

SHIPPING GUIDELINES FOR GAS SAMPLES IN ISOtUBES®



IsoTubes are NOT suitable for gases containing hydrogen sulfide (H₂S, sour gas). Samples containing H₂S are considered Class 2.3 Toxic Gas and have additional shipping restrictions.

You must be certified to ship hazardous goods to legally ship flammable or pressurized samples in IsoTubes. Stratum Reservoir and Isotech DO NOT do business or render services to the countries of Cuba, Iran, North Korea, Sudan, or Syria. Samples from these countries WILL BE REJECTED.

These instructions apply to samples that are pressurized and/or flammable (>5% methane or other hydrocarbons). Samples known to be at atmospheric pressure AND containing less than 5% combustible gas need not be considered hazardous for shipping purposes.

Samples of flammable and/or pressurized gas must be identified as hazardous materials. We have included the hazard labels you will need, and have listed below the information required by shipping companies who accept hazardous materials, like Federal Express. Please don't hesitate to ask your shipper for assistance attaching labels and filling out the required forms. Each shipper has its own forms and requirements for Dangerous Goods.

1. Return the IsoTubes and a copy of the sample identification documentation to the UN certified box and seal the box with tape. Note that the IsoTubes were shipped to you in an outer carton which can be discarded – only the UN certified box is required to be used for return shipment.
2. International Air Transport Association (IATA) regulations require the following labels to be attached to the outside of the box: **FLAMMABLE GAS label; UN2037 label; AIR ELIGIBLE sticker**. One label that includes all three components is provided. This label should be attached on the same side as the address label or airway bill as shown in the picture. Labels must NOT be folded or affixed such that parts of the same label appear on different faces of the box.
3. Complete a SHIPPERS' DECLARATION OF DANGEROUS GOODS form, which can be obtained from your shipping company. The information that may be required is below.

UN or ID Number	UN2037
Proper Shipping Name	Receptacles, small, containing gas
Class or Division	2.1
Subsidiary Risk	None (leave blank)
Packaging Group	None (leave blank)
Quantity and Type of Packaging	Fibreboard box(es) x 0.1 kg
Packing Instructions	203
Shipment Type	Non-radioactive
Prepared per	ICAO/IATA
Additional Information	(your company's emergency response phone number)
Limitations	None (leave blank)



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.
5. Customers shipping IsoTubes internationally should follow the additional instructions attached. They can also be found on our website: isotechlabs.com.

These instructions have been prepared to simplify the task of shipping samples, and are based on the current "IATA Dangerous Goods Regulations". 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. Stratum Reservoir and Isotech assume no liability resulting from the improper packaging and/or shipment of samples and makes no guarantee regarding the validity of the information herein.

SAFETY DATA SHEET (SDS)

FOR TRANSPORTING NATURAL GAS SAMPLES IN RECEPTACLES (SINGLE-USE ISOTUBES ONLY)

SECTION I CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name: Receptacles, small, containing gas (flammable) without a release device, non-refillable (UN2037)

Chemical Name and Synonyms: Mud gas, Hydrocarbon gas mixture, Natural gas

Company Identification: Stratum Reservoir Isotech LLC, 1308 Parkland Court, Champaign, IL 61821; +1 217 398-3490

SECTION II COMPOSITION/INFORMATION ON 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%

Hydrocarbons C_xH_{2x+2} ($x \geq 5$) 0-1%

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

SECTION III HAZARDS IDENTIFICATION

Eye Contact: Not expected to cause eye irritation.

Skin Contact: Not expected to be irritating to skin.

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

Chronic Effects: Not expected to occur.

Overview: Colorless gas with no or slight hydrocarbon odor, or mercaptan may be added as an odorant. Extremely flammable; can be ignited by heat, spark, or flame. May release explosive vapors that can travel, be ignited at remote locations, and flash back. This material is classified as hazardous under OSHA regulations.

SECTION IV FIRST AID MEASURES

Eye Contact: If irritation occurs, flush eyes immediately with fresh water for at least 15 minutes while holding eyelids open.

Skin Contact: Not applicable.

Inhalation: Not applicable.

Ingestion: Not applicable.

SECTION V FIRE FIGHTING MEASURES 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: -306°F to -305°F

Autoignition Temperature: 930°F to 1000°F

Flammability Limits: LEL 5%; 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 SDS.

SECTION VI ACCIDENTAL RELEASE MEASURES

Eliminate all sources of ignition in the 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 VII HANDLING AND STORAGE

Use spark-proof tools. Material may be under pressure (< 100 psig). Exercise care when opening sampling ports. Keep away from heat, sparks, flame, and other sources of ignition.

SECTION VIII SPECIAL PROTECTIVE INFORMATION

Eye Protection: No special protection required.

Skin Protection: No special protection required.

Respiratory Protection: No special protection normally required.

Ventilation: No special ventilation is usually necessary. However, if operating conditions create high concentrations of this material that could approach the explosive range, special ventilation may be needed.

SECTION IX**PHYSICAL AND CHEMICAL DATA**

Solubility: Appreciable

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

Boiling Point: from -260°F to -258°F

Specific Gravity: 0.6 to 1.2 (air = 1.0)

Vapor Pressure: not established

Percent Volatile (volume %): 100%

Evaporation: Not applicable.

SECTION X**STABILITY AND 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 XI**TOXICOLOGICAL INFORMATION**

Toxicity: Oral, rat LD50 > 5 g/kg

Teratogenicity: Not established Reproductive

Toxicity: Not established

Mutagenicity: Not established

Synergistic Products: Not established

Sensitization to Product: Not established

Carcinogenicity: Contains more than 0.1% by weight of a material listed as a potential carcinogen

By NTP: NO

By IARC: NO

By OSHA: NO

Other chronic effects: Not determined

Signs and Symptoms of Overexposure: nausea, fatigue, sleepiness, confusion, dizziness, headache, vomiting, narcosis, unconsciousness, and death by or from asphyxiation

SECTION XII**ECOLOGICAL INFORMATION**

No data is available on the adverse effects of this material on the environment. Neither COD nor BOD data are available.

SECTION XIII**DISPOSAL CONSIDERATIONS**

Dispose of the container and unused contents in accordance with federal, state, and local requirements.

SECTION XIV**TRANSPORT INFORMATION**

UN or ID Number: UN2037

Proper Shipping Name: Receptacles, small, containing gas

Class or Division: 2.1

Subsidiary Risk: None

Packaging Group: None

Shipment Type: Non-radioactive

Prepared per ICAO/IATA

SECTION XV**REGULATORY INFORMATION**

TSCA Inventory: NO

Reportable Quantity (RQ) Under US EPA CERCLA Regulations: Not listed.

SARA Hazard Notification Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370): YES

Section 313 Toxic Chemical(s): Not listed.

Hazardous Chemical(s) Under OSHA Hazard Communication Standard: YES

SECTION XVI**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.

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.