

# Shipment of Flammable Gas Samples in Gas Bags

**NOTE: You must be certified to ship hazardous goods in order to legally ship flammable gas samples**

If the samples collected are known to contain less than 5% methane (or other hydrocarbons), they are not flammable and need not be considered hazardous for shipping purposes. The following instructions apply only to samples that are flammable.

We have enclosed the various hazard labels that you will need and have listed below the information required by shipping companies such as Airborne and Federal Express (note: UPS will only accept Dangerous Goods from D.O.T. certified shippers who have a contract with them). Please don't hesitate to ask your shipper for assistance in attaching labels and filling out the required forms. Each shipper has its own forms for Dangerous Goods.

1. Return the filled gas bags to the same UN approved metal can they were received in. Three 6" x 8" bags will fit in a one gallon can when properly filled. Do not compress the bags. Place the top on the can and firmly seal it. Add the safety seal by pounding on the plastic ring provided with the can. Now place the can in the fiberboard box according to the general instructions included with the box.
2. Attach the following labels to the outside of the box all on the same side.
  - FLAMMABLE GAS Label
  - UN3167 Label
  - DANGER DO NOT LOAD IN PASSENGER AIRCRAFT Label

**Note: Labels must not be folded or affixed in such a manner that parts of the same label appear on different faces of the package.**

3. Complete a "SHIPPER'S DECLARATION FOR DANGEROUS GOODS" which can be obtained from your shipping company. The information that may be needed on this form is given below.
  - Proper Shipping Name:** Gas Samples, non-pressurized, flammable, n.o.s. (Natural Gas)
  - Class or Division:** 2.1
  - UN or ID Number:** UN3167
  - Subsidiary Risk:** None (leave blank)
  - Packaging Group:** None (leave blank)
  - Quantity & Type of Packaging:**
    - # Fiberboard boxes box X 4L
  - Packing Instructions:** 206
  - Shipment Type:** Non-Radioactive
  - Prepared per:** ICAO/IATA
  - Additional Information:**
    - your Company's emergency response telephone number
  - Limitations:** Cargo Aircraft Only
4. As required by the Department of Transportation (49 CFR - Part 172, Subpart G, §172.604) a person who offers a hazardous material for transportation must provide an emergency response telephone number, including the area code or international access code, for use in the event of an emergency involving the hazardous material. You **MUST** use your company's emergency response telephone number. If one is not available to you please contact us and we can advise you on how to obtain one.

**These instructions have been prepared to simplify the task of shipping samples and are based on the "IATA Dangerous Goods Regulations 48th Edition, 2007". However, it is you, the shipper, who is ultimately responsible for the safe and legal shipment of these samples in compliance with the most recent applicable local, state, and international shipping regulations. Isotech assumes no liability resulting from the improper packaging and shipment of samples and makes no guarantees regarding the validity of the information presented here.**

**Warning: Samples containing high concentrations of hydrogen sulfide (> 1%) cannot be shipped by air. Samples containing hydrogen sulfide are Class 2.3, toxic gas, and have additional shipping restrictions.**

# Material Safety Data Sheet (MSDS)

## SECTION I

**TRADE NAME** Gas Samples, non-pressurized, flammable (UN3167)

**CHEMICAL NAME AND SYNONYMS** Methane Gas, Hydrocarbon Gas Mixture, Natural Gas

## SECTION II -

### HAZARDOUS INGREDIENTS

Methane (CAS 74-82-8)	5 - 99%
Carbon dioxide (CAS 124-38-9)	0 - 50%
Nitrogen (CAS 124-38-9)	0 - 95%
Ethane (CAS 74-84-0)	0 - 10%
Propane (CAS 74-98-6)	0 - 5%
Butane (CAS 106-97-8)	0 - 2%
C <sub>x</sub> H <sub>2x+2</sub> (x=5 and above)	0 - 1%

Gas samples may also contain trace quantities (<0.1%) of various organic gases not listed above.

## SECTION III - PHYSICAL DATA

**Solubility:** appreciable

**Appearance (Color, Odor, etc.):** colorless, tasteless and normally odorless gas, however may have a characteristically organic odor.

**Boiling Point:** less than -258°F

**Specific Gravity:** see Gas Density

**Vapor Pressure:** not established

Percent Volatile (Volume %): 100

Evaporation: n/a

**Gas Density:** 0.6 to 1.2 (air = 1.0)

## SECTION IV -

### FIRE AND EXPLOSION HAZARD DATA

Gas Samples can present a fire hazard. Being a mixture, the gas can explode violently on contact with any source of ignition.

**Flash Point:** less than -305°F (est.)

**Autoignition Temp.:** approx. 930°F

**Flammability Limits:** LEL 5% to UEL 15%

**Extinguishing Media:** Carbon dioxide or dry chemical.

**Special Fire Fighting Procedures:** For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment. Read the entire MSDS.

## SECTION V

### HEALTH HAZARD INFORMATION

**Eye Contact:** Not expected to cause eye irritation.

**Skin Contact:** Not expected to be irritating to the skin.

**Inhalation:** Breathing high concentrations of gas samples is not expected.

**Chronic Effects:** Not expected.

### EMERGENCY FIRST AID PROCEDURES

**Eye Contact:** If irritation occurs, flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids open. If irritation continues, seek medical attention.

**Skin Contact:** Not applicable

**Inhalation:** Not applicable

Ingestion: Not applicable

## SECTION VI - REACTIVITY DATA

**Stability (Thermal, Light, etc.):** Stable, avoid heat, sparks and open flame.

**Incompatibility (Materials to Avoid):** Oxidizers

**Hazardous Decomposition Products:** Combustion may produce carbon monoxide, carbon dioxide, ethylene, and acetylene.

**Hazardous Polymerization:** Will not occur.

**SECTION VII -****SPILL OR LEAK PROCEDURES**

Eliminate all sources of ignition in vicinity of released gas. Stop gas flow if it can be done without risk. Ventilation is required to keep concentrations below the explosive range.

**Waste Disposal Methods:** Burn through a flare stack in accordance with federal, state and local regulations.

**SECTION VIII -****SPECIAL PROTECTIVE INFORMATION**

**Eye Protection:** No special eye protection is required.

**Skin Protection:** No special skin protection is required.

**Respiratory Protection:** No special respiratory protection is normally required.

**SECTION IX - SPECIAL PRECAUTIONS**

Flammable gas. Ground all lines and equipment used with gas to prevent static sparks. Do not smoke where gas is used or stored. A 19.5% oxygen concentration in air is the minimum recommended for working without special breathing equipment.

n/a = Not Applicable

**The information contained herein has been developed based upon current available scientific data. New information may be developed from time to time which may render the conclusions of this report obsolete. Therefore, no warranty is extended as to the applicability of this information to the user's intended purpose or for the consequences of its use or misuse.**