MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Material Name	Natural Gas – Odorized
MSDS Number	SEMCO MSDS 1
Product Use	Fuel Gas
Manufacturer/Supplier	SEMCO ENERGY Gas Company (SEMCO) 1411 Third Street, Suite A Port Huron, MI 48069
Emergency	1-888-GAS-1-GAS (1-888-427-1427)

---

2. HAZARDS IDENTIFICATION

Physical State	Gas
Appearance	Colorless gas
Odor	Gassy, sulfurous, rotten egg type odor
Emergency Overview	DANGER Flammable gas – may cause flash fire Gas reduces oxygen available for breathing
OSHA Regulatory Status	This product is hazardous according to OSHA 29CFR 1910.1200
Potential Health Effects Routes of Exposure	Inhalation
Eyes	Pressurized gas, and contaminants within piping, may cause mechanical injury.
Skin	Pressurized gas, and contaminants within piping, may cause mechanical injury.
Inhalation	Sufficient concentrations can displace oxygen in the air and can cause symptoms of oxygen deprivation (asphyxiation), including unconsciousness.
Ingestion	Not applicable

Target Organs	Not applicable
Chronic Effects	Not applicable
Signs and symptoms	Not applicable
Potential Environmental Effects	Not expected to be harmful to aquatic organisms

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	**CAS#**	**Percent**
Natural Gas	8006-14-2	100
(Includes a blend of tertiary-Butyl Mercaptan and Tetrahydrothiophene of <0.1% mole)		

Primary Constituents of Natural Gas	**CAS#**	**Percent**
Butane	106-97-8	Varies
Carbon Dioxide	124-38-9	Varies
Ethane	74-84-0	Varies
Methane	74-82-8	Varies
Pentane	109-66-0	Varies
Propane	74-98-6	Varies

4. FIRST AID MEASURES

First Aid Procedures

Eye Contact	Not applicable. No effects expected.
Skin Contact	Not applicable. No effects expected.
Inhalation	Remove victim to fresh air. If not breathing, clear airway and start mouth-to-mouth artificial respiration or use a bag-mask respirator. Get immediate medical attention. If the victim is having trouble breathing, transport to medical care and if available, give supplemental oxygen.
Ingestion	This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Notes to Physician	Provide general supportive measures and treat symptomatically.
General Advice	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flammable gas. Gas forms mixtures with air which can ignite and burn with explosive violence. Gas is lighter than air and explosive mixtures may occur if gas is released into enclosed or confined areas. Gas leaking from underground piping may travel through soil and into nearby structures and underground facilities, and may create explosion hazards within those structures. Gas entry into sewer, conduit, or abandoned underground pipe may create explosion hazards within those underground facilities and within structures attached to those underground facilities.

Extinguishing Media

Suitable Extinguishing Media	Extinguish with carbon dioxide, dry powder, or foam.
Unsuitable Extinguishing Media	Water may be ineffective on flames but useful for other purposes, including cooling.

Protection of Firefighters

Specific Hazards Arising from the Chemical	During fire, combustion gases may be formed that are hazardous to health.
Protective Equipment and Precautions for Firefighters	Evacuate areas and fight fire from a safe distance. Extinguish the fire by stopping the flow of gas. If leak is from SEMCO facilities, do not stop the flow of gas but call the appropriate SEMCO emergency number for gas control assistance. The gas could form an explosive mixture with air and re-ignite resulting in a sudden violent flash fire, which may cause far more damage than if the original fire had been allowed to burn.

Specific Methods

In the event of fire or explosion do not breathe fumes. Do not enter a gaseous or suspected gaseous environment without first checking the gas concentration with a properly calibrated combustible gas indicator. If gas is detected, do not enter without first eliminating potential ignition sources (See Section 6); without appropriate lockout-tagout safeguards; without appropriate personal protective equipment, such as flame resistant clothing that is treated to avoid static buildup; without an emergency retrieval system (defined in Section 16), such as a harness with a retrieval line; without self contained breathing air; and without a fire watch (defined in Section 16) stationed outside the gaseous environment that is equipped with an appropriate fire suppressant.

---

6. ACCIDENTAL RELEASE MEASURES

Hazard Recognition

Any suspected natural gas leak requires immediate emergency action. Natural gas is likely to be present if a gassy or unusual odor, like rotten eggs is detected. A dangerous concentration of natural gas may be present if the odor is constant or momentary, or if the odor is strong or slight. **Extreme Caution is called for since the potential for death or**

serious injury from a flash fire or explosion is very great if a leak, suspected leak, or odor is ignored.

As explained in Section 7, persons should not rely solely on their sense of smell to determine if a gas leak exists or if natural gas is present. Other indications that a natural gas leak may be present and that call for extreme caution include: damaged or worn hoses, fittings, or other connections to a gas appliance or piping; discolored or dead vegetation over or near pipelines; dirt or water being thrown in the air, hissing, whistling, or roaring sound near a gas pipe; bubbling water (including water in a toilet bowl); burning soil, a fire or explosion near a pipeline; an exposed pipe after an earthquake, flood, or other natural disaster; or physical symptoms from exposure that may include dizziness, light-headedness, headache, nausea, loss of coordination, or eye irritation.

Emergency Action

Immediately stop all hot work (defined in Section 16). Immediately evacuate all personnel from all suspected leak areas and areas that may be impacted by the ignition of natural gas. Activate the evacuation procedures of the facility's Emergency Operating Plan, but do not activate any electric alarm or communication systems. Secure all such areas to prevent entry or reentry. From a safe location, call 911.

Prevention of Ignition

All existing **ignition sources,** including but not limited to open **flames** or **embers** (such as water heaters, fire in boilers, pilot lights, blow torches, matches, candles, lighters, cigarettes, cigars or pipes), should be extinguished if it is possible to do so without entering the suspected leak area.

Static electricity discharges and **electrical arcing** can be potential ignition sources and should be avoided. If it can be done safely, turn off the gas supply to the affected equipment or piping system and disconnect any electrical supply at a circuit breaker or elsewhere outside the affected structure or area. However, do not do so without first verifying the absence of gas in the switch with a properly calibrated combustible gas indicator. Sources of static electricity and electrical arcing include, but are not limited to, torch igniters, cutting or welding, friction of certain clothing; charges within natural gas and gas piping; the use of tools that are not spark proof, the use of equipment that is not explosion proof (or is not within explosion proof enclosures), and the use of non intrinsically safe electrical switches, illumination, thermostats, fans, motors (including motor operated doors), battery operated equipment, and electronic equipment.

Hot surfaces that are at or above the auto ignition temperature can be potential ignition sources and should be cooled if it is possible to do so without entering the suspected leak area.

Precautions for Entering a Gaseous Environment

Do not enter a gaseous or suspected gaseous environment without first checking the gas concentration with a properly calibrated combustible gas indicator. If gas is detected, do not enter without first eliminating potential ignition sources; without appropriate lockout – tag out

safeguards; without appropriate personal protective equipment, such as flame resistant clothing that is treated to avoid static buildup; without an emergency retrieval system (defined in Section 16) stationed outside the gaseous environment that is equipped with an appropriate fire suppressant.

Precautions if the release is from SEMCO operated pipelines or facilities:

- Move to a safest location and call 911 and the appropriate SEMCO emergency number;
- Communicate requested information to SEMCO;
- Secure the area and keep others from entering;
- If possible, eliminate sources of ignition;
- Wait for the Fire Department and SEMCO emergency crews to arrive at a safe location;
- Do not attempt to control the flow of natural gas on SEMCO equipment;
- Do not turn off equipment unless the equipment manufacturer's instructions provide otherwise;
- Do not attempt to move equipment;
- Do not enter the area where natural gas is escaping;
- Do not attempt to extinguish a fire should ignition occur;
- Do not allow others to enter the area; and
- Do not leave the scene of the incident until assistance has arrived.

Additional Reference Information

(1) National Fire Protection Association's NFPA 70, *National Electrical Code*, Article 504, Intrinsically Safe Systems (2008), NFPA 77, *Recommended Practice on Static Electricity* (2007)*, and NFPA 329, Recommended Practice for Handling Releases of Flammable and Combustible Liquids and Gases* (2010).

(2) FM Approvals, *Approval Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations* (January 2007).

---

7. HANDLING AND STORAGE

General

SEMCO adheres to United States Department of Transportation (DOT) and all applicable state rules and regulations regarding the odorizing of natural gas. Decades of experience has established that the addition of chemical odorants to natural gas has proven to be safe, reliable and effective means to warn of the presence of leaks, accidental releases, and other dangerous concentrations of natural gas. However, this odorization is only one phase of protection and so one should not rely on their sense of smell alone to determine if there is a gas leak; other practices for minimizing and locating gas leaks should be employed. Specifically, odorization provides added protection by allowing persons to detect the presence of natural gas, but is not a

substitute for proper installation, use, protection, and upkeep of gas system appliances. All gas pipe should be designed, installed and inspected as required by the applicable fire code, plumbing code, mechanical code, fuel gas code, and administrative code prior to operation. After installation, all gas pipe should be properly maintained and protected from damage because the primary cause of leakage from underground gas pipes is damage by third parties. Please see the back of the bill or http://www.semcoenergygas.com to obtain information about the need to inspect, maintain and repair customer-owned service lines that are not maintained by SEMCO.
Appliances and equipment manufacturer's instruction manuals should be followed for the recommended installation, operation, maintenance, and inspection practices, even if those practices conflict with the practices contained in this material safety data sheet.

Other Precautions

Impaired sense of smell and environmental conditions that reduce odorant effectiveness

As noted above, persons should not rely solely on their sense of smell to determine if a gas leak exists or if natural gas is present. Some persons may not be able to detect the added odorant because they have a diminished or impaired sense of smell or olfactory fatigue. Specifically, some physical conditions, including common colds, allergies, sinus congestion, inattentiveness, eating, and use of tobacco, alcohol and drugs may temporarily lessen one's ability to detect the odorant. Acute exposure to high concentrations of odorant may shock, or even temporarily paralyze one's sense of smell. Continued exposure to a low concentration of odorized gas may slow or dull a person's ability to detect odorized gas, including the ability to detect higher concentrations of odorized gas. Exposure to extreme cold may temporarily impair the ability to smell. Some people suffer from temporary or permanent anosmia. That is, they have no sense of smell. When a person's ability to smell natural gas odorant is in doubt, the person may undergo an evaluation by a physician or other licensed health care professional.

Certain environmental conditions including competing odors (such as cooking, damp or musky smells), may cover up or mask the smell of odorized gas. Extreme cold weather may also reduce the effectiveness of the odorant.

Special precautions, including but not limited to the use of gas detection equipment, should be taken by persons using odorized gas or persons who may be exposed to planned or accidental releases of odorized gas, where those persons have a diminished or impaired sense of smell or work in environments that may mask or reduce the effectiveness of the odorant.

Odor Fade

Certain conditions cause **odor fade**, a phenomenon that causes the odorant to diminish so that it is not as detectable and, in some cases, is not detectable at all. Persons should not rely on their sense of smell alone to detect the presence of natural gas without first considering the presence or absence of conditions that may cause odor fade and without advance consideration of the potential for the creation or presence of a flammable concentration of odor faded gas. **Odor fade (loss of**

odorant) occurs when the level of odorant in the gas is reduced due to physical and/or chemical processes including adsorption, absorption and oxidation. This causes the effectiveness of odorant as a warning agent to be reduced. In piping systems conveying dry natural gas, like that delivered by SEMCO, odor fade occurs predominantly in installations of new pipe rather than in pipe that has been in continuous use. It is generally more pronounced in new steel pipe of larger diameters and longer lengths with intermittent, little or no gas flow through the piping system over an extended period of time. Other factors that may cause odor fade in a gas piping system include; the construction and configuration of the gas piping system; the presence of rust, moisture, liquids or other substances in the pipe; and gas composition, pressure and/or flow.

In industrial, commercial, and public applications and in large residential applications such as housing tracts and residential towers, new pipeline installations may require periodic purging, the conditioning of the pipe, or fuel gas system modifications (including pressure reduction) during start up operations to prevent occurrences of odor fade. If SEMCO conditioned the customer's pipe before it was placed into service, contact SEMCO for instruction on work controls and personal protective equipment recommendations before cutting the pipe with an oxyacetylene torch or welding pipe that is near to, and downstream of, the odorant injection point(s).

If a natural gas leak occurs underground, the surrounding soil may cause odor fade. Inspections for underground gas leaks should include looking for discolored or dead vegetation over or near pipe areas.

Immediately call the appropriate SEMCO emergency number (Section 1) if odor faded gas is detected or suspected and follow the instructions given by the emergency dispatch.

Purging Gas Piping

Gas piping should only be purged by a licensed professional that is fully trained and knowledgeable about safe gas purging practices, the proper use of gas detectors, and the danger of relying on the sense of smell alone to detect the presence of gas during purging operations. An improperly performed purge may cause serious bodily injury or death to the person(s) performing the purge and to all other persons in the affected area.

Do not purge the contents of a gas pipe into a confined space. (See 29CFR 1910.146).

Consider stopping hot work (defined in Section 16) in the area receiving the product of the purge.

Do not leave the point(s) of discharge unattended while purging. Whenever practical, purged gases should be directly vented to a safe location outdoors and away from people, structures, and ignition sources. (Examples of ignition sources are in Section 6). This can be done using a temporary hose or piping or permanently installed vent

pipes, depending on the facility design. All hose or piping used for this purpose should be grounded to reduce the possibility of static electricity build up within the gas or a static charge on the hose or pipe. Whenever possible, each purge should be continued without interruption until the purge gases have been fully discharged. Consider monitoring the discharge point with gas detection equipment and stopping the purge once all the purged gases have been discharged. To provide the most accurate information about combustible gas levels where the gas is purged, sampling should be conducted frequently or continuously at appropriate locations. When purging indoors, consider opening doors and windows to maximize ventilation. When purging to the outdoors, the valve should be opened quickly and fully to create a rapid flow that minimizes the stratification of gases within the piping.

Immediately call the appropriate SEMCO emergency number (Section 1) if odor faded gas is detected or suspected and follow the instructions given by the emergency dispatch.

Special additional precautions should be taken when purging piping systems that contain extensive branch piping that cannot maintain appropriate purge velocities, or that are exceptionally large. Special precautions include but are not limited to preparing and following a purge plan that minimizes gas mixing due to turbulence, minimizes the stratification of gases within the piping, and addresses the diffusion due to the contact duration of the gases.

Special additional precautions should be taken when purging indoors at industrial, commercial, public, and large residential applications such as residential towers. Additional precautions may include but are not limited to:

- Preparing and following a written purge plan
- Evacuating nonessential personnel;
- Providing supplemental ventilation with appropriate equipment that discharges the air away from the enclosed space, such as a grounded air-ejector (defined in Section 16);
- Wearing flame resistant clothing that is appropriately treated to avoid static buildup;
- Eliminating open flames and other ignition sources;
- Employing appropriate lockout- tag out safeguards to control access to piping and valves and to control access to ignition sources including electrical switches, circuit breakers, appliances, equipment, and motors;
- Purging at a controlled rate that takes into account the volume of gas or air displaced from the gas piping, the amount of ventilation present, and the volume of the enclosed premises or structure receiving the product of the purge; and
- Using gas detection equipment at appropriate locations within the enclosed space where the purged gases are released and stopping the purge upon the detection of a concentration of no more that 25% of the lower flammable limit.

Sewer Work Precautions

Some SEMCO gas pipes that were installed by a boring method have been found to have physically intersected and breached sewer laterals and mains. Some of these conflicts resulted in blockage of the sewer pipe. Should persons encounter indications of blockage in a sewer pipe, call 811 (MISS DIG) for a free emergency line locate to determine the location of SEMCO pipe before cleaning the sewer pipe with a flexible auger (rooter device or plumber's snake). Should persons sense or see, but not penetrate, an obstruction in the sewer line, call the SEMCO emergency number (Section 1) to ensure that SEMCO pipe has not been damaged. (See Section 6 for hazard recognition, emergency action, and prevention of ignition).

Additional Reference Information

(1) International Society for Automation's (ISA) RP 12.13-2003, Recommended *Practice of the Installation, Operation, and Maintenance of Combustible Gas Detection Instruments*
(2) American Petroleum Institute's (API) 2009, *Safe Welding, Cutting, and Hot Work Practices in the Petroleum and Petrochemical Industries.*
(3) Local fire codes, plumbing codes, mechanical codes, fuel gas codes, fire alarm and signal codes, departments of building and safety, and departments of occupational health and safety.
(4) National Fire Protection Association's NFPA 54, *National Fuel Gas Code (2012)* and NFPA 72, *National Fire Alarm and signaling Code* (2010).
(5) *U.S. Chemical Safety and Hazard Investigation Board's Safety Bulletin* (9/2009), *Dangers of Purging Gas Piping into Buildings.*
(6) *California Contractors State License Board* (9/28/2009), *Contractors State License Board Encourages Natural Gas Project Safety.*
(7) *Bruno,T.J., The Loss of Odor through Conjugation, Suppression and Cross-Adaptation: How One Plus One Can Sometimes Equal Zero,* Thermophysical Properties Division, Chemical Science and Technology Laboratory National Institute of Standards and Technology (2005).
(8) American Gas Association's *Purging Principles and Practice*, Third Edition, (2001) and Gas Engineers Handbook (1965).
(9) *Pipeline Purging Principles and Practice Research,* James A. Johnson, Steven J. Svedeman, Christopher A. Kuhl; Gas Research Institute (01/1997).
(10) Harris, R.J., *The Investigation and Control of Gas Explosions in Building and Heating Plants* (British Gas, 1983).

---

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits

ACGIH

Components	Type	Value
Butane (106-97-8)	TWA	1000 ppm
Carbon Dioxide (124-38-9)	STEL	30000 ppm
	TWA	5000 ppm
Ethane (74-84-0)	TWA	1000 ppm
Methane (74-82-8)	TWA	1000 ppm
Natural Gas (8006-14-2)	TWA	1000 ppm

Pentane (109-66-0)	TWA	600 ppm
Propane (74-98-6)	TWA	1000 ppm

U.S. – OSHA

Components	**Type**	**Value**
Butane (106-97-8)	TWA	800 ppm 1900 mg/m3
Carbon Dioxide (124-38-9)	PEL	9000 mg/m3 5000 ppm
	STEL	30000 ppm 54000 mg/m3
	TWA	18000 mg/m3 10000 ppm
Pentane (109-66-0)	PEL	1000 ppm 2950 mg/m3
	STEL	2250 mg/m3 750 ppm
	TWA	600 ppm 1800 mg/m3
Propane (74-98-6)	PEL	1800 mg/m3 1000 ppm
	TWA	1000 ppm 1800 mg/m3

Exposure Guidelines OSHA: The acceptable max. peak above the ceiling concentration for an 8 hour shift is: 50 ppm. The acceptable duration of the peak above the ceiling concentration is: 10 minutes once, only if no other measureable exposure occurs.

Engineering Controls See Section 7

Personal Protective Equipment

Eye/face protection — Wear safety glasses, goggles, or face shields around pressurized systems.

Skin protection — Wear gloves.

Clothing — Wear cotton clothing or clothing that is flame resistant or flame retardant. Avoid rayon or other petrochemical fabrics. Wear long sleeves and long pants.

Respiratory Protection In case of inadequate ventilation or in the case of pressurized gas displacing the air, use a supplied-air respirator.

---

9. PHYSICAL & CHEMICAL PROPERTIES

Appearance Colorless gas

Color	Not relevant
Odor	Gassy, sulfurous, rotten egg type odor.
Odor Threshold	Readily detectable by a person with a normal sense of smell at a concentration in air of one-fifth of the lower flammability limit.
Physical State	Gas
Form	Gas
pH	Not Relevant
Melting Point	Not available
Freezing Point	Not available
Boiling Point	-258.7° F (-161.5°C)
Flash Point	-297.8° F (-183.2°C) (Methane) Cleveland Closed Cup
Evaporation Rate	Not available
Flammability	Not available
Flammability limits in air, upper, % by volume	14-15
Flammability limits in air, lower, % by volume	4-5
Vapor pressure	Not available
Vapor density	Not relevant
Specific Gravity	0.56-0.60 at 60° (15°C)
Solubility (water)	Insoluble
Partition Coefficient (N-octanol/water)	No data available
Auto-Ignition temperature	900-1170°F (482.2 - 632.2° C)
Decomposition Temperature	Not available
Viscosity	Not relevant

---

10. CHEMICAL STABILITY & REACTIVITY INFORMATION

Chemical Stability	Stable at normal conditions

Conditions to Avoid	Heat, flames and sparks
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	Carbon dioxide, Carbon Monoxide
Possibility of hazardous reactions	Hazardous polymerization does not occur

11. TOXICOLOGICAL INFORMATION

Toxicological data

Components	**Test Results**
Butane (106-97-8)	Acute Inhalation LC50 Rat: 658 mg/l 4 Hours
Pentane (109-66-0)	Acute Inhalation LC50 Rat: 364 mg/l 4 Hours
Propane (74-98-6)	Acute Inhalation LC50 Rat: > 1442.847 mg/l 15 Minutes
Methane (74-82-8)	Not Available

Acute Effects	Breathing of high vapor concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness. Asphyxiates displace oxygen in the air and can cause symptoms of oxygen deprivation (asphyxiation).
Local Effects	Contact with compressed gas can cause damage (frostbite) due to rapid evaporative cooling.
Sensitization	Not a skin sensitizer
Chronic Effects	No data available
Carcinogenicity	No data available
Mutagenicity	No data available
Reproductive Effects	No data available
Teratogenicity	No data available
Further Information	No other specific acute or chronic health impact noted

12. ECOLOGICAL INFORMATION

Ecotoxicity	This product is volatile organic compound which as a photochemical ozone creation potential
Aquatic Toxicity	Not expected to be harmful to aquatic organisms
Persistence and Degradability	The product is easily biodegradable

Bioaccumulation/Accumulation	The product is not bioaccumulating
Mobility in Environmental Media	The product is a volatile substance, which may spread in the atmosphere
Partition Coefficient (n-octanol/water)	No data available

13. DISPOSAL CONSIDERATIONS

Waste Codes D001:
Waste Flammable material with a flash point < 140°F

Disposal Instructions

This material safety data sheet concerns non-containerized natural gas that is delivered by pipeline from a SEMCO meter. See Section 16 for more information.

Do not dispose of waste into sewer. This product, in its unaltered state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40CFR 261.4 (b) (4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

14. TRANSPORT INFORMATION

DOT

This material safety data sheet concerns non-containerized natural gas that is delivered by pipeline from a SEMCO meter. Re-transportation of natural gas by pipeline may be governed by 49CFR Part 192 and applicable pipeline safety codes.

Basic Shipping Requirements

If this product is placed into a pressurized container and offered for shipment refer to 49 CFR, Parts 171 to 185, for appropriate regulatory information. See Section 16.

15. REGULATORY INFORMATION

US Federal Regulations

This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Some components are on the US EPA TSCA Inventory List.

US TSCA Section 12(b) Export Notification: Export Notification requirement/ De minimis concentration

Pentane (CAS 109-66-0) 1.0% One-Time Export Notification Only

Natural gas reporting requirements are contained in 40CFR Part 311, 40 CFR Part 370, and 40 CFR Part 372 for industrial users of natural gas and for government employees of hazardous waste operations. SEMCO has not attempted to assess the applicability of these regulations to the unique operating characteristics of the applicable employers.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 302 extremely Hazardous Substance	No
Section 311 Hazardous Chemical	Yes

---

16. OTHER INFORMATION

Containerized Natural Gas and LNG

This material safety data sheet concerns non-containerized natural gas that is delivered by pipeline from a SEMCO Energy Gas meter. **Containerized natural gas** and **liquefied natural gas** have their own unique hazards that are not provided for in this material safety data sheet. For example, those products require substantially different and specialized engineering controls, safe handling precautions, personal protective equipment, accidental release measures, and fire fighting measures, transportation requirements, and product labeling requirements.

Odorant added by SEMCO

This material safety data sheet is for natural gas that is odorized by SEMCO. Please contact SEMCO for more information about the source of the natural gas for any particular location. Some downstream users may remove the odorant from the natural gas supplied by SEMCO, or may add similar or different odorant blends.

HMIS® ratings

Health: 1
Flammability: 4
Physical Hazard: 0
(HMIS® is a registered trade and service mark of the NPCA).

NFPA Ratings

Health: 1
Flammability: 4
Instability: 0

Definitions

Air-ejector	A device that uses the Venturi principle to siphon air or other gases. Compressed air or pressurized inert gas is introduced to allow the pressure at the throat to drop below atmospheric pressure, allowing air or other gases at atmospheric pressure to flow into the throat.
Fire Watch	The assignment of a person or persons to an area for the express purpose of notifying the fire department, the building occupants, or both of an emergency preventing a fire from occurring; extinguishing small fires; or protecting the public from fire or life safety dangers.
Hot-Work	Work or operations capable of providing a source of ignition. Includes, but is not limited to: burning, heating, thermal spraying, thawing pipe, torch applied roofing, or other work involving open flames; sparking of

	electrical equipment'; and cutting, welding, grinding, riveting, buffing, drilling, blasting, chipping, scraping, sawing, brazing, soldering, or other similar operations that create hot metal, sparks, or hot surfaces from friction or impact.
Retrieval-System	Combinations of rescue equipment used for non-entry (external) rescue of persons from hazardous environments or confined spaces.
Disclaimer	This product has not been tested by SEMCO to determine its specific health hazards. Therefore, the information in this material safety data sheet may be incomplete. The information includes health hazard information on the product components that was drawn from external sources. All information is provided without warranty, express or implied. The information is believed to be correct; if errors are discovered, please promptly report them to SEMCO. All information contained in this material safety data sheet is provided to allow the user to make an independent determination of the methods required to safeguard workers, the public and the environment. This document is not intended to convey legal advice: users should consult all applicable building and construction codes, occupational and process safety codes, environmental regulations, and all other applicable ordinances, rules, codes, regulations, statutes, or other law that may include different or more stringent provisions. No effort is made to identify any transportation, environmental, or other regulatory requirements beyond the state of Michigan.
Notice of Future Revisions	Notices of revision to this material safety data sheet will be provided on the SEMCO website at http://www.semcoenergygas.com.
Original Issue Date	09/08/2010
Revision Date	**07/15/2013**
Summary of Revisions	Refer to file: Natural_Gas-Odorized_MSDS(2013)(SRM07-15-13)