



# Acetaldehyde (0.000001% - 0.0499%), Benzene (0.000001% - 0.0500%) in Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 05/28/2015

Supersedes: 03/16/2015

Version: 2.1

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Mixture  
Product name : Acetaldehyde (0.000001% - 0.0499%), Benzene (0.000001% - 0.0500%) in Nitrogen  
Product code : SG-2003-02681

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Test gas/Calibration gas.

#### 1.3. Details of the supplier of the safety data sheet

Air Liquide  
2700 Post Oak Boulevard  
Houston, TX 77056 - USA  
T 1-800-819-1704  
[www.us.airliquide.com](http://www.us.airliquide.com)

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (GHS-US)

Compressed gas H280

Full text of H-phrases: see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



GHS04

Signal word (GHS-US) : Warning  
Hazard statements (GHS-US) : H280 - Contains gas under pressure; may explode if heated  
OSHA-H01 - May displace oxygen and cause rapid suffocation  
Precautionary statements (GHS-US) : P202 - Do not handle until all safety precautions have been read and understood  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear eye protection, face protection, protective gloves, protective clothing  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P308+P313 - If exposed or concerned: Get medical advice/attention  
P403 - Store in a well-ventilated place  
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations  
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)  
CGA-PG05 - Use a back flow preventive device in the piping  
CGA-PG06 - Close valve after each use and when empty  
CGA-PG10 - Use only with equipment rated for cylinder pressure  
CGA-PG14 - Approach suspected leak area with caution  
CGA-PG21 - Open valve slowly

#### 2.3. Other hazards

No additional information available

#### 2.4. Unknown acute toxicity (GHS US)

Not applicable

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### SECTION 3: Composition/information on ingredients

#### 3.1. Substance

Not applicable

#### 3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Nitrogen	(CAS No) 7727-37-9	99.9001 - 99.9999998	Compressed gas, H280
Benzene	(CAS No) 71-43-2	0.0000001 - 0.05	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Muta. 1B, H340 Carc. 1A, H350 STOT RE 1, H372 Asp. Tox. 1, H304
Acetaldehyde	(CAS No) 75-07-0	0.0000001 - 0.0499	Flam. Liq. 1, H224 Eye Irrit. 2A, H319 Carc. 2, H351 STOT SE 3, H335

Full text of H-phrases: see section 16

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

- First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.
- First-aid measures after skin contact : Adverse effects not expected from this product.
- First-aid measures after eye contact : Adverse effects not expected from this product.
- First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

#### 4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : May displace oxygen and cause rapid suffocation.
- Symptoms/injuries after skin contact : Adverse effects not expected from this product.
- Symptoms/injuries after eye contact : Adverse effects not expected from this product.
- Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.
- Symptoms/injuries upon intravenous administration : Not known.
- Chronic symptoms : Adverse effects not expected from this product.

#### 4.3. Indication of any immediate medical attention and special treatment needed

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

#### 5.2. Special hazards arising from the substance or mixture

- Fire hazard : The product is not flammable.
- Explosion hazard : Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.
- Reactivity : None known.

#### 5.3. Advice for firefighters

- Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.
- Protection during firefighting : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

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### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ensure adequate ventilation.

##### 6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment consistent with the site emergency plan.

Emergency procedures : Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

##### 6.1.2. For emergency responders

Protective equipment : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.

Emergency procedures : Evacuate and limit access. Ventilate area.

#### 6.2. Environmental precautions

Try to stop release if safe to do so.

#### 6.3. Methods and material for containment and cleaning up

For containment : Try to stop release if safe to do so.

Methods for cleaning up : Dispose of this material and its container in accordance with local regulations.

#### 6.4. Reference to other sections

See also Sections 8 and 13.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Close valve after each use and when empty.

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.

Hygiene measures : Do not eat, drink or smoke when using this product.

#### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Do not expose to temperatures exceeding 52°C (125°F). Keep container closed when not in use. Protect cylinder from physical damage. Store in well ventilated area.

Incompatible products : None known.

Incompatible materials : None known.

#### 7.3. Specific end use(s)

See Section 1.2.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Acetaldehyde (0.0000001% - 0.0499%), Benzene (0.0000001% - 0.0500%) in Nitrogen		
ACGIH	Not applicable	
OSHA	Not applicable	
Benzene (71-43-2)		
ACGIH	ACGIH TWA (ppm)	0.5 ppm
ACGIH	ACGIH STEL (ppm)	2.5 ppm
OSHA	OSHA PEL (TWA) (ppm)	1 ppm
OSHA	OSHA PEL (STEL) (ppm)	5 ppm (see 29 CFR 1910.1028)
OSHA	OSHA PEL (Ceiling) (ppm)	25 ppm
Acetaldehyde (75-07-0)		
ACGIH	Not applicable	
OSHA	Not applicable	

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Nitrogen (7727-37-9)	
ACGIH	Not applicable
OSHA	Not applicable

### 8.2. Exposure controls

Appropriate engineering controls	: Ensure exposure is below occupational exposure limits. Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit system e.g. for maintenance activities.
Hand protection	: Wear working gloves when handling gas containers. 29 CFR 1910.138: Hand Protection.
Eye protection	: Wear safety glasses with side shields. 29 CFR 1910.133: Eye and Face Protection.
Skin and body protection	: Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.
Respiratory protection	: None necessary during normal and routine operations. See Sections 5 & 6.
Thermal hazard protection	: None necessary during normal and routine operations.
Environmental exposure controls	: Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.
Other information	: Wear safety shoes while handling containers. 29 CFR 1910.136: Foot Protection.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Clear, colorless gas.
Color	: Colorless
Odor	: No data available
Odor threshold	: No Data Available
pH	: No data available
Melting point	: No Data Available
Freezing point	: No data available
Boiling point	: No Data Available
Flash point	: No Data Available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: See Section 2.1 and 2.2
Explosion limits	: Not applicable - not flammable
Explosive properties	: Not applicable - not flammable.
Oxidizing properties	: None.
Vapor pressure	: No data available
Relative density	: No data available
Relative vapor density at 20 °C	: No data available
Molecular mass	: Not applicable for gas-mixtures.
Relative gas density	: Similar to air
Solubility	: Water: Solubility in water of component(s) of the mixture : • : 1.8 mg/l • : 20 mg/l
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

### 9.2. Other information

No additional information available

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### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

None known.

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

None known.

#### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

#### 10.5. Incompatible materials

None known.

#### 10.6. Hazardous decomposition products

Under normal conditions of storage and use hazardous decomposition products should not be produced.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity : Not classified

<b>Benzene (71-43-2)</b>	
LD50 oral rat	930 mg/kg
LC50 inhalation rat (ppm)	13230 (13050 - 14380) ppm/4h
ATE US (oral)	930.000 mg/kg body weight
ATE US (gases)	13230.000 ppmV/4h
ATE US (vapors)	11.000 mg/l/4h
ATE US (dust, mist)	1.500 mg/l/4h

<b>Acetaldehyde (75-07-0)</b>	
LC50 inhalation rat (ppm)	13300 ppm/4h

<b>Nitrogen (7727-37-9)</b>	
LC50 inhalation rat (ppm)	820000 ppm/4h

Skin corrosion/irritation : Not classified  
Serious eye damage/irritation : Not classified  
Respiratory or skin sensitization : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified

<b>Benzene (71-43-2)</b>	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	1 - Evidence of Carcinogenicity, 2 - Known Human Carcinogens
In OSHA Hazard Communication Carcinogen list	Yes
In OSHA Specifically Regulated Carcinogen list	Yes

Reproductive toxicity : Not classified  
Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Symptoms/injuries after inhalation : May displace oxygen and cause rapid suffocation.  
Symptoms/injuries after skin contact : Adverse effects not expected from this product.  
Symptoms/injuries after eye contact : Adverse effects not expected from this product.

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Symptoms/injuries after ingestion	: Ingestion is not considered a potential route of exposure.
Symptoms/injuries upon intravenous administration	: Not known.
Chronic symptoms	: Adverse effects not expected from this product.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Benzene (71-43-2)	
LC50 fish 1	10.7 - 14.7 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	8.76 - 15.6 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 other aquatic organisms 1	29 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata)
LC50 fish 2	5.3 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 Daphnia 2	10 mg/l (Exposure time: 48 h - Species: Daphnia magna)

#### 12.2. Persistence and degradability

Nitrogen (7727-37-9)	
Persistence and degradability	No ecological damage caused by this product.

#### 12.3. Bioaccumulative potential

Benzene (71-43-2)	
BCF fish 1	3.5 - 4.4
Log Pow	1.83

Nitrogen (7727-37-9)	
Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No ecological damage caused by this product.

#### 12.4. Mobility in soil

Nitrogen (7727-37-9)	
Ecology - soil	No ecological damage caused by this product.

#### 12.5. Other adverse effects

Effect on ozone layer	: No known effects from this product.
Effect on the global warming	: No known ecological damage caused by this product.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste treatment methods	: Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded.
Waste disposal recommendations	: Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at <a href="http://www.cganet.com">www.cganet.com</a> for more guidance on suitable disposal methods.

### SECTION 14: Transport information

#### Department of Transportation (DOT)

In accordance with DOT	
Transport document description	: UN1956 Compressed gas, n.o.s.
UN-No.(DOT)	: UN1956
Proper Shipping Name (DOT)	: Compressed gas, n.o.s.

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Hazard labels (DOT) : 2.2 - Non-flammable gas



DOT Packaging Non Bulk (49 CFR 173.xxx) : 302;305  
DOT Packaging Bulk (49 CFR 173.xxx) : 314;315  
DOT Symbols : G - Identifies PSN requiring a technical name  
DOT Packaging Exceptions (49 CFR 173.xxx) : 306;307  
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 75 kg  
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg  
DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

### Additional information

Other information : No supplementary information available.

### ADR

Transport document description : UN 1956, 2.2, (E)  
Class (ADR) : 2 - Gases  
Hazard identification number (Kemler No.) : 20  
Classification code (ADR) : 1A  
Hazard labels (ADR) : 2.2 - Non-flammable compressed gas



Orange plates : 

Tunnel restriction code (ADR) : E  
Limited quantities (ADR) : 120ml  
Excepted quantities (ADR) : E1

### Transport by sea

UN-No. (IMDG) : 1956  
Proper Shipping Name (IMDG) : COMPRESSED GAS, N.O.S.  
Class (IMDG) : 2 - Gases

### Air transport

UN-No.(IATA) : 1956  
Proper Shipping Name (IATA) : COMPRESSED GAS, N.O.S.  
Class (IATA) : 2

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Benzene (71-43-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Listed on United States SARA Section 313

SARA Section 313 - Emission Reporting	0.1 %
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### Nitrogen (7727-37-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

## 15.2. International regulations

### CANADA

#### Benzene (71-43-2)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects
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#### Nitrogen (7727-37-9)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class A - Compressed Gas
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### EU-Regulations

#### Benzene (71-43-2)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### Nitrogen (7727-37-9)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

No additional information available

### National regulations

#### Benzene (71-43-2)

Listed on IARC (International Agency for Research on Cancer)  
Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed as carcinogen on NTP (National Toxicology Program)  
Listed on the Canadian IDL (Ingredient Disclosure List)

#### Nitrogen (7727-37-9)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

## 15.3. US State regulations

### Benzene (71-43-2)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
Yes	Yes	No	Yes	6.4 µg/day

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### Benzene (71-43-2)

U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List  
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances  
U.S. - Pennsylvania - RTK (Right to Know) List

### Nitrogen (7727-37-9)

U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List

## SECTION 16: Other information

- Indication of changes : Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.
- Other information : This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product.

### Full text of H-phrases:

Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Asp. Tox. 1	Aspiration hazard Category 1
Carc. 1A	Carcinogenicity Category 1A
Carc. 2	Carcinogenicity Category 2
Compressed gas	Gases under pressure Compressed gas
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Liq. 1	Flammable liquids Category 1
Flam. Liq. 2	Flammable liquids Category 2
Muta. 1B	Germ cell mutagenicity Category 1B
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H224	Extremely flammable liquid and vapor
H225	Highly flammable liquid and vapor
H280	Contains gas under pressure; may explode if heated
H302	Harmful if swallowed
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H340	May cause genetic defects (Inhalation)
H350	May cause cancer
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure

SDS US (GHS HazCom 2012)

*This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide America Corporation's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.*