

Shipping Instructions for Natural Gas Samples in Cylinders

You must be certified to ship hazardous goods in order to legally ship flammable gas samples.

IMPORTANT NOTICE:

ISOTECH DOES NOT DO BUSINESS OR RENDER SERVICES TO CUBA, IRAN, NORTH KOREA, SUDAN, OR SYRIA. SAMPLES FROM THESE COUNTRIES WILL BE REJECTED.

1. After checking to insure that all cylinder valves are closed and tightly capped, seal the cartons with the four (4) plastic cable ties supplied.
2. Attach the provided hazard warning labels to each carton as shown.



3. Deliver to a commercial shipping office (Airborne Express, Federal Express, etc.), or dispatch through your shipping pickup service. Note: UPS will only accept hazardous materials from certified haz-mat shippers who have a contract with them and will not accept flammable gases for air shipment at all.
4. Complete the shipping documents required (these vary from company to company). To assist you in filling out these documents, the various pieces of information that you may need are provided on the back of these shipping instructions. Insure the shipment at a rate of \$250 per gas cylinder. If needed, a copy of a Material Data Safety Sheet for compressed natural gas is placed in the bottom of each carton (under the foam packing).
5. Please notify us when samples have been shipped either by telephone (217) 398-3490 or by FAX (217) 398-3493.

**See next page for hazardous materials information
(For international shipment, see additional instructions included)**

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Ship to: Isotech Laboratories, Inc. 1308 Parkland
Court
Champaign, Illinois 61821 Telephone
number 217/398-3490 FAX number
217/398-3493 EMAIL mail@isotechlabs.com
Natural Gas, compressed

Proper Shipping Name:

Class or Division:

2.1

UN or ID No.: Subsidiary Risk:

UN1971

Quantity and Type of Packaging:

none (leave blank)

depends on type of cylinder

For boxes of ten 150cc cylinders write - #___plastic box (es) x 1kg

For boxes of eight 300cc cylinders write - #___plastic box (es) x 1kg

For boxes of three 1 liter cylinders write - #___plastic box (es) x 1kg

Packaging Group:

none (leave blank)

Packing Instructions:

200

Transport Details: Shipment type:

Cargo Aircraft only Non-radioactive see note

Emergency telephone number within U.S.:

below ICAO/IATA

Prepared For:

\$250 per cylinder

Insurance Value:

Note: 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.

SECTION I – IDENTIFICATION

TRADE NAME: Natural Gas, compressed (UN1971)

CHEMICAL NAME AND SYNONYMS: Natural Gas, >50% Methane

SECTION II – HAZARD IDENTIFICATION

United States (US) According to OSHA 29 CFR 1910.1200 HCS

Classification of the substance or mixture

OSHA HCS 2012: Flammable Gases 1 - H220; Compressed Gas - H280; Simple Asphyxiate

Label elements

OSHA HCS 2012

DANGER



Hazard statements: Extremely flammable gas - H220

Contains gas under pressure; may explode if heated - H280

May displace oxygen and cause rapid suffocation.

Precautionary statements

Prevention: Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking. - P210

Response: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. - P377

Eliminate all ignition sources if safe to do so. - P381

Storage/Disposal: Protect from sunlight. Store in a well-ventilated place. - P410+P403

Other hazards

OSHA HCS 2012: Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

SECTION III - HAZARDOUS INGREDIENTS

Methane (CAS 74-82-8)	50 - 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 _x H _{2x+2} (x+5 and above)	0 - 1%
Compressed flammable gas may also contain trace quantities (<0.1%) of various organic gases not listed above.	

SECTION IV – 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 (est)

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)

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SECTION V – FIRSTAID MEASURES

Description of first aid measures

Inhalation: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

Skin: Although exposure is unlikely, in case of contact immediately flush skin with running water. If skin irritation develops get medical advice/attention.

Eye First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If irritation develops and persists, get medical attention.

Ingestion: Ingestion is not considered a potential route of exposure.

Most important symptoms and effects, both acute and delayed: Refer to Section 11 - Toxicological Information.

Indication of any immediate medical attention and special treatment needed

Notes to Physician: All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. A potential health hazard associated with this gas is anoxia.

SECTION VI – FIRE FIGHTING MEASURES

NFPA 704 Hazard Class



Health: 1

Flammability: 4

Instability: 0

(0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

Extinguishing media

Suitable Extinguishing Media: Dry Chemical, (Potassium Bicarbonate based *Purple K* most effective), Carbon dioxide, Water.

Unsuitable Extinguishing Media: No data available

Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards: EXTREMELY FLAMMABLE; Will form explosive mixtures with air.; Vapors may travel to source of ignition and flash back.; Cylinders exposed to fire may vent and release flammable gas through pressure relief devices. Containers may explode when heated. Ruptured cylinders may rocket.

Hazardous Combustion Products: No data available

Advice for firefighters: Gas fires should not be extinguished unless flow of gas can be stopped.; Only authorized personnel should turn off valves or attempt repairs.; Fire crews should wear self-contained breathing apparatus (SCBA).; Natural gas is lighter than air and will vent upward but special consideration should be given to areas that may trap or contain explosive concentrations including areas of potential migration underground or through structures.; Water mist may be used to cool surrounding structures including compressed gas cylinders or tanks.

SECTION VI – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Do not touch damaged containers or spilled material unless Wearing appropriate protective clothing. Do not touch or walk through spilled material. Ventilate the area before entry.

Emergency Procedures: ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Stop leak if you can do it without risk. Keep unauthorized personnel away. Keep out of low areas. Stay upwind. **LARGE SPILL:** Consider initial downwind evacuation for at least 800 meters (1/2 mile)

Environmental precautions: Prevent spreading of vapors through sewers, ventilation systems and confined areas.

Methods and material for containment and cleaning up

Containment/Clean-up

Measures: All equipment used when handling the product must be grounded.: Stop leak if you can do it without risk.; If possible, turn leaking containers so that gas escapes rather than liquid.; Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container.; Do not direct water at spill or source of leak.; Isolate area until gas has dispersed.

SECTION VII – HANDLING AND STORAGE

Precautions for safe handling

Handling: Keep away from heat and ignition sources – No Smoking. Take precautionary measures against static charges. All equipment used when handling the product must be grounded. Use only non-sparking tools. Use only with adequate ventilation. Ventilate closed spaces before entering. Be aware of any signs of dizziness or fatigue, especially if work is done in a poorly ventilated area; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to olfactory fatigue or oxygen deficiency. Cylinders should be firmly secured to prevent falling or being knocked-over. Use explosion-proof - electrical, ventilating and/or lighting equipment. Do not attempt to repair, adjust, or in any other way modify cylinders. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Empty containers retain product residue and can be hazardous. Do not cut, weld, puncture or incinerate container.

Conditions for safe storage, including any incompatibilities

Storage: Store in a cool/low-temperature, well-ventilated dry place away from heat and ignition sources. Protect cylinders against physical damage. Cylinders should be firmly secured to prevent falling or being knocked-over.

SECTION VIII – EXPOSURE CONTROL/PERSONAL PROTECTION

Exposure Controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use explosion-proof - electrical, ventilating and/or lighting equipment.

Personal Protective Equipment

Respiratory

- In case of insufficient ventilation, wear suitable respiratory equipment. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

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Eye/Face

- Wear safety glasses

Skin/Body

- Wear leather gloves when handling cylinders.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

SECTION IX – STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under normal temperatures and pressures.

Possibility of hazardous reactions: Hazardous polymerization will not occur.

Conditions to avoid: Keep away from heat, sparks, and flame.

Incompatible materials: Strong oxidizers.

Hazardous decomposition products: Oxides of carbon (CO, CO₂), "soot"

SECTION X – TOXICOLOGICAL INFORMATION

Route(s) of entry/exposure: Inhalation, Skin, Eye, Ingestion

Potential Health Effects

Inhalation

Acute (Immediate): If this material is released in a small, poorly ventilated area (i.e. an enclosed or confined space), an oxygen-deficient environment may occur. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with decreased levels of oxygen: increase in breathing and pulse rate, emotional upset, abnormal fatigue, nausea, vomiting, collapse, loss of consciousness, convulsive movements, respiratory collapse and death.

Chronic (Delayed): No data available

Skin

Acute (Immediate): Under normal conditions of use, no health effects are expected.

Chronic (Delayed): Under normal conditions of use, no health effects are expected.

Eye

Acute (Immediate): Under normal conditions of use, no health effects are expected.

Chronic (Delayed): Under normal conditions of use, no health effects are expected.

Ingestion

Acute (Immediate): Ingestion is not anticipated to be a likely route of exposure to this product.

Chronic (Delayed): Ingestion is not anticipated to be a likely route of exposure to this product.

SECTION XI – ECOLOGICAL INFORMATION

Toxicity: Material data lacking.

Persistence and degradability: Material data lacking.

Bio Accumulative potential: Material data lacking.

Mobility in Soil: Material data lacking.

Results of PBT and vPvB assessment: PBT and vPvB assessment has not been conducted for this material.

Other adverse effects: No studies have been found.

SECTION XII – DISPOSAL CONSIDERATIONS

Waste treatment methods

Product waste: Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste: Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

SECTION XIV – TRANSPORT INFORMATION

	UN Number	UN Proper Shipping Name	Transport Hazard Class	Packing Group	Environmental Hazards
DOT	UN1971	Methane, compressed or Natural gas, compressed (with high methane content)	2.1	NDA	NDA

Special precautions for user: Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not relevant

SECTION XV – REGULATORY INFORMATION

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds): This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories):

Acute Health: Yes

Chronic Health: No

Fire Hazard: Yes

Pressure Hazard: Yes

Reactive Hazard: No

CERCLA/SARA - Section 313 and 40 CFR 372: This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

EPA (CERCLA) Reportable Quantity (in pounds): EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

California Proposition 65: This material does not contain any chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.

International Hazard Classification Canada: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the Regulations.

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WHMIS Hazard Class:

A - Compressed Gas

B1 - Flammable Gases

National Chemical Inventories

All components are either listed on the US TSCA Inventory, or are not regulated under TSCA All components are either on the DSL, or are exempt from DSL listing requirements.

SECTION XVI – OTHER INFORMATION**Issue Date: 5/10/16****Previous Issue Date: 4/1/14****SDS #: ISO-SFTY-108****Rev. 0**

Guide to Abbreviations: ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

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