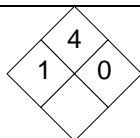
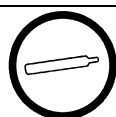

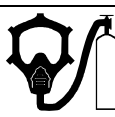
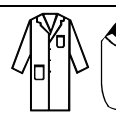

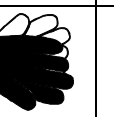



NFPA / WHMIS	Personal Protection	DOT/TDG Road/Rail
  	   	

## Section I. Product Identification and Uses

<b>Common/Trade name</b>	<b>Refinery Gas (Lima)</b>		
<b>Synonyms</b>	Natural Gas, Fuel Gas, Refinery Fuel Gas	<b>CAS #</b>	Not available.
<b>Chemical family</b>	Petroleum Hydrocarbon	<b>DSL</b>	This product is on the Domestic Substances List (DSL). TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.
<b>Supplier</b>	Husky Lima Refinery, 1150 South Metcalf Street, Lima OH, 45804 403-298-6111 (General Information)	<b>Manufacturer</b>	Husky Lima Refinery 1150 South Metcalf Street Lima, OH 45804
<b>Material uses</b>	Heating Fuel		

## Section 2. First Aid Measures

<b>Eye contact</b>	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.
<b>Skin contact</b>	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.
<b>Inhalation</b>	Protect rescuer. Move exposed person to fresh air. If breathing has stopped apply artificial respiration. Seek medical attention.
<b>Ingestion</b>	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	40-60
Ethane	74-84-0	1000	n/av	n/av	n/av	n/av	n/av	10-20
Ethylene	74-84-0	n/av	n/av	n/av	n/av	n/av	n/av	5-10
Propane	124-38-9	1000	n/av	n/av	n/av	n/av	n/av	5-10
Propylene	115-07-1	n/av	n/av	n/av	n/av	n/av	n/av	5-10
Butane	106-97-8	1000	n/av	n/av	n/av	n/av	n/av	<5%

<b>Toxicity values of the hazardous ingredients</b>	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)	

### Section 4. Physical Data

<b>Physical state and appearance</b>	Gas. Colorless.
<b>Odor</b>	Rotten eggs.
<b>pH (1% soln/water)</b>	Not available.
<b>Odor threshold</b>	Methane 200 ppm, Ethane 150 ppm
<b>Evaporation rate</b>	Not available.
<b>Freezing point</b>	-183°C (-297.4°F)
<b>Boiling point</b>	-162°C (-259.6°F)
<b>Specific gravity</b>	0.89 (Water = 1)
<b>Volatility</b>	1% (v/v).
<b>Vapor density</b>	0.6 (Air = 1)
<b>Vapor pressure</b>	Not available.
<b>Water/oil dist. coeff.</b>	Not available.
<b>Solubility</b>	Easily soluble in methanol, n-octanol. Soluble in diethyl ether. Very slightly soluble in cold water, acetone.
<b>Molecular Weight</b>	Not applicable.
<b>Melting Point</b>	-183°C (-297.4°F)
<b>Density</b>	Not available.

### Section 5. Fire and Explosion Data

<b>Auto-ignition temperature</b>	The lowest known value is 472°C (881.6°F) (Ethane).
<b>Flash points</b>	Flammable Gas
<b>Flammable limits</b>	LOWER: 3.8% UPPER: 17%
<b>Extinguishing Media</b>	Use dry chemical, CO <sub>2</sub> , water spray or foam.
<b>Special fire fighting procedures</b>	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

<b>Flammability</b>	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.
	<b>Remark</b> No additional remark.
<b>Risks of explosion</b>	This material is sensitive to static discharge. This product is not sensitive to mechanical impact. Forms explosive mixtures with oxygen and oxidizing agents.
	<b>Remark</b> No additional remark.

### Section 6. Reactivity Data

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

### Section 7. Toxicological Properties

<b>Routes of entry</b>	Inhalation. Eye contact. Skin contact.
<b>OSHA PEL</b>	Propane OSHA-PEL 1000ppm (1800 mg/m <sup>3</sup> ) Hydrogen Sulfide OSHA PEL 20 ppm (Acceptable Ceiling Concentration) 50 ppm (Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift) See Section 3 for ACGIH TLVs
<b>Toxicity to animals</b>	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)
	<b>Remark</b> No additional remark.
<b>Chronic effects</b>	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 . Ethane is known to cause cardiac sensitization and CNS depression.
	<b>Remark</b> No additional remark.
<b>Acute effects</b>	Irritancy: Contact with rapidly expanding or liquified gas may result in skin or eye irritation and/or frostbite. Sensitizing capability: No effects known.

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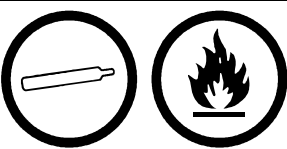
<b>Ingestion</b>	Not applicable.
<b>Skin</b>	Contact with rapidly expanding or liquified gas may result in irritation and/or frostbite.
<b>Eyes</b>	Contact with rapidly expanding liquified gas may cause irritation and/or frostbite.
<b>Inhalation</b>	The majority of this product is a simple asphyxiant. Adverse health effects occur as a result of the displacement of oxygen. 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. In concentrations exceeding the exposure limit inhalation of carbon dioxide may result in narcotic effects including headache and disorientation.
	<b>Remark</b> 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.

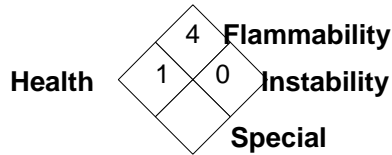
**Section 8. Preventive Measures**

<b>Waste disposal</b>	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.
<b>Storage</b>	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.
<b>Ventilation</b>	Local and general ventilation must be provided to maintain airborne concentrations below lower explosive limits, occupational exposure 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.
<b>Spill and leak</b>	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, downwind evacuation should be considered. Flashback may occur along the gas trail.

**Section 9. Classification/Regulatory Information**

<b>DOT/TDG Road/Rail</b>	TDG CLASS 2.1: Flammable gas.    NATURAL GAS COMPRESSED, 2.1, UN1971, N.O.S. (Hydrogen Sulphide)  <b>Remark</b> 080 Not acceptable for transport in a tube trailer if contains corroding components. 102 Add "Special Commodity" to document if in car load, container load by rail.
<b>WHMIS</b>	WHMIS CLASS B-1: Flammable gas.    <b>Remark</b> No additional remark.
<b>Other</b>	Domestic Substances List (DSL): This product is listed on the DSL. TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory. <b>Refer to federal, state/provincial, and local legislation for further requirements.</b>

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



**Section 10. Protective Clothing**

<b>Eye</b>	Protective equipment must be provided to prevent eye contact with rapidly expanding gas.
<b>Skin</b>	Protective equipment must be provided to prevent skin contact with rapidly expanding gas.
<b>Respiratory</b>	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 respiratory protection adequate for the expected concentration of the substance in the air.
<b>Other</b>	As required by the situation according to your companies policies and procedures. Contact your supervisor for direction.



**Section 11. Preparation Information**

**References** -SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. CCOHS (Cheminfo) Threshold Limit Values and Biological Exposure Indices (ACGIH)

**MSDS Status**

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

**Validated by Health & Safety Department on 5/23/2008.**

**Verified by Health & Safety Department.**

**Supersedes: 03/19/2003**

**Printed 5/23/2008.**

**Emergency Phone # Canada: 403-262-2111**

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

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