

## SAFETY DATA SHEET

### SECTION 1 : IDENTIFICATION

Product identifier used on the label:

**Product Name:** Natural Gas Condensate, Sour  
**SDS Manufacturer Number:** 733719

Other means of identification:

**Synonyms:** Sour Condensate; Field Condensate; Lease Condensate; Gas Drips; Casinghead Gasoline; Natural Gas Condensate, C2-C8

Recommended use of the chemical and restrictions on use:

**Product Use/Restriction:** Feedstock  
Naphthas and Condensates (MARPOL Annex I Category)

Chemical manufacturer address and telephone number:

**Manufacturer Name:** Conoco Phillips  
**Address:** 600 N. Dairy Ashford  
Houston, TX 77079-1175  
**Website:** www.conocophillips.com  
**General Phone Number:** 855-244-0762.....E-mail: SDS@conocophillips.com

Emergency phone number:

**Emergency Phone Number:** Chemtrec: 800-424-9300 (24 Hours)

### SECTION 2 : HAZARD(S) IDENTIFICATION

Classification of the chemical in accordance with CFR 1910.1200(d)(f):

**GHS Pictograms:**



**Signal Word:**

DANGER.

**GHS Class:**

Flammable Liquid, Category 1.  
Acute Inhalation Toxicity, Category 3.  
Aspiration Hazard, Category 1.  
Carcinogenicity, Category 1B.  
Eye Irritation, Category 2.  
Skin Irritation, Category 2.  
Specific Target Organ Toxicity - STOT, Single Exposure SE, Category 3.  
Hazardous to the aquatic environment, long-term, chronic, Category 2.  
Hazard not otherwise classified.

**Hazard Statements:**

H224 - Extremely flammable liquid and vapor  
H331 - Toxic if inhaled.  
H304 - May be fatal if swallowed and enters airways.  
H350 - May cause cancer.  
H319 - Causes serious eye irritation.  
H315 - Causes skin irritation.  
H336 - May cause drowsiness or dizziness.  
H411 - Toxic to aquatic life with long lasting effects.

**Precautionary Statements:**

P201 - Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P210 - Keep away from heat/sparks/open flames/hot surfaces. — No smoking.  
P233 - Keep container tightly closed.  
P240 - Ground/Bond container and receiving equipment.  
P241 - Use explosion-proof electrical/ventilating/lighting equipment.  
P242 - Use only non-sparking tools.  
P243 - Take precautionary measures against static discharge.  
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.  
P264 - Wash hands thoroughly after handling.  
P271 - Use only outdoors or in a well-ventilated area.  
P273 - Avoid release to the environment.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
P302+P352 - IF ON SKIN: Wash with plenty of water.  
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308+P313 - IF exposed or concerned: Get medical advice/attention.  
P311 - Call a POISON CENTER or doctor/physician.  
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.  
P321 - P331 - Do not induce vomiting.  
P332+P313 - If skin irritation occurs: Get medical advice/attention.  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P362+P364 - Take off contaminated clothing and wash it before reuse.

P370+P378 - In case of fire: Use dry chemical, carbon dioxide to extinguish small fires. Use water for large fires.  
 P391 - Collect spillage.  
 P403+P233 - Store in a well-ventilated place. Keep container tightly closed.  
 P403+P235 - Store in a well-ventilated place. Keep cool.  
 P405 - Store locked up.  
 P501 - Dispose of contents/container in accordance with Local, State, Federal and Provincial regulations.

Hazards not otherwise classified that have been identified during the classification process:

**OSHA Class:** May contain or release poisonous hydrogen sulfide gas

Information related to product mixture

**Carcinogenicity:** May cause cancer Based on component information.

Toluene:  
 Carcinogenicity: Exposure of rats and mice to toluene at concentrations ranging from 120-1200 ppm for two years did not demonstrate evidence of carcinogenicity. Toluene has not been listed as a carcinogen by IARC.

**Signs/Symptoms:** Effects of overexposure can include slight irritation of the respiratory tract, nausea, vomiting, and signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue). Continued exposure to high concentrations can result in vomiting, cardiac irregularities and sudden loss of consciousness.

This material contains hydrogen sulfide, a poisonous gas with the smell of rotten eggs. The smell disappears rapidly because of olfactory fatigue so odor may not be a reliable indicator of exposure. Effects of overexposure include irritation of the eyes, nose, throat and respiratory tract, blurred vision, photophobia (sensitivity to light), and pulmonary edema (fluid accumulation in the lungs). Severe exposures can result in nausea, vomiting, muscle weakness or cramps, headache, disorientation and other signs of nervous system depression, irregular heartbeats, convulsions, respiratory failure, and death.

Natural Gas Condensate ..C2-8

**Carcinogenicity:** Two year inhalation studies of vaporized unleaded gasoline produced an increased incidence of kidney tumors in male rats and liver tumors in female mice. Repeated skin application of various petroleum naphthas in mice for two years resulted in an increased incidence of skin tumors but only in the presence of severe skin irritation. Follow-up mechanistic studies suggest that the occurrence of these tumors may be the consequence of promotional processes and not relevant to human risk assessment. Epidemiology data collected from a study of more than 18,000 petroleum marketing and distribution workers showed no increased risk of leukemia, multiple myeloma, or kidney cancer from gasoline exposure. Unleaded gasoline has been identified as a possible carcinogen by the International Agency for Research on Cancer.

Benzene

**Carcinogenicity:** Benzene is an animal carcinogen and is known to produce acute myelogenous leukemia (a form of cancer) in humans. Benzene has been identified as a human carcinogen by IARC, the US National Toxicology Program and the US Occupational Safety and Health Administration.

**SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS**

Mixtures:

Chemical Name	CAS#	Ingredient Percent	EC Num.
Natural Gas Condensate ..C2-8	68919-39-1	100 %	
n-Hexane	110-54-3	5-50 %	
Benzene	71-43-2	<0.4 %	
Hydrogen Sulfide	7783-06-4	0.1-20 %	

**Notes :** Total Sulfur: > 0.5 wt%

<sup>1</sup> All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. Crude oil, natural gas and natural gas condensate can contain minor amounts of sulfur, nitrogen and oxygen containing organic compounds as well as trace amounts of heavy metals like mercury, arsenic, nickel, and vanadium. Composition can vary depending on the source of crude.

**SECTION 4 : FIRST AID MEASURES**

Description of necessary measures:

**Eye Contact:** For direct contact, remove contact lenses if present and easy to do. Immediately hold eyelids apart and flush the affected eye(s) with clean water for at least 20 minutes. Seek immediate medical attention.

**Skin Contact:** Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Wash contaminated clothing before reuse.

**Inhalation:** (Breathing): Immediately move victim away from exposure and into fresh air in a position comfortable for breathing. If respiratory symptoms or other symptoms of exposure develop, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

**Ingestion:** (Swallowing): Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

**Indication of immediate medical attention and special treatment needed:**

**Note to Physicians:** At high concentrations hydrogen sulfide may produce pulmonary edema, respiratory depression, and/or respiratory paralysis. The first priority in treatment should be the establishment of adequate ventilation and the administration of 100% oxygen. Animal studies suggest that nitrites are a useful antidote, however, documentation of the efficacy of nitrites in humans is lacking. If the diagnosis of hydrogen sulfide poisoning is confirmed and if the patient does not respond rapidly to supportive care, the use of nitrites may be an effective antidote if delivered within the first few minutes of exposure. For adults the dose is 10 mL of a 3% NaNO<sub>2</sub> solution (0.5 gm NaNO<sub>2</sub> in 15 mL water) I.V. over 2-4 minutes. The dosage should be adjusted in children or in the presence of anemia, and methemoglobin levels, arterial blood gases, and electrolytes should be monitored closely.

Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

Federal regulations (29 CFR 1910.1028) specify medical surveillance programs for certain exposures to benzene above the action level or PEL (specified in Section (i)(1)(i) of the Standard). In addition, employees exposed in an emergency situation shall, as described in Section (i)(4)(i), provide a urine sample at the end of the shift for measurement of urine phenol.

**Notes :** Most important symptoms and effects:  
 Acute: Headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue.  
 Delayed: Dry skin and possible irritation with repeated or prolonged exposure.

Other Comments: Before attempting rescue, first responders should be alert to the possible presence of hydrogen sulfide, a poisonous gas with the smell of rotten eggs, and should consider the need for respiratory protection (see Section 8). Remove casualty to fresh air as quickly as possible. Immediately begin artificial respiration if breathing has ceased. Consider whether oxygen administration is needed. Obtain medical advice for further treatment.

**SECTION 5 : FIRE FIGHTING MEASURES**

**Suitable and unsuitable extinguishing media:**

**Suitable Extinguishing Media:** Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

**Unusual Fire Hazards:** Extremely flammable. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. This product will float and can be reignited on surface water. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire. Hazardous combustion/decomposition products, including hydrogen sulfide, may be released by this material when exposed to heat or fire. Use caution and wear protective clothing, including respiratory protection.

**Fire Fighting Instructions:** For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely. Avoid spreading burning liquid with water used for cooling purposes.

**NFPA Ratings:**

NFPA Health: 2  
 NFPA Flammability: 4  
 NFPA Reactivity: 0



**Notes :** NFPA 704 Hazard Class:  
 (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

**SECTION 6 : ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures:**

**Personnel Precautions:** Extremely flammable. Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do

so. The use of explosion-proof electrical equipment is recommended. Contains poisonous hydrogen sulfide gas. If the presence of dangerous amounts of H<sub>2</sub>S around the spilled product is suspected, additional or special actions may be warranted, including access restrictions and use of protective equipment. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental precautions:

**Environmental Precautions:**

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use foam on spills to minimize vapors. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard. Spills into or upon navigable waters, the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802).

Methods and materials for containment and cleaning up:

**Spill Cleanup Measures:**

Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

## SECTION 7 : HANDLING and STORAGE

Precautions for safe handling:

**Handling:**

Precautions for safe handling: Keep away from ignition sources such as heat/sparks/open flame - No smoking. Take precautionary measures against static discharge. Nonsparking tools should be used. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. May contain or release dangerous levels of hydrogen sulfide. Do not breathe vapors or mists. Use only outdoors or in well-ventilated area. Wear protective gloves/clothing and eye/face protection. Wear respiratory protection. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8).

Extremely Flammable. May vaporize easily at ambient temperatures. The vapor is heavier than air and may create an explosive mixture of vapor and air. Beware of accumulation in confined spaces and low lying areas. Open container slowly to relieve any pressure. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames.

Mercury and other heavy metals may be present in trace quantities in crude oil, raw natural gas, and condensates. Production and processing of these materials can lead to "drop-out" of elemental mercury in enclosed vessels and pipe work, typically at the low point of any process equipment because of its density. Mercury may also occur in other process system deposits such as sludges, sands, scales, waxes, and filter media. Personnel engaged in work with equipment where mercury deposits might occur (confined space entry, sampling, opening drain valves, draining process lines, etc), may be exposed to a mercury hazard (see sections 3 and 8).

Static Accumulation Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding of tanks, transfer piping, and storage tank level floats are necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. Special care should be given to ensure that special slow load procedures for "switch loading" are followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil or diesel) is loaded into tanks previously containing low flash point products (such as gasoline or naphtha). For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

Conditions for safe storage, including any incompatibilities:

**Storage:**

Conditions for safe storage: This material may contain or release poisonous hydrogen sulfide gas. In a tank, barge, or other closed container, the vapor space above this material may accumulate hazardous concentrations of hydrogen sulfide. Check atmosphere for oxygen content, H<sub>2</sub>S, and flammability prior to entry. Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

## SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Information related to product mixture :

**Guideline Info:**

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

**Natural Gas Condensate ..C2-8 :**

**Guideline Info:**

0.5 ppm TWA8hr (as benzene) 0.25 ppm TWA12hr (as benzene) 2.5 ppm STEL (as benzene)

(ConocoPhillips Guidelines)  
 Guideline ACGIH: TWA: 300 ppm (as Gasoline)  
 Guideline OSHA: 500 ppm TWA 2000 mg/m<sup>3</sup> TWA as Petroleum Distillates (Naphtha) (Rubber Solvent)  
**n-Hexane :**  
 Guideline ACGIH: TWA: 50 ppm Skin  
 Guideline OSHA: TWA: 500 ppm TWA: 1800 mg/m<sup>3</sup>  
**Benzene :**  
 Guideline ACGIH: STEL: 2.5 ppm TWA: 0.5 ppm Skin  
 Guideline OSHA: Ceiling: 25 ppm STEL: 5 ppm TWA: 10 ppm TWA: 1 ppm  
**Hydrogen Sulfide :**  
 Guideline Info: TWA: 5 ppm 8hr TWA: 2.5 ppm 12hr STEL: 15 ppm (ConocoPhillips Guidelines)  
 Guideline ACGIH: STEL: 5 ppm TWA: 1 ppm  
 Guideline OSHA: Ceiling: 20 ppm

**Appropriate engineering controls:**

**Engineering Controls:** If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

**Individual protection measures:**

**Eye/Face Protection:** The use of eye protection (such as splash goggles) that meets or exceeds ANSI Z.87.1 is recommended when there is potential liquid contact to the eye. Depending on conditions of use, a face shield may be necessary.

**Skin Protection Description:** The use of gloves impervious to the specific material handled is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Depending on exposure and use conditions, additional protection may be necessary to prevent skin contact including use of items such as chemical resistant boots, aprons, arm covers, hoods, coveralls, or encapsulated suits. Suggested protective materials: Nitrile

**Respiratory Protection:** A NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used in situations of oxygen deficiency (oxygen content less than 19.5 percent), unknown exposure concentrations, or situations that are immediately dangerous to life or health (IDLH).

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use.

If benzene concentrations equal or exceed applicable exposure limits, OSHA requirements for personal protective equipment, exposure monitoring, and training may apply (29CFR1910.1028 - Benzene).

Workplace monitoring plans should consider the possibility that heavy metals such as mercury may concentrate in processing vessels and equipment presenting the possibility of exposure during various sampling and maintenance operations. Implement appropriate respiratory protection and the use of other protective equipment as dictated by monitoring results (See Sections 2 and 7).

**Other Protective:** Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse.

**Notes :** Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

**SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES**

**PHYSICAL AND CHEMICAL PROPERTIES:**

**Physical State:** Form: Liquid  
**Color:** Colorless  
**Odor:** Gasoline; Rotten egg/sulfurous  
**Odor Threshold:** No Data  
**Boiling Point:** -20 to 800 deg F/-29 to 427 deg C  
**Melting Point:** No Data  
**Specific Gravity:** (Water=1): (estimated) 0.5 - 0.8 @ 60 deg F (15.6 deg C)  
**Solubility:** negligible  
**Vapor Density:** (AIR=1): > 1  
**Vapor Pressure:** No Data  
**Evaporation Rate:** (nBuAc=1): No data  
**pH:** Not Applicable  
**Coefficient of Water/Oil Distribution:** Partition Coefficient (n-octanol/water) (Kow): No data  
**Flash Point:** < -50 deg F/< -46 deg C  
**Flash Point Method:** (estimate)  
**Lower Flammable/Explosive Limit:** (vol % in air): < 1.0  
**Upper Flammable/Explosive Limit:** (vol % in air): 10.0  
**Auto Ignition Temperature:** 450 deg F/232 deg C

**9.2. Other information:**

**Notes :** Note: Unless otherwise stated, values are determined at 20 deg C (68 deg F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

**SECTION 10 : STABILITY and REACTIVITY**

---

Chemical Stability:

**Chemical Stability:** Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions:

**Hazardous Polymerization:** Not known to occur.

Conditions To Avoid:

**Conditions to Avoid:** Avoid high temperatures and all sources of ignition. Prevent vapor accumulation.

Incompatible Materials:

**Incompatible Materials:** Materials to Avoid: Avoid contact with strong oxidizing agents and strong reducing agents.

Hazardous Decomposition Products:

**Special Decomposition Products:** Not anticipated under normal conditions of use.

---

## SECTION 11 : TOXICOLOGICAL INFORMATION

---

TOXICOLOGICAL INFORMATION:

Information related to product mixture :

**Eye:** Causes eye irritation.

**Skin:** Skin Absorption:  
Hazard: Unlikely to be harmful  
LD50 Data: > 2 g/kg  
  
Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

**Inhalation:** Hazard: Toxic if inhaled  
Additional Information: Contains poisonous hydrogen sulfide gas. See Signs and Symptoms.  
LC50: > 5.2 mg/L

**Ingestion:** Ingestion (Swallowing):  
Hazard: Unlikely to be harmful  
LD50 Data: > 5 g/kg

**Sensitization:** Skin Sensitization: Not expected to be a skin sensitizer.  
Respiratory Sensitization: No information available.

**Carcinogenicity:** May cause cancer Based on component information.  
  
Toluene  
Carcinogenicity: Exposure of rats and mice to toluene at concentrations ranging from 120-1200 ppm for two years did not demonstrate evidence of carcinogenicity. Toluene has not been listed as a carcinogen by IARC.

**Mutagenicity:** Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.

**Reproductive Toxicity:** Not expected to cause reproductive toxicity.

**Other Toxicological Information:** Signs and Symptoms: Effects of overexposure can include slight irritation of the respiratory tract, nausea, vomiting, and signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue). Continued exposure to high concentrations can result in vomiting, cardiac irregularities and sudden loss of consciousness.

This material contains hydrogen sulfide, a poisonous gas with the smell of rotten eggs. The smell disappears rapidly because of olfactory fatigue so odor may not be a reliable indicator of exposure. Effects of overexposure include irritation of the eyes, nose, throat and respiratory tract, blurred vision, photophobia (sensitivity to light), and pulmonary edema (fluid accumulation in the lungs). Severe exposures can result in nausea, vomiting, muscle weakness or cramps, headache, disorientation and other signs of nervous system depression, irregular heartbeats, convulsions, respiratory failure, and death.

**Target Organ Single Exposures:** May cause drowsiness and dizziness.

**Target Organ Repeated Exposures:** Not expected to cause organ effects from repeated exposure.

Toluene :  
Epidemiology studies suggest that chronic occupational overexposure to toluene may damage color vision. Subchronic and chronic inhalation studies with toluene produced kidney and liver damage, hearing loss and central nervous system (brain) damage in laboratory animals. Intentional misuse by deliberate inhalation of high concentrations of toluene has been shown to cause liver, kidney, and central nervous system damage, including hearing loss and visual disturbances.

**Aspiration:** May be fatal if swallowed and enters airways.

Natural Gas Condensate ..C2-8 :

**Carcinogenicity:** Two year inhalation studies of vaporized unleaded gasoline produced an increased incidence of kidney tumors in male rats and liver tumors in female mice. Repeated skin application of various petroleum naphthas in mice for two years resulted in an increased incidence of skin tumors but only in the presence of severe skin irritation. Follow-up mechanistic studies suggest that the occurrence of these tumors may be the consequence of promotional processes and not relevant to human risk assessment. Epidemiology data collected from a study of more than 18,000 petroleum marketing and distribution workers showed no increased risk of leukemia, multiple myeloma, or kidney cancer from gasoline exposure. Unleaded gasoline has been identified as a possible carcinogen by the International Agency for Research on Cancer.

**Reproductive Toxicity:** No evidence of developmental toxicity was found in pregnant laboratory animals (rats and mice) exposed to high vapor concentrations of unleaded gasoline and petroleum naphthas via inhalation. A two-generation reproductive toxicity study of vapor recovery gasoline did not adversely affect reproductive function or offspring survival and development.

**Target Organ Repeated Exposures:** Two year inhalation studies of wholly vaporized unleaded gasoline, and 90 days studies of various petroleum naphthas, did not produce significant target organ toxicity in laboratory animals. Nephropathy in male rats, characterized by the accumulation of alpha-2-u- globulin in epithelial cells of the proximal tubules was observed, however follow-up studies suggest that these changes are unique to the male rat.

#### n-Hexane :

**Reproductive Toxicity:** Prolonged exposure to high concentrations of n-hexane (> 1,000 ppm) resulted in decreased sperm count and degenerative changes in the testes of rats but not those of mice.

**Target Organ Repeated Exposures:** Excessive exposure to n-hexane can result in peripheral neuropathies. The initial symptoms are symmetrical sensory numbness and paresthesias of distal portions of the extremities. Motor weakness is typically observed in muscles of the toes and fingers but may also involve muscles of the arms, thighs and forearms. The onset of these symptoms may be delayed for several months to a year after the beginning of exposure. The neurotoxic properties of n-hexane are potentiated by exposure to methyl ethyl ketone and methyl isobutyl ketone.

#### Benzene :

**Carcinogenicity:** Benzene is an animal carcinogen and is known to produce acute myelogenous leukemia (a form of cancer) in humans. Benzene has been identified as a human carcinogen by IARC, the US National Toxicology Program and the US Occupational Safety and Health Administration.

**Mutagenicity:** Germ Cell Mutagenicity: Benzene exposure has resulted in chromosomal aberrations in human lymphocytes and animal bone marrow cells. Exposure has also been associated with chromosomal aberrations in sperm cells in human and animal studies.

**Reproductive Toxicity:** Some studies in occupationally exposed women have suggested benzene exposure increased risk of miscarriage and stillbirth and decreased birth weight and gestational age. The size of the effects detected in these studies was small, and ascertainment of exposure and outcome in some cases relied on self-reports, which may limit the reliability of these results.

**Target Organ Repeated Exposures:** Prolonged or repeated exposures to benzene vapors can cause damage to the blood and blood forming organs, including disorders like leukopenia, thrombocytopenia, and aplastic anemia.

#### Toluene :

**Reproductive Toxicity:** Exposure to toluene during pregnancy has demonstrated limited evidence of developmental toxicity in laboratory animals. Decreased fetal body weight and increased skeletal variations in both inhalation and oral studies, but only at doses that were maternally toxic. No fetal toxicity was seen at doses that were not maternally toxic. Decreased sperm counts have been observed in male rats in the absence of a reduction in fertility. Toluene has been reported to cause mental or growth retardation in the children of solvent abusers who directly inhale toluene during pregnancy.

#### Cyclohexane :

**Reproductive Toxicity:** Two-generation reproduction and developmental toxicity studies using rats and rabbits exposed (whole-body) to atmospheric concentrations up to 7000 ppm cyclohexane did not detect evidence of developmental toxicity in either species.

## SECTION 12 : ECOLOGICAL INFORMATION

### Information related to product mixture :

#### Ecotoxicity:

**Ecotoxicity:** Toxicity: Acute aquatic toxicity studies on samples of gasoline and naphtha streams show acute toxicity values greater than 1 mg/L and mostly in the range 1-100 mg/L. These tests were carried out on water accommodated fractions, in closed systems to prevent evaporative loss. Results are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon composition. These substances should be regarded as toxic to aquatic organisms, with the potential to cause long term adverse effects in the aquatic environment. Classification: H411; Chronic Cat 2.

#### Persistence and degradability:

**Biodegradation:** Persistence and Degradability: The hydrocarbons in this material are not readily biodegradable but are regarded as inherently biodegradable since their hydrocarbon components can be degraded by microorganisms.

Persistence per IOPC Fund definition: Non-Persistent

#### Bioaccumulative potential:

**Bioaccumulation:** Bioaccumulative Potential: Log Kow values measured for the hydrocarbon components of this material range from 3 to greater than 6 and therefore are regarded as having the potential to bioaccumulate. In practice, metabolic processes or physical properties may prevent this effect or limit bioavailability.

#### Mobility in soil:

**Mobility In Environmental Media:** Mobility in Soil: On release to water, hydrocarbons will float on the surface and since they are sparingly soluble, the only significant loss is volatilization to air. In air, these hydrocarbons are photodegraded by reaction with hydroxyl radicals with half lives varying from 6.5 days for benzene to 0.5 days for n-dodecane.

**Other Adverse Effects:** None anticipated.

## SECTION 13 : DISPOSAL CONSIDERATIONS

### Description of waste:

### Information related to product mixture :

**Waste Disposal:** The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste. However, it would likely be identified as a federally regulated RCRA hazardous waste for the following characteristic(s) shown below. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

Container contents should be completely used and containers should be emptied prior to discard. Container residues and rinseates could be considered to be hazardous wastes.

**EPA Waste Number(s)**

- D001 - Ignitability characteristic
- D018 - Toxicity characteristic (Benzene)

**SECTION 14 : TRANSPORT INFORMATION****DOT Shipping Name:**

**Shipping Description:**  
If vapor pressure is > 300 kPa (43.5 psia) at 50° C (122° F) and H2S is > 8.8 molar % shipping description is: UN3160, Liquefied gas, toxic, flammable, n.o.s., ( Hydrogen sulfide, Butane ), 2.3; , (2.1), Inhalation Hazard Zone X  
If vapor pressure is > 300 kPa (43.5 psia) at 50° C (122° F) and H2S is < 8.8 molar % shipping description is: UN1965, Hydrocarbon gas mixture, liquefied, n.o.s., 2.1  
If vapor pressure is <= 300 kPa (43.5 psia) at 50° C (122° F) and H2S is < 8.8 molar % shipping description is: UN3295, Hydrocarbons, liquid, n.o.s., 3, I or II [ I if BP < 35° C (95° F); II if BP > 35° C ]

**Non-Bulk Package Marking :**  
Must be consistent with shipping description, either: Liquefied gas, toxic, flammable, n.o.s., (Hydrogen sulfide, Butane), UN3160  
or  
Hydrocarbon gas mixture, liquefied, n.o.s., UN1965  
or  
Hydrocarbons, liquid, n.o.s., UN3295

**Non-Bulk Package Labeling:**  
For UN3160: Poison gas and Flammable gas  
For UN1965: Flammable gas  
For UN3295: Flammable liquid

**Bulk Package/Placard Marking:**  
For UN3160: Poison gas / 3160 and Flammable gas  
For UN1965: Flammable gas / 1965  
For UN3295: Flammable / 3295

**Packaging - References:**  
For UN3160: None; 49 CFR 173.304; 173.314 & .315  
For UN1965: 49 CFR: 173.306; 173.304; 173.314 & .315  
For UN3295: 49 CFR 173.150; 173.201; 173.243 [ PG I ]  
-or-  
49 CFR 173.150; 173.202; 173.242 [ PG II ]  
(Exceptions; Non-bulk; Bulk)

**Hazardous Substance:**  
See Section 15 for RQ`s  
Emergency Response Guide:  
UN3160 - 119; UN1965 - 115; UN3295 - 128;

**Note:**  
Replace X in shipping description with:  
D if Molar % H2S is from 8.8% to 14.8%  
C if Molar % H2S is from 14.9% to 44.4%  
B if Molar % H2S is from 44.5% to 100.0%  
Container(s) greater than 5 liters (liquids) or 5 kilograms (solids), shipped by water mode and ALL bulk shipments may require the shipping description to contain the Marine Pollutant notation [49 CFR 172.203(l)] and the container(s) to display the [Marine Pollutant Mark] [49 CFR 172.322].

The following alternate shipping description order may be used until January 1, 2013:  
Proper Shipping name, Hazard Class or Division, (Subsidiary Hazard if any), UN or NA number, Packing Group  
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable  
Other shipping description elements may be required for DOT compliance.

**IATA Shipping Name:**

**UN/ID :**  
UN3160 - Forbidden  
UN1965 or UN3295

**Proper Shipping Name:**  
For UN1965: Hydrocarbon gas mixture, liquefied, n.o.s. (Butane, hydrogen sulphide)  
For UN3295: Hydrocarbons, liquid, n.o.s.

**Hazard Class/Division:**  
For UN1965: 2.1  
For UN3295: 3

**Subsidiary risk:** None

**Packing Group:**  
For UN1965: None  
For UN3295: I or II [ Determined by IATA 3.3.2 ]

**Non-Bulk Package Marking:**  
For UN1965: Hydrocarbon gas mixture, liquefied, n.o.s. (Butane, Hydrogen sulphide), UN1965  
For UN3295: Hydrocarbons, liquid, n.o.s., UN3295

**Labels:**  
For UN1965: Flammable gas , Cargo Aircraft Only  
For UN3295: Flammable liquid

**ERG Code:**  
For UN1965: 10L or For UN3295: 3H

**Packaging Instruction :** LTD. QTY: UN1965 - Forbidden UN3295 - Forbidden - [ PG I ] Y341 - [ PG II ];  
Passenger : UN1965 - Forbidden UN3295 - 351 - [ PG I ] 353 - [ PG II ]; Aircraft Cargo Aircraft Only :  
UN1965 - 200 UN3295 - 361 - [ PG I ] 364 - [ PG II ]

**Max. Net Qty. Per Package:** LTD. QTY: UN3295 - Forbidden - [ PG I ] 1L - [ PG II ]; Passenger : UN3295 - 1L - [ PG I ] 5 L - [ PG II ]; Aircraft Cargo Aircraft Only : UN1965 - 150 kg UN3295 - 30 L - [ PG I ] 60 L - [ PG II ]

**IMDG Shipping Name :**

**Shipping Description:**  
If vapor pressure is > 300 kPa (43.5 psia) at 50° C (122° F) and H2S is > 8.8 molar % shipping description is:  
UN3160, Liquefied gas, toxic, flammable, n.o.s ( Hydrogen sulphide , Butane ), 2.3; , (2.1)  
If vapor pressure is > 300 kPa (43.5 psia) at 50° C (122° F) and H2S is < 8.8 molar % shipping description is:  
UN1965, Hydrocarbon gas mixture, liquefied, n.o.s., (Hydrogen sulphide, Butane), 2.1;  
If vapor pressure is <= 300 kPa (43.5 psia) at 50° C (122° F) and H2S is < 8.8 molar % shipping description is:  
UN3295, Hydrocarbons, liquid, n.o.s., 3, I or II (46° C cc), Marine Pollutant [ I if BP < 35° C (95° F); II if BP > 35° C ]

**Non-Bulk Package Marking:**



Must be consistent with shipping description, either:  
Liquefied gas, toxic, flammable, n.o.s., (Hydrogen sulphide, Butane), UN3160  
or  
Hydrocarbon gas mixture, liquefied, n.o.s.,(Hydrogen sulphide, Butane), UN1965  
or  
Hydrocarbons, liquid, n.o.s., UN3295 , [Marine Pollutant Mark]

Labels:  
For UN3160: Toxic gas and Flammable gas  
For UN1965: Flammable gas  
For UN3295: Flammable liquid

Placards/Marking (Bulk):  
For UN3160: Toxic gas / 3160 and Flammable gas  
For UN1965: Flammable gas / 1965  
For UN3295: Flammable / 3295 and [Marine pollutant mark]

Packaging - Non-Bulk:  
For UN3160 & UN1965: P200 For UN3295: P001  
EMS: For UN3160 & UN1965: F-D, S-U  
For UN3295: F-E, S-D

Note:  
U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 25. If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex I.

**ICAO Shipping Name:**

UN/ID :  
UN3160 - Forbidden  
UN1965 or UN3295

Proper Shipping Name:  
For UN1965: Hydrocarbon gas mixture, liquefied, n.o.s. (Butane, hydrogen sulphide)  
For UN3295: Hydrocarbons, liquid, n.o.s.

Hazard Class/Division:  
For UN1965: 2.1  
For UN3295: 3

Subsidiary risk: None

Packing Group:  
For UN1965: None  
For UN3295: I or II [ Determined by IATA 3.3.2 ]

Non-Bulk Package Marking:  
For UN1965: Hydrocarbon gas mixture, liquefied, n.o.s. (Butane, Hydrogen sulphide), UN1965  
For UN3295: Hydrocarbons, liquid, n.o.s., UN3295

Labels:  
For UN1965: Flammable gas , Cargo Aircraft Only  
For UN3295: Flammable liquid

ERG Code:  
For UN1965: 10L or For UN3295: 3H

Packaging Instruction : LTD. QTY: UN1965 - Forbidden UN3295 - Forbidden - [ PG I ] Y341 - [ PG II ] ;  
Passenger : UN1965 - Forbidden UN3295 - 351 - [ PG I ] 353 - [ PG II ] ; Aircraft Cargo Aircraft Only :  
UN1965 - 200 UN3295 - 361 - [ PG I ] 364 - [ PG II ]

Max. Net Qty. Per Package: LTD. QTY: UN3295 - Forbidden - [ PG I ] 1L - [ PG II ] ; Passenger : UN3295  
- 1L - [ PG I ] 5 L - [ PG II ] ; Aircraft Cargo Aircraft Only : UN1965 - 150 kg UN3295 - 30 L - [ PG I ]  
60 L - [ PG II ]

## SECTION 15 : REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product:

**Information related to product mixture :**

<b>TSCA Inventory Status:</b>	All components are either listed on the US TSCA Inventory, or are not regulated under TSCA
<b>TSCA 12(b) Export Notification:</b>	U.S. Export Control Classification Number: EAR99
<b>CERCLA Section 302:</b>	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds): This material contains the following chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372: Hydrogen Sulfide : TPQ : 500 lb; EPCRA RQ : 100 lb
<b>Section 311/312 Hazard Categories:</b>	CERCLA/SARA - Section 311/312 (Title III Hazard Categories) Acute Health: Yes Chronic Health: Yes Fire Hazard: Yes Pressure Hazard: No Reactive Hazard: No
<b>Section 313:</b>	CERCLA/SARA - Section 313 and 40 CFR 372: This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR 372: n-Hexane: Concentration : 5-50; de minimis : 1.0% Cyclohexane : Concentration : 0-3; de minimis : 1.0% Toluene : Concentration : <2 ; de minimis : 1.0% Benzene : Concentration : <0.4; de minimis : 0.1%  EPA (CERCLA) Reportable Quantity (in pounds): EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).
<b>California PROP 65:</b>	California Proposition 65: Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the warning requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): Toluene : Type of Toxicity: Developmental Toxicant, Female Reproductive Toxicant Benzene : Type of Toxicity: Cancer, Developmental Toxicant, Male Reproductive Toxicant
<b>Canada DSL:</b>	All components are either on the DSL, or are exempt from DSL listing requirements
<b>Canada WHMIS:</b>	WHMIS Hazard Class: B2 - Flammable Liquids D1B D2A D2B

**SECTION 16 : ADDITIONAL INFORMATION**

**HMIS Ratings:**

HMIS Personal Protection:

<b>Health Hazard</b>	
<b>Fire Hazard</b>	
<b>Reactivity</b>	
<b>Personal Protection</b>	

**Other Information:** SDS Number: 733719

**SDS Revision Date:** October 08, 2015

**MSDS Revision Notes:** Supersedes: 02-Apr-2012  
Format change

**Guide to Abbreviations:** ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

**Disclaimer:** The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Copyright© 1996-2015 Actio Corporation. All Rights Reserved.