

SAFETY DATA SHEET

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


SDS Revision: 1.1

SDS Revision Date: 7/29/2015

1. PRODUCT & COMPANY IDENTIFICATION

1.1	Product Name:	12 OZ ARCTIC FREEZE® REFRIGERANT
1.2	Chemical Name:	1,1,1,2-Tetrafluoroethane
1.3	Synonyms:	P/N 97272
1.4	Trade Names:	Arctic Freeze®
1.5	Product Uses & Restrictions:	Refrigerant
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:	<p>This product is classified as a HAZARDOUS SUBSTANCE and as DANGEROUS GOODS according to the classification criteria of NOHSC: 1008(2004) and ADG Code (Australia). KEEP OUT OF REACH OF CHILDREN.</p> <p>WARNING. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.</p> <p><u>Classification:</u> Liquefied Gas.</p> <p><u>Hazard Statements (H):</u> H280 – Contains gas under pressure; may explode if heated.</p> <p><u>Precautionary Statements (P):</u> P280 – Wear protective gloves and eye protection. P302 + P352 - IF ON SKIN – Wash with soap and water. P333 + P313 - If skin irritation or a rash occurs – Get medical advice/attention. P305+P351+P338 – IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice/attention. P304 - IF INHALED: Move to fresh air. If breathing has stopped, give artificial respiration and call physician immediately. P410 + P412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. P410+P403 – Protect from sunlight. Store in a well-ventilated place. P501 – Dispose of contents/container through licensed treatment, storage or disposal facility.</p>	
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3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m ³)								
					ACGIH		NOHSC			OSHA			OTHER
					ppm		ppm			ppm			
					TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH	
1,1,1,2-TETRAFLUOROTHANE	811-97-2	KI8842500	212-377-0	60-100	NA	NA	4240	NF	NF	NA	NA	NA	1000 TWA
	Liq. Gas; H280												
POLYALKYLENE GLYCOL MONOBUTYL ETHER	NA	NA	NA	5-15	NA	NA	NF	NF	NF	NA	NA	NA	
ADDITIVE PACKAGE	NA	NA	NA	1-10	NA	NA	NF	NF	NF	NA	NA	NA	
LEAK SEALER	NA	NA	NA	0.1-1	NA	NA	NF	NF	NF	NA	NA	NA	


4. FIRST AID MEASURES

4.1	First Aid:	<p><u>Ingestion:</u> If ingested, do not induce vomiting. Contact the nearest Poison Control Center or local emergency number. Provide an estimate of the time at which the material was ingested and the amount of the substance that was swallowed.</p> <p><u>Eyes:</u> Splashes are not likely; however, if product gets in the eyes, flush with copious amounts of lukewarm water for at least 15 minutes. If irritation occurs, contact a physician.</p> <p><u>Skin:</u> If irritation occurs and product is on the skin, rinse thoroughly with lukewarm water, followed by a thorough washing of the affected area with soap and water. If irritation, redness or swelling persists, contact a physician immediately.</p> <p><u>Inhalation:</u> Remove victim to fresh air at once. If breathing is difficult, provide supplemental oxygen. If breathing has stopped, provide artificial respiration. Seek immediate medical attention. Provide supportive treatment, keeping victim warm and quiet.</p>
4.2	Effects of Exposure:	<p><u>Ingestion:</u> If product is swallowed, may cause nausea, vomiting and/or diarrhea.</p> <p><u>Eyes:</u> "Frostbite-like" effects may occur if the liquid or escaping vapors contact the eyes. Mists may cause irritation.</p> <p><u>Skin:</u> Frostbite-like" effects may occur if the liquid or escaping vapors contact the skin. Mists may cause irritation.</p> <p><u>Inhalation:</u> Gross overexposure may cause central nervous system depression, dizziness, confusion, incoordination, drowsiness, irregular heartbeat accompanied by a strange feeling in the chest, "heart thumping," apprehension, light-headedness, weakness, fainting, loss of consciousness, and death.</p>

4. FIRST AID MEASURES – cont'd

4.3	Symptoms of Overexposure:	Inhalation may cause dizziness, confusion, incoordination, drowsiness, irregular heartbeat accompanied by a strange feeling in the chest, "heart thumping", apprehension, light-headedness, weakness, fainting, loss of consciousness, and death.				
4.4	Acute Health Effects:	"Frostbite-like" effects may occur if the liquid or escaping vapors contact the eyes. Mists may cause irritation.				
4.5	Chronic Health Effects:	"Frostbite-like" effects may occur if the liquid or escaping vapors contact the skin. Mists may cause irritation.				
4.6	Target Organs:	Eyes, Skin, Respiratory System				
4.7	Medical Conditions Aggravated by Exposure:	Pre-existing dermatitis, other skin conditions, and disorders of the target organs (eyes and skin). Pre-existing cardiovascular or central nervous system diseases.	HEALTH		1	
			FLAMMABILITY		0	
			PHYSICAL HAZARDS		1	
			PROTECTIVE EQUIPMENT		B	
			EYES	SKIN		

5. FIREFIGHTING MEASURES

5.1	Fire & Explosion Hazards:	This product is non-flammable. Cylinders may rupture under fire conditions. This material will become combustible when mixed with air under pressure and exposed to strong ignition sources. Decomposition may occur. Contact of welding or soldering torch flames with high concentrations of refrigerant can result in visible changes in the size and color of the torch flame. The flame effect will only occur in concentrations of product well above the recommended exposure limit, therefore stop all work and ventilate the area before proceeding. Use forced ventilation to disperse refrigerant vapors from the work area before using any open flames.	
5.2	Extinguishing Methods:	Water, Foam, CO ₂ , Dry Chemical. Use media appropriate for surrounding materials.	
5.3	Firefighting Procedures:	As in any fire, wear MSHA/NIOSH approved self-contained breathing apparatus (pressure-demand) and full protective gear. 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. Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.	

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 (PPE). Secure spill area, remove or minimize all sources of ignition, and maximize ventilation. Stop spill or leak at source if safely possible. Deny entry to all unprotected individuals. Individuals involved in the cleanup must wear appropriate personal protective equipment. Recover free liquid or cover with inert absorbent material and place into appropriate container(s) for disposal. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers or any natural waterway or drinking supply. Contact appropriate local and/or provincial authorities for assistance and/or reporting requirements. Keep spills and cleaning runoffs out of drains, municipal sewers and open bodies of water.</p>
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7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Use normal hygiene practices. Avoid direct skin contact. Wash hands thoroughly after using this product and before eating, drinking, or smoking.
7.2	Storage & Handling:	Use and store in a cool, dry, well-ventilated area. Keep away from excessive heat, open flames, sparks, and other possible sources of ignition. Do not store near or with any incompatible materials listed in Section 10. Do not store in unmarked or open containers. Protect cylinders from physical damage. Do not store in subsurface areas.
7.3	Special Precautions:	Readily available emergency fire, first aid, and spill response equipment and/or measures are highly recommended.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

[illegible]



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8. EXPOSURE CONTROLS & PERSONAL PROTECTION – cont'd

8.4	Eye Protection:	AVOID EYE CONTACT DUE TO FROSTBITE POTENTIAL. 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. Wear goggles and/or face shield if splashing or spraying is anticipated. 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:	No special body protection is required under typical circumstances of use and handling.	

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Appearance:	Pressurized clear liquid
9.2	Odor:	Slight ethereal odor
9.3	Odor Threshold:	NA
9.4	pH:	4.00-5.00
9.5	Melting Point/Freezing Point:	NA
9.6	Initial Boiling Point/Boiling Range:	NA
9.7	Flashpoint:	204 °C (399 °F) (liquid portion of product)
9.8	Upper/Lower Flammability Limits:	LEL: 11,000 ppm/UEL: 94,000 ppm (liquid portion of product)
9.9	Vapor Pressure:	NA
9.10	Vapor Density:	NA
9.11	Relative Density:	NA
9.12	Solubility:	Insoluble
9.13	Partition Coefficient (log P _{ow}):	NA
9.14	Autoignition Temperature:	> 400 °C (752 °F)
9.15	Decomposition Temperature:	NA
9.16	Viscosity:	NA
9.17	Other Information:	NA

10. STABILITY & REACTIVITY

10.1	Stability:	This product is stable.
10.2	Hazardous Decomposition Products:	Warning! Hazardous decomposition products are hazardous. Thermal decomposition can yield hydrofluoric acid and possibly carbonyl fluoride. These materials are toxic and irritating. Contact should be avoided.
10.3	Hazardous Polymerization:	Will not occur.
10.4	Conditions to Avoid:	Open flames, sparks, high heat, and close proximity to incompatible substances.
10.5	Incompatible Substances:	Alkalis, and alkaline earth materials

11. TOXICOLOGICAL INFORMATION

11.1	Routes of Entry:	Inhalation: YES	Absorption: YES	Ingestion: YES
11.2	Toxicity Data:	The product has not been tested for specific toxicity data. Animal studies, available in scientific literature, have shown that this material is a slight irritant, but not a sensitizer.		
11.3	Acute Toxicity:	See Section 4.4		
11.4	Chronic Toxicity:	See Section 4.5		
11.5	Suspected Carcinogen:	No		
11.6	Reproductive Toxicity:	This product is not reported to produce reproductive toxicity in humans.		
	Mutagenicity:	Tests have shown that this material does not cause genetic damage in bacterial or mammalian cell cultures, or in animals.		
	Embryotoxicity:	Animal data shows slight fetotoxicity but only at exposure levels producing other toxic effects in the adult animal.		
	Teratogenicity:	This product is not reported to produce teratogenic effects in humans.		
	Reproductive Toxicity:	In a 2-year inhalation study, HFC-134A, at a concentration of 50,000 ppm, produced an increase in late-occurring benign testicular tumors, testicular hyperplasia and testicular weight in mice. The no-effect-level for this study was 10,000ppm. However, no change in reproductive performance was reported.		
11.7	Irritancy of Product:	Slight		
11.8	Biological Exposure Indices:	NE		
11.9	Physician Recommendations:	Treat symptomatically. Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should only be used with special caution in situations of emergency life support.		

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12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	There are no specific data available for this product.
12.2	Effects on Plants & Animals:	EC ₅₀ (Daphnia magna, 48h): 980 mg/L; LC ₅₀ (Rainbow trout, 96h): 450 mg/L
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):	CONSUMER COMMODITY, ORM-D, DOT-SP 10232 (IP VOL ≤ 1.0 L) - until 12/31/2020 UN3159, 1,1,1,2-TETRAFLUOROETHANE, 2.2 (LTD QTY, IP VOL ≤ 1.0 L)	
14.2	IATA (AIR):	UN3159, 1,1,1,2-TETRAFLUOROETHANE, 2.2 (LTD QTY, IP VOL ≤ 820 mL)	
14.3	IMDG (OCN):	UN3159, 1,1,1,2-TETRAFLUOROETHANE, 2.2 (LTD QTY, IP VOL ≤ 1.0 L)	
14.4	TDGR (Canadian GND):	UN3159, 1,1,1,2-TETRAFLUOROETHANE, 2.2 (LTD QTY, IP VOL ≤ 1.0 L); or MARK PACKAGE "LIMITED QUANTITY/QUANTITÉ LIMITÉE" or "LTD QTY/QUANT LTÉE" (IP VOL ≤ 1.0 L)	
14.5	ADR/RID (EU):	UN3159, 1,1,1,2-TETRAFLUOROETHANE, 2.2 (LTD QTY, IP VOL ≤ 1.0 L)	
14.6	SCT (MEXICO):	UN3159, 1,1,1,2-TETRAFLUOROETHANE, 2.2 (LTD QTY, IP VOL ≤ 1.0 L)	
14.7	ADGR (AUS):	UN3159, 1,1,1,2-TETRAFLUOROETHANE, 2.2 (LTD QTY, IP VOL ≤ 1.0 L)	

15. REGULATORY INFORMATION

15.1	SARA Reporting Requirements:	This product does not contain any substances subject to SARA Title III, Section 313 reporting requirements.	
15.2	SARA Threshold Planning Quantity:	There are no specific Threshold Planning Quantities for the components of this product.	
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):	NA	
15.5	Other Federal Requirements:	None of the ingredients are listed as Hazardous Air Pollutants (HAPs). None of the ingredients are listed as Toxic Pollutants under the Clean Water Act (CWA). None of the ingredients are listed as Priority Pollutants under the Clean Water Act (CWA). This product does not contain any Class 1 or Class 2 ozone depleters.	
15.6	Other Canadian Regulations:	This product has been classified according to the hazard criteria of the 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 A (Compressed Gas)	
15.7	State Regulatory Information:	1,1,1,2-Tetrafluoroethane is listed on the following state criteria lists: California Right-to-Know List; Minnesota Right-to-Know list; Massachusetts Right to Know List of Chemicals; New Jersey Right to Know List 8:59 Appendix A. 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: Irritant (Xi). <u>Risk Phrases</u> (R): 36 – Irritating to eyes. <u>Safety Phrases</u> (S): 2-25-26 – Keep out of reach of children. Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.	

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16. OTHER INFORMATION

16.1	Other Information:	<p>WARNING. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. Wear protective gloves and eye protection. IF ON SKIN – Wash with soap and water. If skin irritation or a rash occurs – Get medical advice/attention. IF IN EYES - Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. If eye irritation persists: Get medical advice/attention. IF INHALED: Move to fresh air. If breathing has stopped, give artificial respiration and call physician immediately. Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Protect from sunlight. Store in a well-ventilated place. KEEP OUT OF REACH OF CHILDREN. USE AND STORE IN WELL VENTILATED AREAS.</p> <p>WARNING: Inhalation of concentrated levels can cause dizziness, ventricular arrhythmia or even death. Use only with adequate ventilation. Avoid prolonged breathing of vapors or spray.</p>	
16.2	Terms & Definitions:	See last page of this Safety Data Sheet.	
16.3	Disclaimer:	<p>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.</p>	
16.4	Prepared for:	<p>Harbor Freight Tools USA, Inc. 26541 Agoura Road Calabasas, CA 91302 USA Tel: +1 (805) 388-1000 http://www.harborfreight.com</p>	 <p>HARBOR FREIGHT TOOLS Quality Tools at Ridiculously Low Prices</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>	

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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
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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.
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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

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
TD₀₁	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD₀₁, LD₀₁, & LD₀₁ or TC, TC₀₁, LC₀₁, & 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

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