



SAFETY DATA SHEET

MagneGas 2™

SDS DATE 04/10/14

SECTION 1: IDENTIFICATION

PRODUCT IDENTIFIER: MagneGas 2™

RECOMMENDED USE: A flammable gaseous fuel.

COMPANY DETAILS: MagneGas Corporation
150 Rainville Road
Tarpon Springs, FL 34689
Tel No: 727 934-3448
FAX No: 727 934-6260
Email: Info@magnegas.com
Website: <http://www.magengas.com>

EMERGENCY PHONE: For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night

Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-527-3887 (Collect calls accepted)

SECTION 2: HAZARD IDENTIFICATION

CLASSIFICATION OF THE MAGNEGAS 2™ GAS

GHS Classification

CODE	PHYSICAL HAZARD STATEMENT	HAZARD CLASS	HAZARD CATEGORY
H220	Extremely Flammable Gas	Flammable Gas	1
H280	Contains gas under pressure; may explode if heated	Gas Under Pressure	Compressed Gas
H316	Causes mild skin irritation	Skin Corrosion/Irritation	3
H320	Causes eye irritation	Serious Eye Damage/Eye Irritation	2B
H332	Harmful if inhaled	Acute Toxicity, Inhalation	4

GHS Label Elements

Pictograms:



Danger
Extremely Flammable Gas



Warning
Contains gas under pressure;
may explode if heated



Warning
Harmful if inhaled

GHS HAZARD STATEMENTS

FLAMMABLE GAS



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Hazard Category 1 **Signal Word** Danger **Hazard Statement** H220 Extremely Flammable Gas **Symbol** Flame

Precautionary Statements			
Prevention	Response	Storage	Disposal
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.	P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 Eliminate all ignition sources if safe to do so.	P403 Store in a well ventilated area.	

GAS UNDER PRESSURE



Hazard Category Compressed Gas **Signal Word** Warning **Hazard Statement** H280 Contains gas under pressure; may explode if heated **Symbol** Gas Cylinder

Precautionary Statements			
Prevention	Response	Storage	Disposal
		P271 Use only outdoors or in well ventilated area. P404 Store in a closed container.	

ACUTE TOXICITY - INHALATION



Hazard Category 4 **Signal Word** Warning **Hazard Statement** H332 Harmful if inhaled **Symbol** Exclamation Mark

Precautionary Statements			
Prevention	Response	Storage	Disposal
P261 Avoid breathing gas. P271 Use only outdoors or in well ventilated area.	P304 + P340 If Inhaled: Remove person to fresh air and keep comfortable for breathing. P312 If inhaled: Call a POISON CENTER or doctor/physician if you feel unwell.		

SKIN IRRITATION

Hazard Category 3 **Signal Word** Warning **Hazard Statement** H316 Causes mild skin irritation **Symbol** No Symbol



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Precautionary Statements			
Prevention	Response	Storage	Disposal
	P332 + P313 If skin irritation occurs: Get medical attention.		

EYE DAMAGE/IRRITATION

Hazard Category 2B	Signal Word Warning	Hazard Statement H320 Causes eye irritation	Symbol No Symbol
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Precautionary Statements			
Prevention	Response	Storage	Disposal
P264 Wash thoroughly after handling	P305 If in eyes: Rinse cautiously with water for several minutes. Remove Contact lenses, if present and easy to do. Continue rinsing. P337 + P313 Call a doctor/physician if eye irritation persists.		

Other Hazards which do not Result in Classification

May cause asphyxia. May cause frostbite upon sudden release of compressed gas.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

CAS#	COMPONENT	% WT(VOL)
1333-74-0	Hydrogen	35 –v 45%
74-84-0	Ethane	23 – 28%
630-08-0	Carbon Monoxide	13 – 17%
74-85-1	Ethylene	8 – 12%
74-82-8	Methane	3 - 5 %
NA	Trace Gases	2 – 3%
124-38-9	Carbon Dioxide	1 – 2%

In MagneGas 2™, the above identified constituents are generally bonded together into clusters due to polarizations created by the electric arc.

SECTION 4: FIRST AID MEASURES

INHALATION:

Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN:

Wash exposed skin with soap and water. If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F°; 41-46° C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

EYES:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION:

MagneGas™ is an unlikely route of exposure; this product is a gas at normal temperature and pressure.

NOTE TO PHYSICIANS:

For inhalation, consider oxygen.

SYMPTOMS: IMMEDIATE

Frostbite, suffocation



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SYMPTOMS: DELAYED

No information on significant adverse effects.

SECTION 5: FIRE-FIGHTING MEASURES

See Section 9 for Flammability Properties

MagneGas 2™ is lighter than air and will disperse rapidly in an open environment, but may pool at the roof peak in unventilated areas. Burned MagneGas 2™ has a high percentage of Oxygen. Stop gas flow and fight fire conventionally. Use water spray to keep cylinder and or other containers cool if exposed to fire.

Specific Hazards Arising from the Chemical

Severe fire hazard. Severe explosion hazard. Vapor/air mixtures are explosive. Pressurized containers may rupture or explode if exposed to sufficient heat. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

Extinguishing Media

Carbon dioxide, regular dry chemical, water, halon.

Unsuitable Extinguishing Media

None known.

Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Evacuate if fire gets out of control or containers are directly exposed to fire. Evacuation radius: 500 meters (1/3 mile)

SECTION 6: ACCIDENTAL RELEASE MEASURES

MagneGas 2™ is lighter than air and will disperse rapidly in an open environment, but may pool at the roof peak in unventilated areas. Shut off gas flow and ventilate area using explosion-proof equipment and methods.

Personal Precautions

Wear personal protective clothing and equipment, see Section 8.

Environmental Precautions

Avoid release to the environment.

Methods for Containment

Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering.

Cleanup Methods

Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray.

SECTION 7: HANDLING AND STORAGE

Handling Procedures

Wash thoroughly after handling.

Storage Procedures

Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Store in a dry and well-ventilated place. Keep away from open flames and high temperatures. Keep separated from incompatible substances.



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Use explosion-proof ventilation to prevent vapor accumulation.

Keep containers closed when not in use. Containers even those that have been emptied, can contain explosive vapors. (Do not cut, drill, grind, weld or perform similar operations around or near cylinders or containers.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENT EXPOSURE LIMITS

INGREDIENT:	CAS NO.	% WT(VOL)	OSHA PEL-TLV (ppm; mg/m3)	ACGIH TLV-TWA (ppm; mg/m3)	SARA 313 REPORTABLE
Hydrogen	1333-74-0	35 – 45%	None	Simple Asphyxiant	Yes, Pressure and Fire hazard
Ehtane	74-84-0	23 – 28%	None	1000ppm/8 hours	
Carbon Monoxide	630-08-0	13 - 17%	50; 55	25	
Ethylene	74-85-1	8 – 12%	None	1000ppm/ 8 hours	
Methane	74-82-8	3 – 5%	None	1000ppm/ 8 hours	
Trace Gases		2 – 3%			
Carbon Dioxide	124-38-9	1 – 2%	5,000; 9,000	5,000; 9,000	

Component Biological Limit Values

There are no biological limit values for any of this product's components.

Engineering Controls

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face

Safety glasses are recommended for handling cylinders. Welders' goggles or similar equipment are required for cutting and welding operations. Select in accordance with OSHA 29 CFR 1910.133.

Protective Clothing

Leather sleeves, leather apron, and other standard protective equipment are required for cutting . Metatarsal shoes for cylinder handling. Select in accordance with OSHA 29 CFR 1910.132 and 1910.133.

Glove Recommendations

Ordinary leatherwork gloves are recommended for handling cylinders. Welders' gloves are required for cutting operations.

Respiratory Protection

Under conditions of frequent use or heavy exposure, respiratory protection may be needed. .

Consider warning properties before use.

For use within a confined space, refer to 29 CFR 1910.146

For Unknown Concentrations or Immediately Dangerous to Life or Health (IDLH)

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Gas	APPEARANCE:	Colorless Gas
COLOR:	Colorless	PHYSICAL FORM:	Gas
ODOR:	Distinct Hydrocarbon odor	ODOR THRESHOLD:	Not Available
TASTE:	Tasteless	MELTHING/FREEZING POINT:	Not Available
BOILING POINT:	Not Available	FLASH POINT:	0°F / -18°C - Cleveland closed cup



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DECOMPOSITION:	Not Available	EVAPORATION RATE:	Not Available
LEL:	4.3%	UEL:	44.9%
VAPOR PRESSURE:	Not Available	VAPOR DENSITY (AIR=1):	Not Available
DENSITY:	0.0259 lb/ft ³	SPECIFIC GRAVITY:	0.3387 (Compared to dry normal air)
LOG KOW:	Not Available	WATER SOLUBILITY:	Not Available
AUTO IGNITION:	887°F / 475°C	COEFF. WATER.OIL DIST.	Not Available
MOLECULAR WEIGHT:	9.81	VISCOSITY:	Not Available
pH:	Not Available	pH (Other):	Not Available
PERCENT VOLATILE:	100%	VOLATILE ORGANIC COMPOUNDS:	Not Available

MagneGas 2 is not known to be soluble in organic solvents.

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and pressure.

Conditions to Avoid

Storage in excess of 2,500 scf should be outdoors or in well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Containers may rupture or explode if exposed to heat.

Possibility of Hazardous Reactions

Will not polymerize.

Incompatible Materials

Oxidizing Lithium, Halogens

Decomposition Products

None under normal combustion conditions.

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE AND CHRONIC TOXICITY

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Hydrogen (1333-74-0)

Inhalation LC50 Rat >15000 ppm 1 h

RTECS Acute Toxicity (selected)

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Immediate Effects

Simple Asphyxiant

Delayed Effects

No information on significant adverse effects.

Irritation/Corrosivity Data

No animal testing data available for skin or eyes.

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Respiratory Sensitizer

No data available.

Dermal Sensitizer

No data available.

CARCINOGENICITY

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.



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Mutagenic Data

No data available for the mixture.

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Reproductive Effects Data

No data available for the mixture.

Tumorigenic Data

No data available for the mixture.

RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Specific Target Organ Toxicity - Single Exposure

No data available.

Specific Target Organ Toxicity - Repeated Exposure

No data available.

Aspiration Hazard

Not applicable.

Medical Conditions Aggravated by Exposure

None known.

Carbon Monoxide (630-08-0)

LCLo (Inhalation-Human) 4 mg/m³/12 hours:

Behavioral: coma; Vascular: BP lowering not characterized in autonomic section;

Blood: methemoglobinemia-carboxyhemoglobin

LCLo (Inhalation-Human) 5000 ppm/5 minutes

LCLo (Inhalation-Human) 3520 mg/m³/5 minutes:

Behavioral: headache

LCLo (Inhalation-Human) 3400 mg/m³/20 minutes:

Cardiac: pulse rate; Lungs, Thorax, or Respiration: respiratory depression

LCLo (Inhalation-Human) 5700 mg/m³/2

LCLo (Inhalation-Human) 14,080 mg/m³/1 minute:

Gastrointestinal: nausea or vomiting;

Behavioral: general anesthetic

LCLo (Inhalation-Man) 4000 ppm/30 minutes

LC50 (Inhalation-Rat) 1807 ppm/4 hours

LC50 (Inhalation-Rat) 1900 mg/m³/4 hours

LC50 (Inhalation-Rat) 13,500 mg/m³/15 minutes

LC50 (Inhalation-Rat) 6600 ppm/30 minutes

LC50 (Inhalation-Mouse) 2444 ppm/4 hours

LC50 (Inhalation-Mouse) 2230 mg/m³/2 hours

LC50 (Inhalation-Guinea Pig) 5718 ppm/4 hours

LC (Inhalation-Rat) 5200 mg/m³/1 hour

RTECS Acute Toxicity (selected)



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The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Immediate Effects

Blood system disorders, heart or cardiovascular disorders, hormonal disorders, respiratory disorders.

Delayed Effects

Blood system disorders, heart or cardiovascular disorders, hormonal disorders, respiratory disorders.

Irritation/Corrosivity Data

No animal testing data available for skin or eyes.

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Respiratory Sensitizer

No data available.

Dermal Sensitizer

No data available.

CARCINOGENICITY

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

Mutagenic Data

Carbon Monoxide is not expected to cause mutagenic effects in humans.

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Reproductive Effects Data

Known human reproductive toxicant.

Embryotoxicity: Carbon Monoxide is not expected to cause embryotoxic effects in humans. Animal embryotoxic data are available for Carbon Monoxide; these data were obtained during clinical studies on specific animal tissues exposed to this compound.

Teratogenicity: Carbon Monoxide is not expected to cause teratogenic effects in humans. Animal teratogenic data are available for Carbon Monoxide; these data were obtained during clinical studies on specific animal tissues exposed to this compound.

Reproductive Toxicity: Carbon Monoxide is not expected to cause adverse reproductive effects in humans. Animal reproductive compound.

Tumorigenic Data

No data available for the mixture.

RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Specific Target Organ Toxicity - Single Exposure

No data available.

Specific Target Organ Toxicity - Repeated Exposure

Inhalation - Causes damage to organs through prolonged or repeated exposure.

Aspiration Hazard

Not applicable.

Medical Conditions Aggravated by Exposure

None known.

Carbon Dioxide (124-38-9)

Simple asphyxiant. LCLo (inhalation in humans): 90,000ppm/ 5 minutes.

TDLo (Intraperitoneal-Rat) 35 mL/kg

LC50(Inhalation Vapor-Rat) 13500 mg/m³/15 minutes

LC50 (Inhalation Vapor-Rat) 1900 mg/m³/4 hours



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LC50 Inhalation Gas-Rat) 3760 ppm/1 hours
LC50 Inhalation Gas-Mouse) 2444 ppm/4 hours
LC50 Inhalation Gas-Rat) 6600 ppm/30 minutes
LC50 Inhalation Gas-Rat) 1807 ppm/4 hours

IDLH
1200 PPM

Chronic Toxicity/Carcinogenicity

TERATOGENIC EFFECTS: Classified 1 by European Union.
May cause damage to the following organs: blood, lungs, cardiovascular system, central nervous system (CNS).
No specific information is available in our database regarding the other toxic effects of this material to humans.

Carcinogenic effects: No known significant effects or critical hazards.

Mutagenic effects: No known significant effects or critical hazards.

Reproduction toxicity: No known significant effects or critical hazards.

Genotoxicity: This product is not expected to cause any mutagenic effects.

SECTION 12: ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

No LOLI ecotoxicity data are available for this product's components.

Persistence and Degradability

No data available for the mixture.

Bioaccumulative Potential

No data available for the mixture.

Mobility in Environmental Media

No data available for the mixture.

MagneGas 2™ is not listed as a marine pollutant by DOT.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Methods

Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME:

HAZARD CLASS:

ID NUMBER:

PACKING GROUP:

Compressed Gas Flammable, N.O.S., (contains MagneGas 2, 35 – 45% Hydrogen)

2.1

UN1954

Refer to 49CFR Parts 173.302 and 173.305





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LABEL STATEMENT: Flammable Gas

IMDG INFORMATION

SHIPPING NAME: Compressed Gas Flammable, N.O.S., (contains MagneGas 2, 35 – 45% Hydrogen)

HAZARD CLASS: 2.1

UN NUMBER: UN1954

REQUIRED LABELS: 2.1, +

Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, non-ventilated compartment of a vehicle can present serious safety hazards.

Shipment of compressed gas cylinders that have been filled without the owner's consent is a violation of federal law [49 CFR 173.301(b)].

SECTION 15: REGULATORY INFORMATION

Component Analysis

U.S. FEDERAL REGULATIONS

None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 311/312 (40 CFR 370.21), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA 311/312 Hazardous Categories

Acute Health: Yes **Chronic Health:** No **Fire:** Yes **Pressure:** Yes **Reactive:** No

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Hydrogen	1333-74-0	Yes	Yes	Yes	Yes	Yes	Yes
Ethane	74-84-0	No	No	No	Yes	No	No
Carbon Monoxide	630-08-0	Yes	Yes	Yes	Yes	Yes	Yes
Ethylene	74-85-1	No	No	No	Yes	No	No
Methane	74-82-8	No	No	No	Yes	Yes	No
Carbon Dioxide	124-38-9	Yes	Yes	Yes	Yes	Yes	Yes

U.S. FEDERAL REGULATIONS

TSCA (TOXIC SUBSTANCE CONTROL ACT): NA

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): NA

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):

SECTIONS 311/312: Require submission of SDSs and reporting of chemical inventories with identification of EPA hazard categories. The hazard categories for this product are as follows:

IMMEDIATE: No **PRESSURE:** Yes **DELAYED:** No **REACTIVITY:** No **FIRE:** Yes

313 REPORTABLE INGREDIENTS: Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372, not listed.

Component Analysis - Inventory

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
Hydrogen	1333-74-0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ethane	74-84-0									
Carbon Monoxide	630-08-0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ethylene	74-85-1									
Methane	74-82-8									



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Carbon Dioxide	124-38-9	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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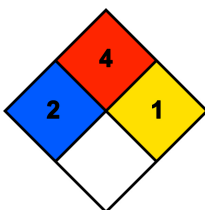
CANADA

WHMIS (Canada) Class A: Compressed gas.
 Class B-1: Flammable gas.
 Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
 Class D-2A: Material causing other toxic effects (Very toxic).
CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

SECTION 16: OTHER INFORMATION

NFPA HAZARD CLASSIFICATION

HEALTH: 2
 FLAMMABILITY: 4
 REACTIVITY: 1
 OTHER: None



The opinions expressed herein are those of qualified experts within MagneGas Corp. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of MagneGas Corp. It is the user's obligation to determine the conditions of safe use of the product.

PREPARATION INFORMATION:

Prepared for MagneGas under agreement by Safety Partners LLC, Sarasota, FL.