

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

#### 1.1. Product identifier

Product form : Mixture  
Product name : 12 Components in Nitrogen  
Product code : SG-2013-02368

#### 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

### SECTION 3: Composition/information on ingredients

#### 3.1. Substance

Not applicable

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### 3.2. Mixture

| Name           | Product identifier | %                 | Classification (GHS-US)                                                               |
|----------------|--------------------|-------------------|---------------------------------------------------------------------------------------|
| Nitrogen       | (CAS No) 7727-37-9 | 98.8001 - 99.9988 | Compressed gas, H280                                                                  |
| n-Butane       | (CAS No) 106-97-8  | 0.0001 - 0.1      | Flam. Gas 1, H220<br>Liquefied gas, H280                                              |
| cis-2-Butene   | (CAS No) 590-18-1  | 0.0001 - 0.1      | Flam. Gas 1, H220<br>Liquefied gas, H280                                              |
| Ethane         | (CAS No) 74-84-0   | 0.0001 - 0.1      | Flam. Gas 1, H220<br>Compressed gas, H280                                             |
| Methane        | (CAS No) 74-82-8   | 0.0001 - 0.1      | Flam. Gas 1, H220<br>Compressed gas, H280                                             |
| Propylene      | (CAS No) 115-07-1  | 0.0001 - 0.1      | Flam. Gas 1, H220<br>Liquefied gas, H280                                              |
| Isobutylene    | (CAS No) 115-11-7  | 0.0001 - 0.1      | Flam. Gas 1, H220<br>Liquefied gas, H280                                              |
| trans-2-Butene | (CAS No) 624-64-6  | 0.0001 - 0.1      | Flam. Gas 1, H220<br>Liquefied gas, H280                                              |
| Ethylene       | (CAS No) 74-85-1   | 0.0001 - 0.1      | Flam. Gas 1, H220<br>Liquefied gas, H280<br>STOT SE 3, H336                           |
| Propane        | (CAS No) 74-98-6   | 0.0001 - 0.1      | Flam. Gas 1, H220<br>Liquefied gas, H280                                              |
| Isobutane      | (CAS No) 75-28-5   | 0.0001 - 0.1      | Flam. Gas 1, H220<br>Liquefied gas, H280                                              |
| n-Pentane      | (CAS No) 109-66-0  | 0.0001 - 0.1      | Flam. Liq. 2, H225<br>STOT SE 3, H336<br>Asp. Tox. 1, H304<br>Aquatic Chronic 2, H411 |
| 1,3-Butadiene  | (CAS No) 106-99-0  | 0.0001 - 0.0999   | Flam. Gas 1, H220<br>Liquefied gas, H280<br>Muta. 1B, H340<br>Carc. 1A, H350          |

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.                                                                                                                               |

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### 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.

## 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

| 12 Components in Nitrogen |                       |                              |
|---------------------------|-----------------------|------------------------------|
| ACGIH                     | Not applicable        |                              |
| OSHA                      | Not applicable        |                              |
| 1,3-Butadiene (106-99-0)  |                       |                              |
| ACGIH                     | ACGIH TWA (ppm)       | 2 ppm                        |
| OSHA                      | OSHA PEL (TWA) (ppm)  | 1 ppm                        |
| OSHA                      | OSHA PEL (STEL) (ppm) | 5 ppm (see 29 CFR 1910.1051) |

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|                           |                        |            |
|---------------------------|------------------------|------------|
| n-Butane (106-97-8)       |                        |            |
| ACGIH                     | ACGIH STEL (ppm)       | 1000 ppm   |
| OSHA                      | Not applicable         |            |
| cis-2-Butene (590-18-1)   |                        |            |
| ACGIH                     | ACGIH TWA (ppm)        | 250 ppm    |
| OSHA                      | Not applicable         |            |
| Ethane (74-84-0)          |                        |            |
| ACGIH                     | ACGIH TWA (ppm)        | 1000 ppm   |
| OSHA                      | Not applicable         |            |
| Methane (74-82-8)         |                        |            |
| ACGIH                     | ACGIH TWA (ppm)        | 1000 ppm   |
| OSHA                      | Not applicable         |            |
| Ethylene (74-85-1)        |                        |            |
| ACGIH                     | ACGIH TWA (ppm)        | 200 ppm    |
| OSHA                      | Not applicable         |            |
| Isobutane (75-28-5)       |                        |            |
| ACGIH                     | ACGIH STEL (ppm)       | 1000 ppm   |
| OSHA                      | Not applicable         |            |
| Isobutylene (115-11-7)    |                        |            |
| ACGIH                     | ACGIH TWA (ppm)        | 250 ppm    |
| OSHA                      | Not applicable         |            |
| n-Pentane (109-66-0)      |                        |            |
| ACGIH                     | ACGIH TWA (ppm)        | 600 ppm    |
| OSHA                      | OSHA PEL (TWA) (mg/m³) | 2950 mg/m³ |
| OSHA                      | OSHA PEL (TWA) (ppm)   | 1000 ppm   |
| Propane (74-98-6)         |                        |            |
| ACGIH                     | ACGIH TWA (ppm)        | 1000 ppm   |
| OSHA                      | OSHA PEL (TWA) (mg/m³) | 1800 mg/m³ |
| OSHA                      | OSHA PEL (TWA) (ppm)   | 1000 ppm   |
| Propylene (115-07-1)      |                        |            |
| ACGIH                     | ACGIH TWA (ppm)        | 500 ppm    |
| OSHA                      | Not applicable         |            |
| trans-2-Butene (624-64-6) |                        |            |
| ACGIH                     | ACGIH TWA (ppm)        | 250 ppm    |
| OSHA                      | Not applicable         |            |
| 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.

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|                                 |                                                                                                                                           |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                  | : No data available                |
| 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

### 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.

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### 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>1,3-Butadiene (106-99-0)</b>  |                                           |
| LD50 oral rat                    | 5480 mg/kg                                |
| LC50 inhalation rat (mg/l)       | 285 g/m <sup>3</sup> (Exposure time: 4 h) |
| LC50 inhalation rat (ppm)        | 110000 ppm/4h                             |
| <b>n-Butane (106-97-8)</b>       |                                           |
| LC50 inhalation rat (mg/l)       | 658 g/m <sup>3</sup> (Exposure time: 4 h) |
| LC50 inhalation rat (ppm)        | 276789.28 ppm/4h                          |
| <b>cis-2-Butene (590-18-1)</b>   |                                           |
| LC50 inhalation rat (ppm)        | 150307.38 ppm/4h                          |
| <b>Ethane (74-84-0)</b>          |                                           |
| LC50 inhalation rat (mg/l)       | 658 mg/l/4h                               |
| LC50 inhalation rat (ppm)        | 820000 ppm/4h                             |
| <b>Methane (74-82-8)</b>         |                                           |
| LC50 inhalation rat (ppm)        | 820000 ppm/4h                             |
| <b>Ethylene (74-85-1)</b>        |                                           |
| LC50 inhalation rat (ppm)        | 820000 ppm/4h                             |
| ATE US (gases)                   | 820000.000 ppmV/4h                        |
| <b>Isobutane (75-28-5)</b>       |                                           |
| LC50 inhalation rat (mg/l)       | 658 mg/l/4h                               |
| LC50 inhalation rat (ppm)        | 276713.11 ppm/4h                          |
| <b>Isobutylene (115-11-7)</b>    |                                           |
| LC50 inhalation rat (mg/l)       | 620 mg/l/4h                               |
| LC50 inhalation rat (ppm)        | 239620.46 ppm/4h                          |
| ATE US (gases)                   | 271823.000 ppmV/4h                        |
| ATE US (vapors)                  | 620.000 mg/l/4h                           |
| ATE US (dust, mist)              | 620.000 mg/l/4h                           |
| <b>n-Pentane (109-66-0)</b>      |                                           |
| LD50 dermal rabbit               | 3000 mg/kg                                |
| LC50 inhalation rat (mg/l)       | 364 g/m <sup>3</sup> (Exposure time: 4 h) |
| LC50 inhalation rat (ppm)        | 123317.17 ppm/4h                          |
| ATE US (dermal)                  | 3000.000 mg/kg body weight                |
| ATE US (gases)                   | 123317.170 ppmV/4h                        |
| ATE US (vapors)                  | 364.000 mg/l/4h                           |
| ATE US (dust, mist)              | 364.000 mg/l/4h                           |
| <b>Propane (74-98-6)</b>         |                                           |
| LC50 inhalation rat (mg/l)       | 658 mg/l/4h                               |
| LC50 inhalation rat (ppm)        | 282800 ppm/4h                             |
| <b>Propylene (115-07-1)</b>      |                                           |
| LC50 inhalation rat (mg/l)       | 658 mg/l/4h                               |
| LC50 inhalation rat (ppm)        | 49957.23 ppm/4h                           |
| <b>trans-2-Butene (624-64-6)</b> |                                           |
| LC50 inhalation rat (ppm)        | 150307.38 ppm/4h                          |
| <b>Nitrogen (7727-37-9)</b>      |                                           |
| LC50 inhalation rat (ppm)        | 820000 ppm/4h                             |

Skin corrosion/irritation : Not classified

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

| 1,3-Butadiene (106-99-0)                       |                                                              |
|------------------------------------------------|--------------------------------------------------------------|
| 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                                                          |

| Ethylene (74-85-1) |                      |
|--------------------|----------------------|
| IARC group         | 3 - Not classifiable |

| Isobutylene (115-11-7)                   |                                 |
|------------------------------------------|---------------------------------|
| National Toxicology Program (NTP) Status | 1 - Evidence of Carcinogenicity |

| Propylene (115-07-1) |                      |
|----------------------|----------------------|
| IARC group           | 3 - Not classifiable |

|                                                  |                  |
|--------------------------------------------------|------------------|
| 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.            |
| 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

| n-Pentane (109-66-0) |                                                                 |
|----------------------|-----------------------------------------------------------------|
| LC50 fish 1          | 9.87 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)  |
| EC50 Daphnia 1       | 9.74 mg/l (Exposure time: 48 h - Species: Daphnia magna)        |
| LC50 fish 2          | 11.59 mg/l (Exposure time: 96 h - Species: Pimephales promelas) |

### 12.2. Persistence and degradability

| 1,3-Butadiene (106-99-0)      |                            |
|-------------------------------|----------------------------|
| Persistence and degradability | Not readily biodegradable. |
| n-Butane (106-97-8)           |                            |
| Persistence and degradability | No data available.         |
| cis-2-Butene (590-18-1)       |                            |
| Persistence and degradability | No data available.         |

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|                                  |                                                                         |
|----------------------------------|-------------------------------------------------------------------------|
| <b>Ethane (74-84-0)</b>          |                                                                         |
| Persistence and degradability    | The substance is biodegradable. Unlikely to persist.                    |
| <b>Methane (74-82-8)</b>         |                                                                         |
| Persistence and degradability    | The substance is biodegradable. Unlikely to persist. No data available. |
| <b>Ethylene (74-85-1)</b>        |                                                                         |
| Persistence and degradability    | The substance is biodegradable. Unlikely to persist.                    |
| <b>Isobutane (75-28-5)</b>       |                                                                         |
| Persistence and degradability    | The substance is biodegradable. Unlikely to persist.                    |
| <b>Isobutylene (115-11-7)</b>    |                                                                         |
| Persistence and degradability    | The substance is biodegradable. Unlikely to persist.                    |
| <b>Propane (74-98-6)</b>         |                                                                         |
| Persistence and degradability    | The substance is biodegradable. Unlikely to persist.                    |
| <b>Propylene (115-07-1)</b>      |                                                                         |
| Persistence and degradability    | The substance is biodegradable. Unlikely to persist.                    |
| <b>trans-2-Butene (624-64-6)</b> |                                                                         |
| Persistence and degradability    | No data available.                                                      |
| <b>Nitrogen (7727-37-9)</b>      |                                                                         |
| Persistence and degradability    | No ecological damage caused by this product.                            |

### 12.3. Bioaccumulative potential

|                                 |                                                                                         |
|---------------------------------|-----------------------------------------------------------------------------------------|
| <b>1,3-Butadiene (106-99-0)</b> |                                                                                         |
| BCF fish 1                      | 13 - 19.1                                                                               |
| Log Pow                         | 1.99                                                                                    |
| Bioaccumulative potential       | Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9. |
| <b>n-Butane (106-97-8)</b>      |                                                                                         |
| Log Pow                         | 2.89                                                                                    |
| Log Kow                         | Not applicable for gas-mixtures.                                                        |
| Bioaccumulative potential       | Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9. |
| <b>cis-2-Butene (590-18-1)</b>  |                                                                                         |
| Log Pow                         | 2.33                                                                                    |
| Bioaccumulative potential       | Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9. |
| <b>Ethane (74-84-0)</b>         |                                                                                         |
| Log Pow                         | 1.81                                                                                    |
| Bioaccumulative potential       | Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9. |
| <b>Methane (74-82-8)</b>        |                                                                                         |
| Log Pow                         | Not applicable for gas mixtures                                                         |
| Log Kow                         | Not applicable for gas mixtures                                                         |
| Bioaccumulative potential       | Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9. |
| <b>Ethylene (74-85-1)</b>       |                                                                                         |
| BCF fish 1                      | 4 - 4.6                                                                                 |
| Log Pow                         | 1.13                                                                                    |
| Bioaccumulative potential       | Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9. |
| <b>Isobutane (75-28-5)</b>      |                                                                                         |
| BCF fish 1                      | 1.57 - 1.97                                                                             |
| Log Pow                         | 2.76                                                                                    |
| Bioaccumulative potential       | Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9. |
| <b>Isobutylene (115-11-7)</b>   |                                                                                         |
| Log Pow                         | 2.35                                                                                    |
| Bioaccumulative potential       | Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9. |
| <b>n-Pentane (109-66-0)</b>     |                                                                                         |
| Log Pow                         | 3.39                                                                                    |

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|                                  |                                                                                         |
|----------------------------------|-----------------------------------------------------------------------------------------|
| <b>Propane (74-98-6)</b>         |                                                                                         |
| Log Pow                          | 2.36                                                                                    |
| Bioaccumulative potential        | Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9. |
| <b>Propylene (115-07-1)</b>      |                                                                                         |
| Log Pow                          | 1.77                                                                                    |
| Bioaccumulative potential        | Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9. |
| <b>trans-2-Butene (624-64-6)</b> |                                                                                         |
| Log Pow                          | 2.32                                                                                    |
| Bioaccumulative potential        | Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9. |
| <b>Nitrogen (7727-37-9)</b>      |                                                                                         |
| Log Pow                          | Not applicable for inorganic gases.                                                     |
| Bioaccumulative potential        | No ecological damage caused by this product.                                            |

### 12.4. Mobility in soil

|                                  |                                                                                             |
|----------------------------------|---------------------------------------------------------------------------------------------|
| <b>1,3-Butadiene (106-99-0)</b>  |                                                                                             |
| Ecology - soil                   | Because of its high volatility, the product is unlikely to cause ground or water pollution. |
| <b>n-Butane (106-97-8)</b>       |                                                                                             |
| Mobility in soil                 | No data available.                                                                          |
| Ecology - soil                   | Because of its high volatility, the product is unlikely to cause ground or water pollution. |
| <b>cis-2-Butene (590-18-1)</b>   |                                                                                             |
| Ecology - soil                   | Because of its high volatility, the product is unlikely to cause ground or water pollution. |
| <b>Ethane (74-84-0)</b>          |                                                                                             |
| Ecology - soil                   | Because of its high volatility, the product is unlikely to cause ground or water pollution. |
| <b>Methane (74-82-8)</b>         |                                                                                             |
| Mobility in soil                 | No data available.                                                                          |
| Ecology - soil                   | Because of its high volatility, the product is unlikely to cause ground or water pollution. |
| <b>Ethylene (74-85-1)</b>        |                                                                                             |
| Ecology - soil                   | Because of its high volatility, the product is unlikely to cause ground or water pollution. |
| <b>Isobutane (75-28-5)</b>       |                                                                                             |
| Ecology - soil                   | Because of its high volatility, the product is unlikely to cause ground or water pollution. |
| <b>Isobutylene (115-11-7)</b>    |                                                                                             |
| Ecology - soil                   | Because of its high volatility, the product is unlikely to cause ground or water pollution. |
| <b>Propane (74-98-6)</b>         |                                                                                             |
| Ecology - soil                   | Because of its high volatility, the product is unlikely to cause ground or water pollution. |
| <b>Propylene (115-07-1)</b>      |                                                                                             |
| Ecology - soil                   | Because of its high volatility, the product is unlikely to cause ground or water pollution. |
| <b>trans-2-Butene (624-64-6)</b> |                                                                                             |
| Ecology - soil                   | Because of its high volatility, the product is unlikely to cause ground or water pollution. |
| <b>Nitrogen (7727-37-9)</b>      |                                                                                             |
| 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 | : Contains greenhouse gas(es) not covered by 842/2006/EC. |

## 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.                                                 |

# 12 Components in Nitrogen

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### 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.

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

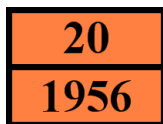
Hazard identification number (Kemler No.) : 20

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

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### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### 1,3-Butadiene (106-99-0)

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 % |
|---------------------------------------|-------|

##### n-Butane (106-97-8)

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

##### cis-2-Butene (590-18-1)

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

##### Ethane (74-84-0)

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

##### Methane (74-82-8)

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

##### Ethylene (74-85-1)

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

Listed on United States SARA Section 313

|                                       |       |
|---------------------------------------|-------|
| SARA Section 313 - Emission Reporting | 1.0 % |
|---------------------------------------|-------|

##### Isobutane (75-28-5)

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

##### Isobutylene (115-11-7)

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

##### n-Pentane (109-66-0)

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

|                          |                                                                                        |
|--------------------------|----------------------------------------------------------------------------------------|
| EPA TSCA Regulatory Flag | T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA. |
|--------------------------|----------------------------------------------------------------------------------------|

##### Propane (74-98-6)

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

##### Propylene (115-07-1)

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

Listed on United States SARA Section 313

|                                       |       |
|---------------------------------------|-------|
| SARA Section 313 - Emission Reporting | 1.0 % |
|---------------------------------------|-------|

##### trans-2-Butene (624-64-6)

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

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

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

#### 15.2. International regulations

##### CANADA

##### 1,3-Butadiene (106-99-0)

Listed on the Canadian DSL (Domestic Substances List)

|                      |                                                                                                                                                                                                 |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WHMIS Classification | Class A - Compressed Gas<br>Class B Division 1 - Flammable Gas<br>Class D Division 2 Subdivision A - Very toxic material causing other toxic effects<br>Class F - Dangerously Reactive Material |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

##### n-Butane (106-97-8)

Listed on the Canadian DSL (Domestic Substances List)

|                      |                                                                |
|----------------------|----------------------------------------------------------------|
| WHMIS Classification | Class A - Compressed Gas<br>Class B Division 1 - Flammable Gas |
|----------------------|----------------------------------------------------------------|

##### cis-2-Butene (590-18-1)

Listed on the Canadian DSL (Domestic Substances List)

##### Ethane (74-84-0)

Listed on the Canadian DSL (Domestic Substances List)

|                      |                                                                |
|----------------------|----------------------------------------------------------------|
| WHMIS Classification | Class A - Compressed Gas<br>Class B Division 1 - Flammable Gas |
|----------------------|----------------------------------------------------------------|

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### Methane (74-82-8)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class A - Compressed Gas  
Class B Division 1 - Flammable Gas

### Ethylene (74-85-1)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class A - Compressed Gas  
Class B Division 1 - Flammable Gas  
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

### Isobutane (75-28-5)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class A - Compressed Gas  
Class B Division 1 - Flammable Gas

### Isobutylene (115-11-7)

Listed on the Canadian DSL (Domestic Substances List)

### n-Pentane (109-66-0)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class B Division 2 - Flammable Liquid

### Propane (74-98-6)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class A - Compressed Gas  
Class B Division 1 - Flammable Gas

### Propylene (115-07-1)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class A - Compressed Gas  
Class B Division 1 - Flammable Gas

### trans-2-Butene (624-64-6)

Listed on the Canadian DSL (Domestic Substances List)

### Nitrogen (7727-37-9)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class A - Compressed Gas

## EU-Regulations

### 1,3-Butadiene (106-99-0)

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

### n-Butane (106-97-8)

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

### cis-2-Butene (590-18-1)

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

### Ethane (74-84-0)

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

### Methane (74-82-8)

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

### Ethylene (74-85-1)

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

### Isobutane (75-28-5)

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

### Isobutylene (115-11-7)

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

### n-Pentane (109-66-0)

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

### Propane (74-98-6)

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

# 12 Components in Nitrogen

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### Propylene (115-07-1)

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

### trans-2-Butene (624-64-6)

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

#### 1,3-Butadiene (106-99-0)

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)

#### n-Butane (106-97-8)

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)  
Listed on the Canadian IDL (Ingredient Disclosure List)

#### cis-2-Butene (590-18-1)

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)

#### Ethane (74-84-0)

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)

#### Methane (74-82-8)

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)

#### Ethylene (74-85-1)

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)

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### Isobutane (75-28-5)

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)

### Isobutylene (115-11-7)

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)

### n-Pentane (109-66-0)

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)  
Listed on the Canadian IDL (Ingredient Disclosure List)

### Propane (74-98-6)

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)

### Propylene (115-07-1)

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)

### trans-2-Butene (624-64-6)

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)

### 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

### 1,3-Butadiene (106-99-0)

| U.S. - California -<br>Proposition 65 -<br>Carcinogens List | U.S. - California -<br>Proposition 65 -<br>Developmental Toxicity | U.S. - California -<br>Proposition 65 -<br>Reproductive Toxicity -<br>Female | U.S. - California -<br>Proposition 65 -<br>Reproductive Toxicity -<br>Male | No significance risk<br>level (NSRL) |
|-------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------|
| Yes                                                         | Yes                                                               | Yes                                                                          | No                                                                         | 0.4 µg/day                           |

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### 1,3-Butadiene (106-99-0)

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

### n-Butane (106-97-8)

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

### cis-2-Butene (590-18-1)

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

### Ethane (74-84-0)

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

### Methane (74-82-8)

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

### Ethylene (74-85-1)

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) List

### Isobutane (75-28-5)

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

### Isobutylene (115-11-7)

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

### n-Pentane (109-66-0)

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

### Propane (74-98-6)

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

### Propylene (115-07-1)

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) List

### trans-2-Butene (624-64-6)

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

### 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

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### 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:

|                   |                                                                  |
|-------------------|------------------------------------------------------------------|
| Aquatic Chronic 2 | Hazardous to the aquatic environment - Chronic Hazard Category 2 |
| Asp. Tox. 1       | Aspiration hazard Category 1                                     |
| Carc. 1A          | Carcinogenicity Category 1A                                      |
| Compressed gas    | Gases under pressure Compressed gas                              |
| Flam. Gas 1       | Flammable gases Category 1                                       |
| Flam. Liq. 2      | Flammable liquids Category 2                                     |
| Liquefied gas     | Gases under pressure Liquefied gas                               |
| Muta. 1B          | Germ cell mutagenicity Category 1B                               |
| STOT SE 3         | Specific target organ toxicity (single exposure) Category 3      |
| H220              | Extremely flammable gas                                          |
| H225              | Highly flammable liquid and vapor                                |
| H280              | Contains gas under pressure; may explode if heated               |
| H304              | May be fatal if swallowed and enters airways                     |
| H336              | May cause drowsiness or dizziness                                |
| H340              | May cause genetic defects (Inhalation)                           |
| H350              | May cause cancer                                                 |
| H411              | Toxic to aquatic life with long lasting effects                  |

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.*