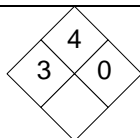





NFPA / WHMIS  	Personal Protection 	DOT/TDG Road/Rail 
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Section I. Product Identification and Uses

Common/Trade name	Refinery Gas (Sour) (Lima)		
Synonyms	Sour Gas, Acid Gas, Fuel Gas Sour, Refinery Fuel Gas (Sour)	CAS #	Mixture
Chemical family	Petroleum Hydrocarbon	DSL	This product is on the Domestic Substances List (DSL). TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.
Supplier	Husky Lima Refinery, 1150 South Metcalf Street, Lima OH, 45804 403-298-6111 (General Information)	Manufacturer	Husky Lima Refinery 1150 South Metcalf Street Lima, OH 45804
Material uses	Feedstock for Heating Fuel		

Section 2. First Aid Measures

Eye contact	Contact with rapidly expanding or liquified gas may cause irritation and/or frostbite. Flush eyes for at least 15 minutes with clean water. Patch lightly, allowing drainage. Seek medical attention.
Skin contact	Contact with rapidly expanding or liquified gas may cause irritation and or frostbite. Seek medical attention. Flush immediately with running water. Remove non-adhering contaminated clothing. Do not remove adherent material or clothing.
Inhalation	Protect rescuer. Move exposed person to fresh air. If breathing has stopped apply artificial respiration. Seek medical attention.
Ingestion	Not applicable (gas).

Section 3. Hazardous Ingredients

Name	CAS #	ACGIH TLVs (OSHA PELs in Section 7)						% by Weight
		TWA (ppm)	TWA (Mg/M3)	STEL (ppm)	STEL (Mg/M3)	CEIL (ppm)	CEIL (Mg/M3)	
Methane	74-82-8	1000	n/av	n/av	n/av	n/av	n/av	60-100
Ethane	74-84-0	1000	n/av	n/av	n/av	n/av	n/av	10-30
Ethylene	74-84-0	n/av	n/av	n/av	n/av	n/av	n/av	5-10
Propane	74-98-6	1000	n/av	n/av	n/av	n/av	n/av	1-5
Propylene	115-07-1	n/av	n/av	n/av	n/av	n/av	n/av	5-10
Butane	106-97-8	1000	n/a	n/av	n/av	n/av	n/av	1-5
Hydrogen Sulphide	7783-06-4	10	14	15	21	15	21	1-60

Toxicity values of the hazardous ingredients	Methane LD50: Not available. LC50: Not available. Ethane LD50: Not available. LC50: Not available. Ethylene LD50 Not applicable Ethylene LC50 Not available Propane LD50 Not applicable Propane LC50 Not available Propylene LD50 Not applicable Propylene LC50 Not available Butane LC50: 278,000 ppm (Rat 4 hr) Hydrogen Sulfide LC50: 673ppm (Mouse, 1Hr) Hydrogen Sulfide LC50: 444ppm (Rat, 4 Hr)
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Section 4. Physical Data

Physical state and appearance	Gas. Colorless.
Odor	Slight hydrocarbon odor.. Strong rotten eggs odor.
pH (1% soln/water)	Not available.
Odor threshold	Butane 5 ppm, ethane 150 ppm, propane 5000 ppm Hydrogen sulfide 0.13 ppm
Evaporation rate	Not available.
Freezing point	-183°C (-297°F)
Boiling point	-162°C (-259.6°F)
Specific gravity	Not available.
Volatility	Gas, 100%.
Vapor density	Methane 0.6. High concentrations of H2S make the gas heavier than air. Under certain conditions the vapors may collect in lower lying areas.
Vapor pressure	Not available.
Water/oil dist. coeff.	Not available.
Solubility	Negligible
Molecular Weight	Not applicable.
Melting Point	-183°C (-297.4°F)
Density	Not available

Section 5. Fire and Explosion Data

Auto-ignition temperature	The lowest known value is 405°C (761°F) (Liquified butane).
Flash points	<-40°C (-40°F)
Flammable limits	Not available
Extinguishing Media	Use dry chemical, CO2, water spray or foam.
Special fire fighting procedures	Do not extinguish fire if source of gas cannot be safely turned off. If flames are accidentally extinguished explosive re-ignition may occur if ignition sources are not controlled. Be alert to container rupture potential if tanks are involved in a fire. Fullface positive pressure, self-contained, breathing apparatus and appropriate protective clothing should be worn for all indoor and significant outdoor fires.

Continued on Next Page

Flammability	Product is a highly flammable gas. May be ignited by contact with heat, sparks or open flame. Gas may accumulate in confined spaces. Gas can travel considerable distances to ignition sources and cause a flash fire.
	Remark No additional remark.
Risks of explosion	This material is sensitive to static discharge. This product is not sensitive to mechanical impact. Forms explosive mixtures with oxygen and oxidizing agents.
	Remark No additional remark.

Section 6. Reactivity Data

Stability	This product is stable.
Hazardous decomp. products	Carbon monoxide, carbon dioxide and irritant fumes and gases including sulfur oxides, nitrogen oxides and aldehydes.
Reactivity	Incompatible Materials: oxidizing materials, halogen compounds (eg-chlorine), metals. Hazardous Polymerization: will not occur under normal conditions.
	Remark No additional remark.

Section 7. Toxicological Properties

Routes of entry	Inhalation. Eye contact. Skin contact.
OSHA PEL	Hydrogen Sulfide OSHA PEL 20 ppm (Acceptable Ceiling Concentration) 50 ppm (Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift) Propane OSHA-PEL 1000ppm (1800 mg/m3) See Section 3 for ACGIH TLVs
Toxicity to animals	Methane LD50: Not available. LC50: Not available. Ethane LD50: Not available. LC50: Not available. Ethylene LD50 Not applicable Ethylene LC50 Not available Propane LD50 Not applicable Propane LC50 Not available Propylene LD50 Not applicable Propylene LC50 Not available Butane LC50: 278,000 ppm (Rat 4 hr) Hydrogen Sulfide LC50: 673ppm (Mouse, 1Hr) Hydrogen Sulfide LC50: 444ppm (Rat, 4 Hr)
	Remark No additional remark.
Chronic effects	Ethane is known to cause cardiac sensitization and CNS depression. Ethylene is known to cause mutagenicity. Propane is known to cause cardiac sensitization, CNS depression, dizziness, confusion, excitation, asphyxia and liquid - frostbite. Propylene is known to cause mutagenicity. Butane is known to cause cardiac sensitization, CNS depression, drowsiness, narcosis and liquid frostbite . Hydrogen sulfide is known to cause apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, lassitude (weakness, exhaustion), irritability, insomnia; gastrointestinal disturbance and irritation eyes, respiratory system.

Remark
No additional remark.

Acute effects	Irritancy: Contact with rapidly expanding or liquified gas may result in skin or eye irritation and/or frostbite. Sensitizing capability: No effects known. Hydrogen Sulfide is a severe irritant to the eyes, lungs and respiratory tract. Exposure above 100 ppm are considered "Immediately dangerous to Life and Health (IDLH)". Severe eye and respiratory irritation will occur at levels 10-100 ppm. Higher concentrations above 600 ppm may produce respiratory distress, coma and death.
Ingestion	Not applicable.
Skin	Contact with rapidly expanding or liquified gas may result in irritation and/or frostbite.
Eyes	Contact with rapidly expanding liquified gas may cause irritation and/or frostbite. May cause severe eye irritation if high concentrations of H2S are present.
Inhalation	Asphyxiant. Adverse health effects occur as a result of the displacement of oxygen. Vapours are heavier than air and may collect in low lying areas. Central nervous system depression can occur if product is present in concentrations that will reduce the oxygen content of air below 18 % (vol). Symptoms may include headache, lightheadedness, drowsiness, disorientation, vomiting and seizures. Unconsciousness and death may occur with severe oxygen deprivation. Narcosis may occur if hydrocarbon exposure levels exceed 1000 ppm. THE TOXICITY OF SOUR GAS WILL BE DICTATED BY THE H2S CONCENTRATION. If high levels of H2S are present the effects vary with concentration from mild eye, nose and throat irritation at 100 ppm to sudden unconsciousness and/or death at 500 ppm. Memory loss, paralysis of facial muscles or nerve tissue damage may occur after severe exposures near 500 ppm.
	Remark Recent studies suggest light hydrocarbons in high concentrations may produce narcotic effects including dizziness, headache and fatigue. These studies have yet to be confirmed.

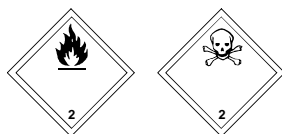
Synergistic materials None known.

Section 8. Preventive Measures

Waste disposal	If permissible under applicable federal, state/provincial and local requirements, allow complete dissipation. Vent gas to safe location, preferably by burning in a flare. If gas cannot be flared special care must be taken to ensure complete dissipation of the gas below its flammable limits.
Storage	Comply with all applicable regulations for the storage and handling of compressed gases and flammable materials. Store product below the flash point and keep away from all ignition sources. Secure containers.
Ventilation	Local and general ventilation must be provided to maintain airborne concentrations below toxic levels, below their explosive limits and to maintain adequate oxygen levels. Ventilation systems must be designed in accordance with approved engineering standards. Use a non-sparking, grounded ventilation system separate from other exhaust ventilation systems.
Spill and leak	Evacuate all unnecessary personnel. Control release of gas. Don full-face, positive pressure, self-contained breathing apparatus and appropriate clothing. If product is on fire refer to section 5 Fire and Explosion Data. If product is leaking but is not on fire, up-wind evacuation should be considered. Flashback may occur along the gas trail.

Section 9. Classification/Regulatory Information

DOT/TDG TDG CLASS 2.1: Flammable gas.
Road/Rail TDG CLASS 6.1 Poisonous Substance



NATURAL GAS COMPRESSED, 2.1, UN1971, N.O.S. (Hydrogen Sulphide)

Remark

080 Not acceptable for transport in a tube trailer if contains corroding components.

WHMIS

WHMIS CLASS A: Compressed gas. WHMIS CLASS B-1: Flammable gas. WHMIS CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). WHMIS CLASS D-2B: Material causing other toxic effects (TOXIC).



Remark

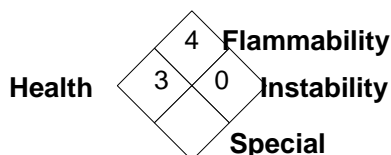
No additional remark.

Other

Domestic Substances List (DSL): This product is listed on the DSL. TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.

Refer to federal, state/provincial, and local legislation for further requirements.

National Fire Protection Association (U.S.A.)



Section 10. Protective Clothing

- Eye** Protective equipment must be provided to prevent eye contact with rapidly expanding gas.
- Skin** Protective equipment must be provided to prevent skin contact with rapidly expanding gas.
- Respiratory** If engineering controls and work practices are not effective in controlling exposures, and maintaining oxygen levels, then full face, positive pressure, self contained breathing apparatus or air-line device must be used. Wear NIOSH Approved supplied air respirator if Hydrogen Sulfide concentrations are > 10 ppm.
- Other** As required by the situation according to your companies policies and procedures. Contact your supervisor for direction.



Section 11. Preparation Information

References -CCOHS (Cheminfo). -SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -Tomes Plus by Micromedex Inc. -Documentation of the Threshold Limit Values and Biological Exposure Indices (ACIGH).

MSDS Status

Acronyms: TLV = Threshold Limit Value N/AP = Not applicable N/AV = Not Available COC = Cleveland Open Cup PMCC = Pensky Martens Closed Cup

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Emergency Phone # Canada: 403-262-2111

Emergency Phone # USA: Chemtrec 1-800-424-9300

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