



**MATERIAL SAFETY DATA SHEET (MSDS)  
NATURAL GAS CONDENSATE, SWEET**

|   |  |
|---|--|
| IDENTITY (As Used on Label and List)<br><b>Natural Gas Condensate, Sweet (DOT ID No: UN 3295)</b> | (Hazard Rating: <b>Health-1/Fire-3/Reactivity-1</b> )<br><b>DOT Hazard Classification: 3</b> |
|---|--|

**Section I – Chemical Product and Company Identification**

|   |  |
|---|--|
| Manufacturer's Name<br><b>MARKWEST</b>  | Emergency Phone Number<br><b>Markwest (800) 730-8388 / CHEMTREC (800) 424-9300</b> |
| Address (Number, Street, City, State and ZIP code)<br><b>1515 Arapahoe Street</b> | Telephone Number for Information:<br><b>(800) 730-8388</b>                         |
| <b>Tower 1, Suite 1600</b>  | Date Prepared<br><b>June 21, 2011</b>  |
| <b>Denver, Colorado 80202-2126</b>  | Signature of Preparer (optional)<br><b>N/A</b>                                     |

**Section II – Hazardous Ingredients/Identity Information**

| Hazardous Components<br>(Specific Chemical Identity; Common Name (s)) | OSHA PEL          | ACGIH TLV                | Other Limits Recommended | % (optional)         |
|---|-------------------|--------------------------|--------------------------|----------------------|
| <b>Hydrogen sulfide (7783-06-4)</b>                                   | <b>10 ppm</b>     | <b>10 ppm</b>            |                          | <b>&lt;0.9</b>       |
| <b>C2 Hydrocarbons (As ethane)</b>                                    | <b>NE</b>         | <b>Simple Asphyxiant</b> |                          | <b>0-5</b>           |
| <b>C3 Hydrocarbons (As propane)</b>                                   | <b>1000 ppm</b>   | <b>Simple Asphyxiant</b> |                          | <b>0-15</b>          |
| <b>C4 Hydrocarbons (As butane)</b>                                    | <b>800 ppm</b>    | <b>800 ppm</b>           |                          | <b>0-45</b>          |
| <b>C5 Hydrocarbons (As pentane)</b>                                   | <b>600 ppm</b>    | <b>600 ppm</b>           |                          | <b>5-70</b>          |
| <b>C6 Hydrocarbons (As n-hexane)</b>                                  | <b>50 ppm (1)</b> | <b>50 ppm (1)</b>        |                          | <b>25-95</b>         |
| <b>Cyclohexane (110-82-7)</b>   | <b>300 ppm</b>    | <b>300 ppm</b>           |                          | <b>NE</b>            |
| <b>C7 Hydrocarbons (As heptane)</b>                                   | <b>400 ppm</b>    | <b>400 ppm</b>           |                          | <b>25-95</b>         |
| <b>C 8 Hydrocarbons (As octane)</b>                                   | <b>300 ppm</b>    | <b>300 ppm</b>           |                          | <b>25-95</b>         |
| <b>Benzene (71-43-2)</b>  | <b>1 ppm (2)</b>  | <b>10 ppm</b>            |                          | <b>0-10 combined</b> |
| <b>Toluene (108-88-3)</b>   | <b>100 ppm</b>    | <b>100 ppm</b>           |                          | <b>0-10 combined</b> |
| <b>Mixed xylene (1330-20-7)</b>                                       | <b>100 ppm</b>    | <b>100 ppm</b>           |                          | <b>0-10 combined</b> |
| <b>Ethylbenzene (100-41-4)</b>  | <b>100 ppm</b>    | <b>100 ppm</b>           |                          | <b>0-10 combined</b> |

**Section III – Physical/Chemical Characteristics**

|   |  |
|---|--|
| Boiling Point<br><b>Not Established</b>   | Specific Gravity (H <sub>2</sub> O = 1):<br><b>0.5-0.7 (Estimated)</b> |
| Vapor Pressure (Reid):<br><b>&lt;40 psia at 70°F (20°C) (Estimated)</b>                                     | Melting Point:<br><b>N/A</b>   |
| Vapor Density (AIR = 1):<br><b>&gt;1</b>  | Evaporation Rate<br>(Butyl Acetate = 1): <b>&gt;1</b>                  |
| Solubility in Water:<br><b>Negligible</b>   |  |
| Appearance and Odor:<br><b>Colorless to dark liquid and rotten egg odor if hydrogen sulfide is present.</b> |  |

### Section IV – Fire and Explosion Hazard Data

Flash Point (Method Used):  
**<-100° F (<-73°C) Estimated**

Flammable Limits  
**% by Volume in Air**

LEL  
**N/A**

UEL  
**N/A**

Extinguishing Media:

**Dry chemical, foam, carbon dioxide**

Special Fire Fighting Procedures:

**Evacuate area of all unnecessary personnel. Use NIOSH/MSHA approved self-contained breathing apparatus and other protective equipment and/or garments described in Section C if conditions warrant. Shut off source, if possible. Water fog or spray may be used to cool exposed equipment and containers Allow fire to burn until gas flow is shut off, if possible.**

Unusual Fire and Explosion Hazards:

**Carbon oxides and possibly sulfur oxides formed when burned. Highly flammable vapors which are heavier than air may accumulate in low areas and/or spread along ground away from handling site.**

### Section V – Reactivity Data

Stability:

Unstable

Conditions to Avoid:

**N/A**

Stable

**X**

Incompatibility (Materials to Avoid):

**Oxygen and strong oxidizing materials.**

Hazardous Decomposition or Byproducts:

**Carbon oxides and various hydrocarbons formed when burned. Sulfur oxides may be formed if hydrogen sulfide is present.**

Hazardous  
Polymerization

May Occur

Conditions to Avoid:

**N/A**

Will Not Occur

**X**

### Section VI – Health Hazard Data

Route(s) of Entry:

Inhalation?

Skin?

Ingestion?

**Inhalation: Toxic by inhalation. Irritation of mucous membranes at lower concentrations can progress to rapid respiration, drowsiness, labored breathing, pulmonary edema, loss of pulmonary function, lung paralysis, asphyxiation, unconsciousness and respiratory arrest. Other effects of overexposure include nausea, loss of appetite, dizziness, disorientation, headache excitation, chronic bronchitis, and other nervous system effects.**

**Skin: May cause slight irritation. Extreme exposure may produce discoloration, muscle weakness, breathing difficulties and other central nervous system effects.**

**Swallowing: May be mildly irritating to intestines. If swallowed, may be aspirated resulting in inflammation and possible fluid accumulation in the lungs.**

**Eyes: May cause irritation including pain, blurred vision, redness, tearing and superficial corneal turbidity.**

Health Hazards (Acute or Chronic):

**Chronic high level n-hexane exposure damages the nervous system initially producing a lack of feeling in the extremities and possibly progressing to a more severe nerve damage. Inhalation of high levels (1000 and 5000 ppm) of n-hexane has produced testicular damage in rats. Mice exposed to the same dose levels showed no testicular effects.**

Carcinogenicity:    **N/A**            NTP?    **Yes\***            IARC Monographs?    **Yes\***            OSHA Registered    **Yes\***

**Benzene has been designated as a carcinogen by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), and the Occupational Safety and Health Administration (OSHA). Benzene may produce blood changes which include reduced platelets, reduced red blood cells, reduced white blood cells, a plastic anemia, and acute nonlymphocytic leukemia. Benzene has produced fetal death in laboratory animals and caused chromosome changes in humans and mutation changes in cells of other organisms.**

Signs and Symptoms of Exposure:

**Hydrogen sulfide may accumulate in concentrations sufficient to produce toxic effects. The odor of hydrogen sulfide may not be recognized after prolonged inhalation due to paralysis of the sense of smell.**

Medical Conditions Generally Aggravated by Exposure:

**Some isoparaffins have produced kidney damage in male rates only. No comparable kidney disease is known to occur in humans.**

Emergency and First Aid Procedures:

**If In Eyes: Flush eyes with running water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention.**

**If On Skin: Immediately wash skin with soap and water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention.**

**If Swallowed: Do not induce vomiting. Seek immediate medical attention.**

**If Inhaled: Immediately remove from exposure. If breathing is difficult, give oxygen. If breathing ceases, administer artificial respiration followed by oxygen. Seek immediate medical attention.**

## **Section VII – Precautions for Safe Handling and Use**

Steps to be taken in Case Material is Released or Spilled:

**Evacuate area of all unnecessary personnel. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Shut off source, if possible. Protect from ignition. Ventilate area thoroughly.**

Waste Disposal Method:

**Incinerate or otherwise manage at a permitted waste management facility.**

Precautions to Be Taken in Handling and Storing:

**Do not get in eyes, on skin or on clothing. Do not breathe vapor or mist, may be fatal. Proper personal protective equipment must be used when handling this chemical. Wash thoroughly after handling. Use only with adequate ventilation. Immediately remove and launder contaminated clothing before reuse. Do not swallow, may be aspirated into lungs.**

Other Precautions:

**Store in a well-ventilated area. Store in tightly closed container. Keep away from heat, sparks, and flames. Bond and ground during transfer**

## **Section VIII – Control Measures**

Respiratory Protection (Specify Type):

**For concentrations exceeding the recommended exposure level, use NIOSH/MSHA approved air supplied respirator. In case of spill or leak resulting in unknown concentrations, use NIOSH/MSHA approved supplied air respirator.**

|   |                      |  |
|---|----------------------|--|
| Ventilation:  | Local Exhaust        | Special  |
|   | Mechanical (General) | Other<br><b>Use adequate ventilation to control exposure below recommended levels. Monitoring of hydrogen sulfide air concentrations should be maintained.</b> |
| Protective Gloves<br><b>Polyvinyl alcohol or Buna-N gloves</b>                          |                      | Eye Protection<br><b>Chemical goggles</b>  |
| Other Protective Clothing or Equipment:<br><b>Use full-body, long-sleeved garments.</b> |                      |  |
| Work/Hygienic Practices<br><b>N/A</b>   |                      |  |

**N/A** – Not Applicable

**N/D** – Not Determined

~ -- Approximately

\* -- Based on LP (Gas)