

Product Characteristics

<b>Natural Gas</b>	<b>ERG GUIDE 115</b>
<b>Characteristics</b>	Colorless and odorless in natural state. In distribution systems odorant added.
<b>Health Hazard</b>	Not toxic or poisonous
<b>Vapor Density</b>	1/3 lighter than air
<b>Explosive Range</b>	Between 4% and 14%
<b>Flash Point</b>	-360 degrees F
<b>Auto Ignition Point</b>	632 degrees F
<b>Recognizing a Leak</b>	Noticeable gas stream blowing skyward. A hissing or roaring sound. Dead or dying vegetation. In urban areas, rotten egg smell.

<b>Propane (HVL)</b>	<b>ERG GUIDE 115</b>
<b>Characteristics</b>	Colorless and odorless gas (or liquid)
<b>Health Hazard</b>	Liquid can cause eye and skin injury. Oxygen deficient atmospheres include rapid breathing, loss of coordination, rapid fatigue, excessive salivation, disorientation, headache, nausea and vomiting. At high concentrations, unconsciousness, coma and/or death may occur. May cause frostbite and burns.
<b>Vapor Density</b>	Heavier than air
<b>Explosive Range</b>	Between 2.1% and 9.5%
<b>Flash Point</b>	-156 degrees F
<b>Auto Ignition Point</b>	450 degrees C
<b>Recognizing a Leak</b>	White cloud next to ground, noticeable gas stream blowing skyward, liquid collecting on the ground and ice/frost collecting on ground of leak site.

<b>Butane (HVL)</b>	<b>ERG GUIDE 115</b>
<b>Characteristics</b>	Colorless, liquefied, flammable gas, with a faint, disagreeable odor.
<b>Health Hazard</b>	Oxygen deficient atmospheres include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, dizziness, nausea, and at high concentrations, unconsciousness or death may occur. May cause frostbite.
<b>Vapor Density</b>	Heavier than air
<b>Explosive Range</b>	Between 1.8% and 8.4%
<b>Flash Point</b>	-76 degrees F
<b>Auto Ignition Point</b>	550 degrees F
<b>Recognizing a Leak</b>	White cloud next to ground, noticeable gas stream blowing skyward, liquid collecting on the ground and ice/frost collecting on ground of leak site.

## Natural Gas Condensate

### ERG GUIDE 128

<b>Characteristics</b>	Clear to yellowish color depending on source, hydrocarbon odor (rotten eggs), varies depending on source
<b>Health Hazard</b>	May contain H <sub>2</sub> S, contains benzene and therefore is a cancer hazard, causes eye and skin irritation
<b>Vapor Density</b>	Heavier than air
<b>Flash Point</b>	-40 degrees F and varies depending on source
<b>Recognizing a Leak</b>	A strange hydrocarbon odor, pooled clear to yellowish liquid, leaking fittings at valves at aboveground facilities

## Demethanized Raw Feed, Y-Grade, Natural Gas Liquids (HVL)

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<b>Characteristics</b>	Clear colorless liquid under pressure, hydrocarbon odor (rotten eggs)
<b>Health Hazard</b>	May contain H <sub>2</sub> S, contains benzene and therefore is a cancer hazard, causes eye irritation and skin frostbite. Asphyxiant gas; high concentration can displace oxygen causing the feeling of suffocation
<b>Vapor Density</b>	Heavier than air
<b>Auto Ignition Point</b>	> 427 C
<b>Flash Point</b>	-100 degrees F
<b>Recognizing a Leak</b>	White cloud next to ground, noticeable gas stream blowing skyward, liquid collecting on the ground and ice/frost collecting on ground of leak site

## Crude Oil

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<b>Characteristics</b>	Brown, black or greenish in color. Strong hydrocarbon, sulfur or solvent odor.
<b>Health Hazard</b>	Vapors may irritate skin, eyes, and respiratory tract. May contain Hydrogen Sulfide (H <sub>2</sub> S)
<b>Flash Point</b>	A mixture of naturally occurring hydrocarbons which have different flash points (20 degrees F - 200 degrees F)
<b>Composition</b>	Varies depending on source of crude
<b>Recognizing a Leak</b>	Often you can see or smell a pipeline leak. Hydrocarbon odor. Patch of dead or discolored vegetation in an otherwise green setting. Pooled dark liquid. Leaking fittings or valves at aboveground facilities.

## Diesel Fuel

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<b>Characteristics</b>	Clear, green to brown in color. Combustible, must heat to 130F to give off combustible vapors.
<b>Health Hazard</b>	May cause eye, skin and respiratory tract irritation. Absorption through the skin may cause symptoms of intoxication, followed by kidney damage.
<b>Vapor Density</b>	Heavier than air
<b>Flash Point</b>	# 1 Fuel Oil - 115 degrees F, # 2 Fuel Oil - 130 degrees F
<b>Recognizing a Leak</b>	A strange or pungent odor near the pipeline. A patch of dead or discolored vegetation in an otherwise green setting. Pools of liquid.

## Jet Fuel

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#### Characteristics

Colorless liquid with a kerosene odor.

#### Health Hazard

Overexposure may cause weakness, headache, nausea, confusion, blurred vision, drowsiness and other central nervous system effects. Extremely high-level exposure may result in dizziness, irregular heartbeat, coma, collapse and death.

#### Vapor Density

Heavier than air

#### Flash Point

100 - 150 degrees F

#### Auto Ignition Point

440 degrees F - 560 degrees F

#### Recognizing a Leak

A strange or pungent odor near the pipeline. A patch of dead or discolored vegetation in an otherwise green setting. Pools of liquid.

## Gasoline

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#### Characteristics

Clear in color. Extremely flammable (burns at ambient temp)

#### Health Hazard

May cause eye, skin and respiratory tract irritation. Breathing of high vapor concentrations may cause CNS depression, evidenced by dizziness, light-headedness, headache, nausea, drowsiness, and loss of coordination. Continued inhalation may result in unconsciousness.

#### Vapor Density

Low vapor pressure, heavier than air

#### Flash Point

-50 degrees F

#### Auto Ignition Point

500 degrees F

#### Recognizing a Leak

A strange or pungent odor near the pipeline. A patch of dead or discolored vegetation in an otherwise green setting. Pools of liquid.

## Carbon Dioxide

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#### Characteristics

Colorless gas. At low concentrations odorless. At high concentrations will have a sharp acidic odor

#### Health Hazard

Inhalation of concentrations between 2 and 10% may cause nausea, dizziness, headache, mental confusion, increased blood pressure and respiratory rate. Inhalation of concentrations greater than 10% may cause very labored breathing, visual impairment, ringing in the ears followed by loss of consciousness. Prolonged exposure to high concentrations may eventually result in death. Contact of the cold gas with the skin can lead to frostbite depending upon concentration and duration of exposure.

#### Vapor Density

Heavier than air

#### Recognizing a Leak

Noticeable gas stream blowing skyward, ice/frost collecting on ground of leak site

## Hydrogen Sulfide (H<sub>2</sub>S)

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#### Characteristics

Colorless, tasteless; may have a sulfur odor

#### Health Hazard

May cause slight irritation of eyes and skin. Acts primarily as an asphyxiant and creates an oxygen deficient atmosphere which causes rapid breathing, headache, dizziness, visual disturbances, muscular weakness, tremor, narcosis, unconsciousness, and death, depending on concentration and duration of exposure.

#### Vapor Density

Low vapor pressure, heavier than air

#### Flash Point

N/A (Gas); Flammable limits: LEL 3.8%, UEL 44%

#### Recognizing a Leak

Rotten egg smell

## **Production Water**

### **Characteristics**

Discolored, slightly oily water; may have odor of hydrogen sulfide (rotten egg).

### **Health Hazard**

Vapors containing hydrogen sulfide may accumulate during storage or transport. Vapor harmful or fatal. Expected to be slightly toxic.

### **Flash Point**

Due to the extremely variable composition of the material, specific information cannot be given. Surface burning could occur if there is sufficient oily top layer and a source of ignition.

### **Recognizing a Leak**

Discolored, slightly oily water; may have odor of hydrogen sulfide (rotten egg).