



MATERIAL SAFETY DATA SHEET - CALIBRATION CHECK GAS

**PRODUCT NAME: PENTANE (0- 0.75%), CARBON MONOXIDE (0.0005- 1.0%),
HYDROGEN SULFIDE (0.001- 0.025%, OXYGEN (0.0015- 23.5%), BALANCE NITROGEN**

MSDS NO: 411

Version:3

Date: January, 2009

1. Chemical Product and Company Identification

Gasco Affiliates, LLC
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PRODUCT NAME: MULTI-MIX

CHEMICAL NAME: Pentane, Carbon Monoxide, Hydrogen Sulfide, Oxygen in Nitrogen

COMMON NAMES/ SYNONYMS: None

TDG (Canada) CLASSIFICATION: 2.2

WHIMIS CLASSIFICATION: A

2. COMPOSITION/ INFORMATION ON INGREDIENTS

| INGREDIENT | %VOLUME | PEL-OSHA | TLV-ACGIH | LD ₅₀ or LC ₅₀ Route/Species |
|--|--------------------|-------------------|-------------------|--|
| Pentane FORMULA: C ₅ H ₁₂ | 0 to 0.75% | 1000 ppm TWA | 600 ppm | LC ₅₀ 364 g/m ³ / 4 hours (rat) |
| Carbon Monoxide FORMULA: CO | 0.0005 to 1.0% | 50 ppm | 25 ppm | 1811 ppm/ 4 hours (rat) |
| Hydrogen Sulfide FORMULA: H ₂ S | 0.001 to 0.025% | 20 ppm | 10 ppm | 444 ppm (rat) |
| Oxygen FORMULA: O ₂ | 0.0015 to 23.5% | N/A | N/A | N/A |
| Nitrogen FORMULA: N ₂ | Balance | Simple Asphyxiate | Simple Asphyxiate | N/A |

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

This product is a colorless gas, which has a rotten-egg odor. The odor cannot be relied on as an adequate warning of the presence of this product, because olfactory fatigue occurs after over-exposure to hydrogen sulfide. Hydrogen sulfide and carbon monoxide are toxic to humans in relatively low concentrations. Over-exposure can cause skin or eye irritation, nausea, dizziness, headaches, collapse, unconsciousness, coma, and death. Pentane can cause anesthetic or peripheral neuropathy effects. Additionally, releases of this product may produce oxygen-deficient atmospheres which may cause asphyxiation.



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ROUTE OF ENTRY:

| | | | | |
|---------------------|-----------------------|--------------------|-------------------|-----------------|
| Skin Contact Yes | Skin Absorption No | Eye Contact Yes | Inhalation Yes | Ingestion No |
|---------------------|-----------------------|--------------------|-------------------|-----------------|

HEALTH EFFECTS:

| | | | | |
|------------------------|-----------------|---------------------|----------------------------|---------------|
| Exposure Limits Yes | Irritant Yes | Sensitization No | Reproductive Hazard Yes | Mutagen No |
|------------------------|-----------------|---------------------|----------------------------|---------------|

Carcinogenicity: --NTP: No IARC: No OSHA: No

EYE EFFECTS:

Hydrogen sulfide can cause eyes to become scratchy, irritated and even teary. Above 50 ppm of hydrogen sulfide, there is an intense tearing blurring of vision, and pain when looking at light.

SKIN EFFECTS:

Over-exposure to carbon monoxide can be indicated by the lips and fingernails turning bright red. High concentrations of hydrogen sulfide may also be irritating to the skin.

INGESTION EFFECTS:

Ingestion unlikely. Gas at room temperature.

INHALATION EFFECTS:

Due to the small size of this cylinder, no unusual health effects from over-exposure are anticipated under routine circumstances of use. Over-exposure to hydrogen sulfide can cause dizziness, headache, and nausea. Exhilaration, dizziness and headache can occur when over-exposed to Pentane. Long term exposure to Pentane can cause chronic neurological disorders causing damage to the nerves in the hands and feet. At 12- 16% Oxygen, breathing and pulse rate is increased, muscular coordination is slightly disturbed.

NFPA HAZARD CODES

Health: 3
Flammability: 0
Reactivity: 0

HMIS HAZARD CODES

Health: 3
Flammability: 0
Reactivity:

RATING SYSTEM

0= No Hazard
1= Slight Hazard
0 2= Moderate Hazard
3= Serious Hazard
4= Severe Hazard

4. FIRST AID MEASURES

EYES:

PERSONS WITH POTENTIAL EXPOSURE SHOULD NOT WEAR CONTACT LENSES. Flush contaminated eyes with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes. Seek immediate medical attention.

SKIN:

Remove contaminated clothing as rapidly as possible. Flush affected area with copious quantities of water. Seek immediate medical attention.

INGESTION:

Not required

INHALATION:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH THE SELF-CONTAINED BREATHING APPARATUS. Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. If breathing has stopped administer artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.



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5. FIRE-FIGHTING MEASURES

These containers hold gas under pressure, with no liquid phase. If involved in a major fire, they should be sprayed with water to avoid pressure increases, otherwise pressures will rise and ultimately they may distort or burst to release the contents. The gases will not add significantly to the fire, but containers or fragments may be projected considerable distances - thereby hampering fire fighting efforts.

6. ACCIDENTAL RELEASE MEASURES

In terms of weight, these containers hold very little contents, such that any accidental release by puncturing etc. will be of no practical concern.

7. HANDLING AND STORAGE

Suck back of water into the container must be prevented. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Use only in well-ventilated areas. Do not heat cylinder by any means to increase rate of product from the cylinder. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Use adequate ventilation for extended use of gas.

9. PHYSICAL AND CHEMICAL PROPERTIES

| PARAMETER: | VALUE: |
|---------------------|--|
| Physical state | : Gas |
| Evaporation point | : N/A |
| pH | : N/A |
| Odor and appearance | : Colorless gas with a rotten-egg odor |

10. STABILITY AND REACTIVITY

Stable under normal conditions. Expected shelf life 12 months.

11. TOXICOLOGICAL INFORMATION

This gas mixture contains components that may cause embryotoxic effects in humans; however, due to the small size of the cylinder no toxicological damage is anticipated.

12. ECOLOGICAL INFORMATION

No ecological damage caused by this product.

13. DISPOSAL INFORMATION

Do not discharge into any place where its accumulation could be dangerous. Used containers are acceptable for disposal in the normal waste stream as long as the cylinder is empty and valve removed or cylinder wall is punctured; but GASCO encourages the consumer to return cylinders.



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14. TRANSPORT INFORMATION

| | <u>United States DOT</u> | <u>Canada TDG</u> |
|------------------------|---|---|
| PROPER SHIPPING NAME: | Compressed Gas N.O.S. (Hydrogen Sulfide, Nitrogen) | Compressed Gas N.O.S. (Hydrogen Sulfide, Nitrogen) |
| HAZARD CLASS: | 2.2 | 2.2 |
| IDENTIFICATION NUMBER: | UN1956 | UN1956 |
| SHIPPING LABEL: | NONFLAMMABLE GAS | NONFLAMMABLE GAS |

15. REGULATORY INFORMATION

The components of this product are listed under the accident prevention provisions of section 112(r) of the Clean Air Act (CAA) with a threshold quantity (TQ) of 10,000 pounds each.

16. OTHER INFORMATION

This MSDS has been prepared in accordance with the Chemicals (Hazard Information and Packaging for Supply (Amendment) Regulation 1996. The information is based on the best knowledge of GASCO, and its advisors and is given in good faith, but we cannot guarantee its accuracy, reliability or completeness and therefore disclaim any liability for loss or damage arising out of use of this data. Since conditions of use are outside the control of the Company and its advisors we disclaim any liability for loss or damage when the product is used for other purposes than it is intended.

MSDS/S010/411/ January, 2009