

---

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 300000067088  
Print Date 12.04.2017

---

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

1.1. Product identifier : Mixture of Gases

Refer to Section 3 for REACH information

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

Use of the Substance/Mixture : General Industrial

Restrictions on Use : No data available.

1.3. Details of the supplier of the safety data sheet : Air Products and Chemicals, Inc  
7201 Hamilton Blvd.  
Allentown, PA 18195-1501  
GST No. 123600835 RT0001  
QST No. 102753981 TQ0001

Email Address – Technical Information : GASTECH@airproducts.com

Telephone : 1-610-481-4911

1.4. Emergency telephone number : 800-523-9374 USA  
+1 610 481 7711 International

---

## SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Aerosols - Category 3 H229:Pressurised container: May burst if heated.

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 30000067088  
Print Date 12.04.2017

---

## 2.2. Label elements

Hazard pictograms/symbols

Signal Word: Warning

Hazard Statements:

H229:Pressurised container: May burst if heated.

Precautionary Statements:

Prevention : P210:Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.  
P251:Do not pierce or burn, even after use.

Storage : P410+P412:Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122°F.

## 2.3. Other hazards

This product may be flammable. Refer to the user classification in Section 2 of the SDS to determine if this product is flammable for use. If so, please take the appropriate safety precautions to ensure the product is used and stored safely.

High pressure gas.

Can cause rapid suffocation.

Self contained breathing apparatus (SCBA) may be required.

## Environmental Effects

Not harmful.

---

## SECTION 3: Composition/information on ingredients

3.1. Substances : Not applicable.

3.2. Mixtures

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 30000067088  
Print Date 12.04.2017

Components	EINECS / ELINCS Number	CAS Number	Concentration (Volume)
Hydrogen	215-605-7	1333-74-0	100 PPM
Oxygen	231-956-9	7782-44-7	16 %
Nitrogen	231-783-9	7727-37-9	83,99 %

Components	Classification (CLP)	REACH Reg. #
Hydrogen	Flam. gas 1 ;H220 Press. Gas (Comp.) ;H280	
Oxygen	Ox. Gas 1 ;H270 Press. Gas (Comp.) ;H280	
Nitrogen	Press. Gas (Comp.) ;H280	

If REACH registration numbers do not appear the substance is either exempt from registration, does not meet the minimum volume threshold for registration, or the registration date has not yet come due. Refer to section 16 for full text of each relevant hazard statement (H).

Concentration is nominal. For the exact product composition, please refer to technical specifications.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- General advice : Remove from exposure, lie down.
- Eye contact : In case of direct contact with eyes, seek medical advice.
- Skin contact : Adverse effects not expected from this product.
- Ingestion : Ingestion is not considered a potential route of exposure.
- Inhalation : Remove to fresh air. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. In case of shortness of breath, give oxygen.

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

- Symptoms : Exposure to oxygen deficient atmosphere may cause the following symptoms: Dizziness. Salivation. Nausea. Vomiting. Loss of mobility/consciousness.

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 300000067088  
Print Date 12.04.2017

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

Treatment : If exposed or concerned: Get medical attention/advice.

---

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : All known extinguishing media can be used.

Extinguishing media which must not be used for safety reasons. : No data available.

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

: Upon exposure to intense heat or flame, cylinder will vent rapidly and or rupture violently. Product is nonflammable and does not support combustion. Move away from container and cool with water from a protected position. Keep containers and surroundings cool with water spray.

### 5.3. Advice for firefighters

: Wear self contained breathing apparatus for fire fighting if necessary. Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters. Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask. Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.

---

## SECTION 6: Accidental release measures

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

: Evacuate personnel to safe areas. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Monitor oxygen level. Ventilate the area.

### 6.2. Environmental precautions

: Do not discharge into any place where its accumulation could be dangerous. Prevent further leakage or spillage if safe to do so.

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

: Ventilate the area.

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 30000067088  
Print Date 12.04.2017

---

Additional advice : If possible, stop flow of product. Increase ventilation to the release area and monitor oxygen level. If the leak is in the user's system, close the cylinder valve and safely vent the pressure before attempting repairs.

6.4. Reference to other sections : For more information refer to Sections 8 & 13

---

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not allow storage area temperature to exceed 50°C (122°F). Only experienced and properly instructed persons should handle compressed gases/cryogenic liquids. Before using the product, determine its identity by reading the label. Know and understand the properties and hazards of the product before use. When doubt exists as to the correct handling procedure for a particular gas, contact the supplier. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents. Before connecting the container, check the complete gas system for suitability, particularly for pressure rating and materials. Before connecting the container for use, ensure that back feed from the system into the container is prevented. Ensure the complete gas system is compatible for pressure rating and materials of construction. Ensure the complete gas system has been checked for leaks before use. Employ suitable pressure regulating devices on all containers when the gas is being emitted to systems with lower pressure rating than that of the container. Open valve slowly. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Never attempt to repair or modify container valves. Close container valve after each use and when empty, even if still connected to equipment. Close valve after each use and when empty. Do not subject containers to abnormal mechanical shock. Do not smoke while handling product or cylinders. Never attempt to transfer gases from one cylinder/container to another. Always use backflow protective device in piping. Never use direct flame or electrical heating devices to raise the pressure of a container. Containers should not be subjected to temperatures above 50°C (122°F).

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

Full containers should be stored so that oldest stock is used first. Containers should be stored in a purpose build compound which should be well ventilated, preferably in the open air. Stored containers should be periodically checked for general condition and leakage. Observe all regulations and local requirements regarding storage of containers. Protect containers stored in the open against rusting and extremes of weather. Containers should not be stored in conditions likely to encourage corrosion. Keep containers tightly closed in a cool, well-ventilated place. Store containers in location free from fire risk and away from sources of heat and ignition. Do not allow storage temperature to exceed 50°C (122°F).

### Technical measures/Precautions

Containers should be segregated in the storage area according to the various categories (e.g. flammable, toxic, etc.) and in accordance with local regulations. Keep away from combustible material.

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 300000067088  
Print Date 12.04.2017

---

## 7.3. Specific end use(s)

Refer to section 1 or the extended SDS if applicable.

---

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

If applicable, refer to the extended section of the SDS for further information on CSA.

### 8.2. Exposure controls

#### Engineering measures

Provide natural or mechanical ventilation to prevent oxygen deficient atmospheres below 19.5% oxygen.

#### Personal protective equipment

- |   |   |
|---|---|
| Respiratory protection                          | : Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmosphere.<br>Air purifying respirators will not provide protection. Users of breathing apparatus must be trained. Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask. |
| Hand protection                                 | : Wear working gloves when handling gas containers.<br>Standard EN 388 - Protective gloves against mechanical risk.   |
| Eye/face Protection                             | : Safety glasses recommended when handling cylinders.<br>Standard EN 166 - Personal eye-protection.   |
| Skin and body protection                        | : Safety shoes are recommended when handling cylinders.<br>Standard EN ISO 20345 - Personal protective equipment - Safety footwear.   |
| Special instructions for protection and hygiene | : Ensure adequate ventilation, especially in confined areas.  |
| Environmental Exposure Controls                 | : If applicable, refer to the extended section of the SDS for further information on CSA.   |
| Remarks   | : Simple asphyxiant.  |

---

## SECTION 9: Physical and chemical properties

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 30000067088  
Print Date 12.04.2017

---

## 9.1. Information on basic physical and chemical properties

- (a/b) Physical state/Colour : Compressed gas. Colorless.
- (c) Odour : Not determined.  
(c) Odour : Mixture contains one or more component(s) which have the following odor: No odor warning properties.
- (e) Relative Density : 0,9889 (air = 1) Lighter or similar to air.
- (f) Melting point / freezing point : No data available.
- (h) Vapor pressure : No data available.
- (i) Water solubility : No data available.  
(j) Partition coefficient : No data available.  
(n-octanol/water)
- (k) pH : No data available.
- (l) Viscosity : No data available.
- (m) Particle characteristics : No data available.
- (n) Upper and lower explosion / flammability limits : No data available.
- (o) Flash point : No data available.
- (p) Autoignition temperature : No data available.
- (q) Decomposition temperature : No data available.

## 9.2. Other information

- Explosive properties : No data available.
- Oxidizing properties : No data available.
- Molecular Weight : 28,64 g/mol
- Odor threshold : No data available.

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 30000067088  
Print Date 12.04.2017

---

- Evaporation rate : No data available.
- Flammability (solid, gas) : Refer to product classification in Section 2
- Relative vapor density : No data available.

---

## SECTION 10: Stability and reactivity

- 10.1. Reactivity : Refer to possibility of hazardous reactions and/or incompatible materials sections.
- 10.2. Chemical stability : Stable under normal conditions.
- 10.3. Possibility of hazardous reactions : No data available.
- 10.4. Conditions to avoid : No data available.
- 10.5. Incompatible materials : No data available.
- 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

#### Likely routes of exposure

- Effects on Eye : In case of direct contact with eyes, seek medical advice.
- Effects on Skin : Adverse effects not expected from this product.
- Inhalation Effects : In high concentrations may cause asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves.
- Ingestion Effects : Ingestion is not considered a potential route of exposure.
- Symptoms : Exposure to oxygen deficient atmosphere may cause the following



# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 30000067088  
Print Date 12.04.2017

---

symptoms: Dizziness. Salivation. Nausea. Vomiting. Loss of mobility/consciousness.

## Acute toxicity

- Acute Oral Toxicity : No data is available on the product itself.
- Acute Inhalation Toxicity : No data is available on the product itself.
- Acute Dermal Toxicity : No data is available on the product itself.
- Skin corrosion/irritation : No data available.
- Serious eye damage/eye irritation : No data available.
- Sensitization. : No data available.

## Chronic toxicity or effects from long term exposures

- Carcinogenicity : No data available.
- Reproductive toxicity : No data is available on the product itself.
- Germ cell mutagenicity : No data is available on the product itself.
- Specific target organ systemic toxicity (single exposure) : No data available.
- Specific target organ systemic toxicity (repeated exposure) : No data available.
- Aspiration hazard : No data available.

---

## SECTION 12: Ecological information

### 12.1. Toxicity

- Aquatic toxicity : No data is available on the product itself.
- Toxicity to other : No data is available on the product itself.

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 30000067088  
Print Date 12.04.2017

---

organisms

## 12.2. Persistence and degradability

No data available.

## 12.3. Bioaccumulative potential

Refer to Section 9 "Partition Coefficient (n-octanol/water)".

## 12.4. Mobility in soil

Because of its high volatility, the product is unlikely to cause ground pollution.

## 12.5. Results of PBT and vPvB assessment

If applicable, refer to the extended section of the SDS for further information on CSA.

## 12.6. Other adverse effects

No data available.

Effect on the ozone layer

Ozone Depleting Potential : No data available.

Global Warming Potential : No data available.

---

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods** : Ensure all national/local regulations are observed. Contact supplier if guidance is required. Refer to the EIGA code of practice Doc. 30 "Disposal of Gases", downloadable at <http://www.eiga.org> for more guidance on suitable disposal methods. List of hazardous waste codes: 16 05 05: Gases in pressure containers other than those mentioned in 16 05 04.

**Contaminated packaging** : Dispose of container and unused contents in accordance with federal, state, and local requirements.

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 300000067088  
Print Date 12.04.2017

---

## SECTION 14: Transport information

### ADR

UN/ID No. : UN1950  
Proper shipping name : AEROSOLS  
Class or Division : 2  
Tunnel Code : (E)  
Label(s) : 2.2  
Marine Pollutant : No

### IATA

UN/ID No. : UN1950  
Proper shipping name : Aerosols, non-flammable  
Class or Division : 2.2  
Label(s) : 2.2  
Marine Pollutant : No

### IMDG

UN/ID No. : UN1950  
Proper shipping name : AEROSOLS  
Class or Division : 2.2  
Label(s) : 2.2  
Marine Pollutant : No  
Segregation Group: : None

### RID

UN/ID No. : UN1950  
Proper shipping name : AEROSOLS  
Class or Division : 2  
Label(s) : 2.2  
Marine Pollutant : No

Transport in bulk according to Annex II of Marpol and the IBC Code  
For complete transportation information, contact customer service.

#### Further Information

The transportation information is not intended to convey all specific regulatory data relating to this material. For complete transportation information, contact customer service.

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 30000067088  
Print Date 12.04.2017

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Country	Regulatory list	Notification
USA	TSCA	Included on Inventory.
EU	EINECS	Included on EINECS inventory or polymer substance, monomers included on EINECS inventory or no longer polymer.
Canada	DSL	Included on Inventory.
Australia	AICS	Included on Inventory.
Japan	ENCS	Included on Inventory.
South Korea	ECL	Included on Inventory.
China	SEPA	Included on Inventory.
Philippines	PICCS	Included on Inventory.

#### Other Regulations

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Regulation (EC) No 1272/2008 the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Annexes A and B of the European Agreement of 30 September 1957 concerning the International Carriage of Dangerous Goods by Road (ADR) as amended and promulgated on 17 April 2015.

Act for Promoting Closed Substance Cycle Waste Management and Ensuring Environmentally Compatible Waste Disposal (Kreislaufwirtschaftsgesetz - KrWG) of 24 February 2012.

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 30000067088  
Print Date 12.04.2017

---

Ordinance on the Domestic and International Transport of Dangerous Goods by Road, Rail and Inland Waterways (Gefahrgutverordnung Straße, Eisenbahn und Binnenschifffahrt - GGvSEB) as amended and promulgated on 30 March 2015.

Twelfth Ordinance for the Execution of the Federal Immission Control Act (Störfall-Verordnung - 12. BImSchV) as amended and promulgated on 8 June 2005.

Hazardous Substances Ordinance (Gefahrstoffverordnung - GefStoffV) of 26 November 2010.

Ordinance on the European Waste Register (Abfallverzeichnis-Verordnung - AVV) of 10 December 2001.

General Administrative Regulation on the Water Resources Act concerning the classification of water endangering substances into Water Hazard Classes (Verwaltungsvorschrift wassergefährdende Stoffe – VwVwS) of 17 May 1999.

TRGS 201 Classification and Labeling for Activities with Hazardous Materials, edition of October 2011.

TRGS 400 Job Safety Analysis for Activities with Hazardous Materials, edition of December 2010.

TRGS 402 Determination and Evaluation of Hazards of Activities with Hazardous Materials: Exposition by Inhalation, edition of January 2010.

TRGS 500 Protective Measures, edition of January 2008.

TRGS 510 Storage of Hazardous Materials in Mobile Containers, edition of January 2013.

TRGS 900 Workplace Threshold Values, edition of January 2006.

WGK Identification Number: : Not water endangering.

## 15.2. Chemical safety assessment

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 30000067088  
Print Date 12.04.2017

If this product does not contain exposure scenarios, the components in this product are either exempt from REACH, do not meet the minimum volume threshold for a CSA, or the CSA has not yet been completed. A CSA does not need to be carried out for this product.

---

## SECTION 16: Other information

Ensure all national/local regulations are observed.

### Hazard Statements:

- H220 Extremely flammable gas.
- H270 May cause or intensify fire; oxidiser.
- H280 Contains gas under pressure; may explode if heated.

### Indication of Method:

Aerosols Category 3 Pressurised container: May burst if heated. On basis of test data.

### Abbreviations and acronyms:

- ATE - Acute Toxicity Estimate
- CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
- REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
- EINECS - European Inventory of Existing Commercial Chemical Substances
- ELINCS - European List of Notified Chemical Substances
- CAS# - Chemical Abstract Service number
- PPE - Personal Protection Equipment
- Kow - octanol-water partition coefficient
- DNEL - Derived No Effect Level
- LC50 - Lethal Concentration to 50 % of a test population
- LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose)
- NOEC - No Observed Effect Concentration
- PNEC - Predicted No Effect Concentration
- RMM - Risk Management Measure
- OEL - Occupational Exposure Limit
- PBT - Persistent, Bioaccumulative and Toxic
- vPvB - Very Persistent and Very Bioaccumulative
- STOT - Specific Target Organ Toxicity
- CSA - Chemical Safety Assessment
- EN - European Standard
- UN - United Nations
- ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
- IATA - International Air Transport Association
- IMDG - International Maritime Dangerous Goods

# SAFETY DATA SHEET

Version 1.0  
Revision Date 12.04.2017

SDS Number 30000067088  
Print Date 12.04.2017

---

RID - Regulations concerning the International Carriage of Dangerous Goods by Rail  
WGK - Water Hazard Class

Key literature references and sources for data:  
ECHA - Guidance on the compilation of safety data sheets  
ECHA - Guidance on the application of the CLP Criteria  
ARIEL database

Prepared by : Air Products and Chemicals, Inc. Global EH&S Department

For additional information, please visit our Product Stewardship web site at  
<http://www.airproducts.com/productstewardship/>

This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws. COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

---