

# Safety Data Sheet



Division of Fresno Oxygen

## Barnes Welding Supply/Barnes Specialty Gases

### Division of Fresno Oxygen

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## Section 1: Product and Company Identification

Barnes Welding Supply / Barnes Specialty Gases - Division of Fresno Oxygen

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FOR CHEMICAL EMERGENCIES DURING TRANSPORTATION ONLY CALL INFOTRAC 1-800-535-5053

Product Name: H2S in Methane

Part Number: Certified Gas Mixture

Synonyms: Flammable Gas Mixture CS Mixes  
Recommended Use: For general analytical/synthetic chemical gas uses.

## Section 2: Hazards Identification



**Danger**

### Hazard Classification:

Flammable (Category 1)  
Gases Under Pressure

### Hazard Statements:

Contains gas under pressure; may explode if heated  
Extremely flammable gas  
Toxic to aquatic life

### Precautionary Statements

#### Prevention:

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

#### Response:

Eliminate all ignition sources if safe to do so.  
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

#### Storage:

Protect from sunlight.  
Store in well-ventilated place.

## Section 3: Composition/Information on Ingredients

|                  | CAS #     | Concentration |
|------------------|-----------|---------------|
| Hydrogen Sulfide | 7783-06-4 | 0 – 100 ppm   |
| Methane          | 74-82-8   | Balance       |

|                  | Chemical Substance      | Chemical Family                    | Trade Names                                                                                                                                                                                   |
|------------------|-------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hydrogen Sulfide | HYDROGEN SULFIDE        | Inorganic gases                    | HYDROGEN SULFIDE (H2S); DIHYDROGEN MONOSULFIDE; DIHYDROGEN SULFIDE; HYDROSULFURIC ACID; SULFUR DIHYDRIDE; SULFURETED HYDROGEN; SULFUR HYDRIDE; STINK DAMP; SEWER GAS; RCRA U135; UN 1053; H2S |
| Methane          | METHANE, COMPRESSED GAS | Hydrocarbons, Aliphatic, Saturated | FIRE DAMP; MARSH GAS; METHYL HYDRIDE; NATURAL GAS; METHANE; UN 1971; R50; CH4                                                                                                                 |

## Section 4: First Aid Measures

|                  | Skin Contact                                                                                                                                                                                                   | Eye Contact                                                                                    | Ingestion                                              | Inhalation                                                                                                                                                                                                               | Note to Physicians               |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Hydrogen Sulfide | Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse. | Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention. | If a large amount is swallowed, get medical attention. | If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention. | For inhalation, consider oxygen. |
| Methane          | Wash exposed skin with soap and water.                                                                                                                                                                         | Flush eyes with plenty of water.                                                               | If a large amount is swallowed, get medical attention. | If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention. | For inhalation, consider oxygen. |

## Section 5: Fire Fighting Measures

|                  | Suitable Extinguishing Media                                                                                   | Products of Combustion                 | Protection of Firefighters                                                                                                                                                                                                                                                                                                    |
|------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hydrogen Sulfide | Let burn unless leak can be stopped immediately. Large fires: Use regular foam or flood with fine water spray. | Sulfur oxides                          | <ul style="list-style-type: none"><li>Any self-contained breathing apparatus with a full facepiece.</li><li>Protective material types: butyl rubber, polyvinyl chloride (PVC), neoprene</li></ul>                                                                                                                             |
| Methane          | Carbon dioxide, regular dry chemical. Large fires: Use regular foam or flood with fine water spray.            | Carbon monoxide, carbon dioxide, water | <ul style="list-style-type: none"><li>Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.</li><li>Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.</li></ul> |

## Section 6: Accidental Release Measures

|                  | Personal Precautions                                                                                                                                                                                                                                                   | Environmental Precautions                                 | Methods for Containment                                                                                                                         |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Hydrogen Sulfide | Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. For tank, rail car or tank truck: 800 meters (1/2 mile). Do not touch spilled material. | Avoid heat, flames, sparks and other sources of ignition. | Stop leak if possible without personal risk. Remove sources of ignition. Reduce vapors with water spray. Do not get water directly on material. |
| Methane          | Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.                                                                                                                                                             | Avoid heat, flames, sparks and other sources of ignition. | Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.                                        |

|                  | Methods for Cleanup                                                                                                                                                                                                         | Other Information                                                                                                                                                                                                                                                                                               |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hydrogen Sulfide | Collect runoff for disposal as potential hazardous waste. Dike for later disposal. Absorb with sand or other non-combustible material. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash). | Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA). |
| Methane          | Not available                                                                                                                                                                                                               | Not available                                                                                                                                                                                                                                                                                                   |

## Section 7: Handling and Storage

|                  | Handling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Storage                                                     |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Hydrogen Sulfide | Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store outside or in a detached building. Store in a cool, dry place. Store in a well-ventilated area. Avoid contact with light. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30). Keep separated from incompatible substances. | Subject to handling regulations: U.S. OSHA 29 CFR 1910.119. |
| Methane          | Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Keep separated from incompatible substances.                |

## Section 8: Exposure Controls/Personal Protection

|                  | Exposure Guidelines                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hydrogen Sulfide | HYDROGEN SULFIDE: 20 ppm OSHA ceiling 50 ppm OSHA peak 10 minute(s) (once if no other measurable exposure occurs) 10 ppm (14 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 15 ppm (21 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 10 ppm ACGIH TWA 15 ppm ACGIH STEL 10 ppm (15 mg/m3) NIOSH recommended ceiling 10 minute(s) TLV-TWA: 1ppm Upper respiratory irritation (ACGIH) |
| Methane          | METHANE, COMPRESSED GAS: ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA, METHANE: No occupational exposure limits established. ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA                                                                                                                                                                                           |

### Engineering Controls

Handle only in fully enclosed systems.

|                  | Eye Protection                                                                                                                                      | Skin Protection                               | Respiratory Protection                                                                                                             |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Hydrogen Sulfide | Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. | Wear appropriate chemical resistant clothing. | Any self-contained breathing apparatus with a full facepiece.                                                                      |
| Methane          | Eye protection not required, but recommended.                                                                                                       | Protective clothing is not required.          | Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece. |

### General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

## Section 9: Physical and Chemical Properties

|                  | Physical State | Appearance | Color     | Change in Appearance | Physical Form | Odor            | Taste     |
|------------------|----------------|------------|-----------|----------------------|---------------|-----------------|-----------|
| Hydrogen Sulfide | Gas            | Colorless  | Colorless | N/A                  | Gas           | Rotten egg odor | N/A       |
| Methane          | Gas            | Colorless  | Colorless | N/A                  | Gas           | Odorless        | Tasteless |

|                  | Flash Point     | Flammability  | Partition Coefficient                                 | Autoignition Temperature | Upper Explosive Limits | Lower Explosive Limits |
|------------------|-----------------|---------------|-------------------------------------------------------|--------------------------|------------------------|------------------------|
| Hydrogen Sulfide | Flammable       | Not available | Not available                                         | 500 F (260 C)            | 44-46%                 | 4.0-4.3%               |
| Methane          | -369 F (-223 C) | Not available | 724.44 (log = 2.87) (estimated from water solubility) | 999 F (537 C)            | 15%                    | 5%                     |

|                  | Boiling Point                 | Freezing Point  | Vapor Pressure    | Vapor Density | Specific Gravity | Water Solubility | pH                          | Odor Threshold | Evaporation Rate | Viscosity         |
|------------------|-------------------------------|-----------------|-------------------|---------------|------------------|------------------|-----------------------------|----------------|------------------|-------------------|
| Hydrogen Sulfide | -78 to -77 F (-61 to -60.3 C) | -123 F (-86 C)  | 15200 mmHg @ 25 C | 1.2 (Air=1)   | 1.192            | 2.58-2.9% @ 20 C | 4.5-~7 (saturated solution) | 0.13 ppm       | Not applicable   | 0.0128 cP @ 25 C  |
| Methane          | -260 F (-162 C)               | -297 F (-183 C) | 760 mmHg @ -161 C | 0.555 (Air=1) | Not applicable   | 3.5% @ 17 C      | Not applicable              | Not available  | Not applicable   | 0.01118 cP @ 27 C |

|                  | Molecular Weight | Molecular Formula | Density         | Weight per Gallon | Volatility by Volume | Volatility     | Solvent Solubility                                                                                    |
|------------------|------------------|-------------------|-----------------|-------------------|----------------------|----------------|-------------------------------------------------------------------------------------------------------|
| Hydrogen Sulfide | 34.08            | H2-S              | 1.539 g/L @ 0 C | Not available     | Not available        | Not applicable | Soluble: Carbon disulfide, alcohol, ether, glycerol, gasolines, kerosene, crude oil, alkali solutions |
| Methane          | 16.04            | C-H4              | 0.717 g/L @ 0 C | Not available     | Not applicable       | Not applicable | Soluble: Alcohol, ether, benzene, organic solvents                                                    |

## Section 10: Stability and Reactivity

|                  | Stability                                   | Conditions to Avoid                         | Incompatible Materials                                                                                                                                                |
|------------------|---------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hydrogen Sulfide | Stable at normal temperatures and pressure. | Stable at normal temperatures and pressure. | Combustible materials, metals, oxidizing materials, halogens, metal oxides, metal salts, bases, rust, oxidants, oxygen, copper powder, acetaldehyde, silver fulminate |
| Methane          | Stable at normal temperatures and pressure. | Stable at normal temperatures and pressure. | Halogens, oxidizing materials, combustible materials                                                                                                                  |

|                  | Hazardous Decomposition Products | Possibility of Hazardous Reactions |
|------------------|----------------------------------|------------------------------------|
| Hydrogen Sulfide | Oxides of sulfur                 | Will not polymerize.               |
| Methane          | Oxides of carbon                 | Will not polymerize.               |

## Section 11: Toxicology Information

### Acute Effects

|                  | Oral LD50                   | Dermal LD50                                  | Inhalation                                                                                                                                                                                                                                                                              |
|------------------|-----------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hydrogen Sulfide | 444 ppm inhalation-rat LC50 | Irritation 0.000125 ppm/5 hour(s) eyes-human | Irritation, lack of sense of smell, sensitivity to light, nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, disorientation, tremors, visual disturbances, suffocation, lung congestion, internal bleeding, heart damage, nerve damage, brain damage, coma, death |
| Methane          | Not available               | Not available                                | Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, drowsiness, fatigue, dizziness, disorientation, mood swings, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma                                                           |

|                  | Eye Irritation                                        | Skin Irritation                               | Sensitization                                                                                                                                                                                                                                                  |
|------------------|-------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hydrogen Sulfide | Irritation, sensitivity to light, visual disturbances | Irritation liquid: frostbite                  | Acute toxicity, Category 2, Inhalation; H330: Fatal if inhaled. Specific Target Organ Toxicity (single exposure), Category 3; H335: May cause respiratory irritation. Hazardous to the aquatic environment, Acute Category 1; H400: Very toxic to aquatic life |
| Methane          | No information on significant adverse effects         | No information on significant adverse effects | Difficulty breathing                                                                                                                                                                                                                                           |

### Chronic Effects

|                  | Carcinogenicity | Mutagenicity  | Reproductive Effects | Developmental Effects |
|------------------|-----------------|---------------|----------------------|-----------------------|
| Hydrogen Sulfide | Not available   | Not available | Available.           | No data               |
| Methane          | Not available   | Not available | Not available        | No data               |

## Section 12: Ecological Information

### Fate and Transport

|                  | Eco toxicity                                                                                                                                                                                                                                                                                                                                                              | Persistence / Degradability                                                   | Bioaccumulation / Accumulation                             | Mobility in Environment                                 |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------|
| Hydrogen Sulfide | Fish toxicity: Acute LC50 7 ug/L Fresh water Fish - Fathead minnow - Pimephales promelas - FRY 96 hours: 14.9 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (Pimeph Invertebrate toxicity: 9730 ug/L 1.5 hour(s) (Mortality) Mediterranean mussel (Mytilus galloprovincialis) Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available | Highly toxic to aquatic life.                                                 | Not available                                              | Not available                                           |
| Methane          | Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available                                                                                                                                                                                                               | Relatively non-persistent in the environment. Moderately volatile from water. | Accumulates very little in the bodies of living organisms. | Not expected to leach through the soil or the sediment. |

## Section 13: Disposal Considerations

|                  |                                                                                                                                               |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Hydrogen Sulfide | Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U135. |
| Methane          | Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. |

## Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

### DOT Information For This Mixture

|                    |                                                               |
|--------------------|---------------------------------------------------------------|
| Shipping Name      | Compressed gas, flammable, n.o.s. (Methane, Hydrogen Sulfide) |
| UN Number          | UN1954                                                        |
| Hazard Class       | 2.1                                                           |
| Hazard Information | FLAMMABLE GAS                                                 |

### Individual Component Information

|                  | Proper Shipping Name | ID Number | Hazard Class or Division | Packing Group  | Labeling Requirements | Passenger Aircraft or Railcar Quantity Limitations | Cargo Aircraft Only Quantity Limitations | Additional Shipping Description |
|------------------|----------------------|-----------|--------------------------|----------------|-----------------------|----------------------------------------------------|------------------------------------------|---------------------------------|
| Hydrogen Sulfide | Hydrogen sulfide     | UN1053    | 2.3                      | Not applicable | 2.3; 2.1              | Forbidden                                          | Forbidden                                | Toxic- Inhalation Hazard Zone B |
| Methane          | Methane, compressed  | UN1971    | 2.1                      | Not applicable | 2.1                   | Forbidden                                          | 150 kg                                   | N/A                             |

### Canadian Transportation of Dangerous Goods

|                  | Shipping Name                          | UN Number | Class    | Packing Group / Risk Group |
|------------------|----------------------------------------|-----------|----------|----------------------------|
| Hydrogen Sulfide | HYDROGEN SULFIDE, or HYDROGEN SULPHIDE | UN1053    | 2.3; 2.1 | Not applicable             |
| Methane          | Methane, compressed                    | UN1971    | 2.1      | Not applicable             |

## Section 15: Regulatory Information

### U.S. Regulations

|                  | CERCLA Sections | SARA 355.30    | SARA 355.40    |
|------------------|-----------------|----------------|----------------|
| Hydrogen Sulfide | 100 LBS RQ      | 500 LBS TPQ    | 100 LBS RQ     |
| Methane          | Not regulated.  | Not regulated. | Not regulated. |

### SARA 370.21

|                  | Acute | Chronic | Fire | Reactive | Sudden Release |
|------------------|-------|---------|------|----------|----------------|
| Hydrogen Sulfide | Yes   | No      | Yes  | No       | Yes            |
| Methane          | Yes   | No      | Yes  | No       | Yes            |

### SARA 372.65

|                  |                                                            |
|------------------|------------------------------------------------------------|
| Hydrogen Sulfide | HYDROGEN SULFIDE: Administrative stay issued Aug. 22, 1994 |
| Methane          | Not regulated.                                             |

### OSHA Process Safety

|                  |                |
|------------------|----------------|
| Hydrogen Sulfide | 1500 LBS TO    |
| Methane          | Not regulated. |

### State Regulations

|                  | CA Proposition 65 |
|------------------|-------------------|
| Hydrogen Sulfide | Not regulated.    |
| Methane          | Not regulated.    |

### Canadian Regulations

|                  | WHMIS Classification |
|------------------|----------------------|
| Hydrogen Sulfide | A, B1, D1A, D2B.     |
| Methane          | A, B1                |

### National Inventory Status

|                  | US Inventory (TSCA)  | TSCA 12b Export Notification | Canada Inventory (DSL/NDSL) |
|------------------|----------------------|------------------------------|-----------------------------|
| Hydrogen Sulfide | Listed on inventory. | Not listed.                  | Listed on inventory.        |
| Methane          | Listed on inventory. | Not listed.                  | Listed on inventory.        |

## Section 16: Other Information

|                  | NFPA Rating                  |
|------------------|------------------------------|
| Hydrogen Sulfide | HEALTH=4 FIRE=4 REACTIVITY=0 |
| Methane          | HEALTH=1 FIRE=4 REACTIVITY=0 |

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard