinogen, likely in animals at extreme doses. Proof of carcinogenicity in humans is lacking at present. Arsenic is listed by International Agency for Research on Cancer (IARC), OSHA and NIOSH as a carcinogen only after prolonged exposure at high levels					
11.6	Reproductive Toxicity:	This product is not reported to cause reproductive toxicity in humans.					
	Mutagenicity:	This product is not reported to produce mutagenicity 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:	See Section 2.3					
11.8	Biological Exposure Indices:	NA					
11.9	Physician Recommendations:	Treat symptomatically.					

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
12.2	Effects on Plants & Animals:	No data available.
12.3	Effects on Aquatic Life:	Sulfuric Acid: LC_{50} (Cyprinus carpio (fish), 96h): 22 mg/L. Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal:	Dispose of in accordance with federal, state, provincial and local regulations.
13.2	Special Considerations:	Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

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, SCT, ADGT, ADR and the CTDGR.

14.1	49 CFR (GND):	UN2800, BATTERIES, WET, NON-SPILLABLE, 8, III	**NON-SPILLABLE BATTERY**
14.2	IATA (AIR):	UN2800, BATTERIES, WET, NON-SPILLABLE, 8, III	
14.3	IMDG (OCN):	UN2800, BATTERIES, WET, NON-SPILLABLE, 8, III	
14.4	TDGR (Canadian GND):	UN2800, BATTERIES, WET, NON-SPILLABLE, 8, III	
14.5	ADR/RID (EU):	UN2800, BATTERIES, WET, NON-SPILLABLE, 8, III	
14.6	SCT (MEXICO):	UN2800, ACUMULADORES ELECTRICOS NO DERRAMABLES DE ELECTROLITO LIQUIDO, 8, III	
14.7	ADGR (AUS):	UN2800, BATTERIES, WET, NON-SPILLABLE, 8, III	

15. REGULATORY INFORMATION

15.1	SARA Reporting Requirements:	This product contains Lead, Sulfuric Acid, Antimony, and Arsenic, substances subject to Section 313 reporting requirements.
15.2	SARA Threshold Planning Quantity:	NA
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):	Sulfuric Acid: 1,000 lbs (454 kg); Antimony: 5,000 lbs (2,270 kg); Lead: 10 lbs (4.54 kg)
15.5	Other Federal Requirements:	NA
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). 
15.7	State Regulatory Information:	Lead is found on the following state criteria lists: 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). Sulfuric Acid is found on the following state criteria lists: FL, MA, MN, NJ, PA, and WA. Tin is found on the following state criteria lists: FL, MA, MN, PA, WA Antimony is found on the following state criteria lists: FL, MA, MN, NJ, PA, and WA. Arsenic is found on the following state criteria lists: FL, MA, MN, NJ, PA, WA. This product contains Lead, a substance known to the State of California of causing 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 (CA), 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 component of this product is listed in Annex I of EU Directive 67/548/EEC. Sulfuric Acid: Corrosive (C). Risk Phrases (R): 35 - Causes severe burns. Safety Phrases (S): (1/2)-26-30-45 - 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. Never add water to this product. 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! HARMFUL IF SWALLOWED. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.** Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and exposed skin areas with soap and warm water thoroughly after handling. 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**.
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 & Worldpac'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:	**Worldpac, Inc.** 37137 Hickory Street Newark, CA 94560 USA Tel: +1 (510) 608-5525 Fax: +1 (510) 742-9262 http://www.worldpac.com
16.5	Prepared by:	**ShipMate, Inc.** P.O. Box 787 Sisters, OR 97759-0787 USA Tel: +1 (310) 370-3600 Fax: +1 (310) 370-5700 http://www.shipmate.com

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
TLV	Threshold Limit Value
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
IDLH	Immediately Dangerous to Life and Health

FIRST AID MEASURES:

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

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

HEALTH, FLAMMABILITY & 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.**

OTHER STANDARD ABBREVIATIONS:

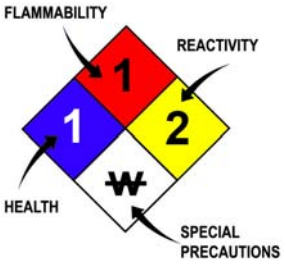
NA	Not Available
NR	No Results
NE	Not Established
ND	Not Determined
ML	Maximum Limit
SCBA	Self-Contained Breathing Apparatus

NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

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

HAZARD RATINGS:

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

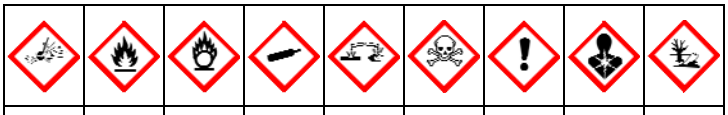
WORKPLACE HAZARDOUS MATERIALS IDENTIFICATION (WHMIS) SYSTEM:

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