



# Safety Data Sheet

Inert Mix: 90% Helium / 8% Argon / 2%  
Carbon Dioxide

## Section 1: Product and Company Identification

**Tech Air**

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Product Code: Inert Mix: 90% Helium / 8% Argon / 2% Carbon Dioxide

Part Number: 90HE8AR2CD

**Synonyms:**

**Recommended Use:**

**Usage Restrictions:**

## Section 2: Hazards Identification



**Warning**

**Hazard Classification:**

Gases Under Pressure

**Hazard Statements:**

Contains gas under pressure; may explode if heated

**Precautionary Statements**

**Storage:**

Protect from sunlight.  
Store in well-ventilated place.

## Section 3: Composition/Information on Ingredients

|                | CAS #     | Concentration |
|----------------|-----------|---------------|
| Helium         | 7440-59-7 | 90            |
| Argon          | 7440-37-1 | 8             |
| Carbon Dioxide | 124-38-9  | 2             |

|                | Chemical Substance  | Chemical Family  | Trade Names   |
|----------------|---------------------|------------------|---|
| Helium         | HELIUM              | inorganic, gas   | HELIUM GAS; HELIUM COMPRESSED; HELIUM-4; ATOMIC HELIUM; UN 1046; He               |
| Argon          | ARGON, COMPRESSED   | non-metallic     | ARGON; UN 1006; AR  |
| Carbon Dioxide | CARBON DIOXIDE, GAS | oxides of carbon | CARBONIC ACID GAS; CARBONIC ANHYDRIDE; CARBON DIOXIDE; CARBON OXIDE; UN 1013; CO2 |

## Section 4: First Aid Measures

|                | Skin Contact   | Eye Contact   | Ingestion  | Inhalation   | Note to Physicians               |
|----------------|--|---|--|--|----------------------------------|
| Helium         | Wash exposed skin with soap and water.   | Flush eyes with plenty of water.  | If a large amount is swallowed, get medical attention. | If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention. | For inhalation, consider oxygen. |
| Argon          | Not applicable route of exposure   | Flush eyes with plenty of water.  | Not applicable route of exposure                       | If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention. | For inhalation, consider oxygen. |
| Carbon Dioxide | If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention. | Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention. | Do not induce vomiting.                                | If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention. | For inhalation, consider oxygen. |

## Section 5: Fire Fighting Measures

|                | Suitable Extinguishing Media  | Products of Combustion | Protection of Firefighters  |
|----------------|---|------------------------|---|
| Helium         | Non-flammable. Use suitable extinguishing media for surrounding fire. | Non-flammable          | <ul style="list-style-type: none"> <li>▪ Non-flammable</li> <li>▪ Non-flammable</li> </ul>  |
| Argon          | Non-flammable gas   | Not applicable         | <ul style="list-style-type: none"> <li>▪ N/A</li> <li>▪ N/A</li> </ul>  |
| Carbon Dioxide | Non-flammable   | Non-flammable          | <ul style="list-style-type: none"> <li>▪ Any appropriate escape-type, self-contained breathing apparatus.</li> <li>▪ Non-flammable</li> </ul> |

## Section 6: Accidental Release Measures

|                       | Personal Precautions  | Environmental Precautions  | Methods for Containment                      |
|-----------------------|---|--|--|
| <b>Helium</b>         | Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.                                  | Avoid soil, waterways, drains and sewers   | Stop leak if possible without personal risk. |
| <b>Argon</b>          | Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.                                  | None known.  | Stop leak if possible without personal risk. |
| <b>Carbon Dioxide</b> | Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Do not touch spilled material. | Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers. | Stop leak if possible without personal risk. |

|                       | Methods for Cleanup                                    | Other Information |
|-----------------------|--|-------------------|
| <b>Helium</b>         | Stop leak, evacuate area. Contact emergency personnel. | None              |
| <b>Argon</b>          | Leaks may be detected by a soapy-water solution.       |                   |
| <b>Carbon Dioxide</b> | Stop leak, evacuate, remove source of ignition.        | None              |

## Section 7: Handling and Storage

|                       | Handling   | Storage   |
|-----------------------|--|---|
| <b>Helium</b>         | Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.  | Keep separated from incompatible substances.                              |
| <b>Argon</b>          | Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances. | Avoid using in confined spaces.   |
| <b>Carbon Dioxide</b> | Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.  | Store and handle in accordance with all current regulations and standards |

## Section 8: Exposure Controls/Personal Protection

|                       | Exposure Guidelines   |
|-----------------------|---|
| <b>Helium</b>         | HELIUM: ACGIH (simple asphyxiant)   |
| <b>Argon</b>          | ARGON, COMPRESSED: ARGON: ACGIH (simple asphyxiant)   |
| <b>Carbon Dioxide</b> | CARBON DIOXIDE, GAS: CARBON DIOXIDE: 5000 ppm (9000 mg/m <sup>3</sup> ) OSHA TWA 10000 ppm (18000 mg/m <sup>3</sup> ) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 30000 ppm (54000 mg/m <sup>3</sup> ) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 5000 ppm ACGIH TWA 30000 ppm ACGIH STEL 5000 ppm (9000 mg/m <sup>3</sup> ) NIOSH recommended TWA 10 hour(s) 30000 ppm (54000 mg/m <sup>3</sup> ) NIOSH recommended STEL |

### Engineering Controls

Handle only in fully enclosed systems.

|                       | Eye Protection   | Skin Protection  | Respiratory Protection   |
|-----------------------|--|--|--|
| <b>Helium</b>         | Eye protection not required, but recommended.  | Protective clothing is not required.   | Non-flammable  |
| <b>Argon</b>          | Eye protection not required, but recommended.  | Protective clothing is not required.   | N/A  |
| <b>Carbon Dioxide</b> | For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. | For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing. | Any appropriate escape-type, self-contained breathing apparatus. |

### General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

## Section 9: Physical and Chemical Properties

|  | Physical State | Appearance | Color | Change in Appearance | Physical Form | Odor | Taste |
|--|----------------|------------|-------|----------------------|---------------|------|-------|
|--|----------------|------------|-------|----------------------|---------------|------|-------|

|                | Physical State | Appearance | Color     | Change in Appearance | Physical Form | Odor     | Taste      |
|----------------|----------------|------------|-----------|----------------------|---------------|----------|------------|
| Helium         | Gas            | Colorless  | Colorless | N/A                  | Gas           | Odorless | Tasteless  |
| Argon          | Gas            | Colorless  | Colorless | N/A                  | Gas           | Odorless | Tasteless  |
| Carbon Dioxide | Gas            | Colorless  | Colorless | N/A                  | Gas           | Odorless | Acid taste |

|                | Flash Point   | Flammability  | Partition Coefficient | Autoignition Temperature | Upper Explosive Limits | Lower Explosive Limits |
|----------------|---------------|---------------|-----------------------|--------------------------|------------------------|------------------------|
| Helium         | Not flammable | Not available | Not available         | Nonflammable             | Nonflammable           | Nonflammable           |
| Argon          | Not flammable |               |                       | Nonflammable             | Nonflammable           | Nonflammable           |
| Carbon Dioxide | Not flammable | Not available | N/A                   | Nonflammable             | Nonflammable           | Nonflammable           |

|                | Boiling Point   | Freezing Point            | Vapor Pressure     | Vapor Density | Specific Gravity | Water Solubility | pH   | Odor Threshold | Evaporation Rate | Viscosity           |
|----------------|-----------------|---------------------------|--------------------|---------------|------------------|------------------|--|----------------|------------------|---------------------|
| Helium         | -452 F (-269 C) | -458 F (-272 C) @ 26 atm  | 1719 mmHg @ -268 C | 0.138 (Air=1) | Not applicable   | 0.94% @ 0 C      | Not applicable   | Not available  | Not applicable   | 0.02012 cP @ 26.8 C |
| Argon          | -303 F (-186 C) | -308 F (-189 C)           | 500 mmHg @ -190 C  | 1.38 (Air=1)  | Not applicable   | 3.36% @ 20 C     | Not applicable   | Not available  | Not applicable   | 0.0225 cP @ 25 C    |
| Carbon Dioxide | Not available   | -71 F (-57 C) @ 4000 mmHg | 43700 mmHg @ 21 C  | 1.5 (Air=1)   | 1.522 @ 21 C     | Soluble          | 3.7 (saturated aqueous solution) @ 101.3 kPa (carbonic acid) | Not available  | Not applicable   | 0.01657 cP @ 0 C    |

|                | Molecular Weight | Molecular Formula | Density          | Weight per Gallon | Volatility by Volume | Volatility     | Solvent Solubility  |
|----------------|------------------|-------------------|------------------|-------------------|----------------------|----------------|---|
| Helium         | 4.0026           | He                | 0.1785 g/L @ 0 C | Not available     | 100%                 | Not applicable | Insoluble: Not available                                  |
| Argon          | 39.948           | AR                | 1.784 g/L @ 0 C  | Not available     | 100%                 | Not applicable | Soluble: Organic solvents                                 |
| Carbon Dioxide | 44.01            | C-O2              | 0.114            | Not available     | Not applicable       | Not applicable | Soluble: Alcohol, acetone, hydrocarbons, organic solvents |

## Section 10: Stability and Reactivity

|                | Stability                                   | Conditions to Avoid                         | Incompatible Materials   |
|----------------|---|---|--|
| Helium         | Stable at normal temperatures and pressure. | Stable at normal temperatures and pressure. | No data available.   |
| Argon          | Stable at normal temperatures and pressure. | Stable at normal temperatures and pressure. | No data available.   |
| Carbon Dioxide | Stable at normal temperatures and pressure. | Stable at normal temperatures and pressure. | Combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases |

|                | Hazardous Decomposition Products     | Possibility of Hazardous Reactions |
|----------------|--------------------------------------|------------------------------------|
| Helium         | Miscellaneous decomposition products | Will not polymerize.               |
| Argon          | No data available.                   | Will not polymerize.               |
| Carbon Dioxide | Carbon monoxide                      | Will not polymerize.               |

## Section 11: Toxicology Information

### Acute Effects

|  | Oral LD50 | Dermal LD50 | Inhalation |
|--|-----------|-------------|------------|
|  |           |             |            |

|                       | Oral LD50       | Dermal LD50     | Inhalation   |
|-----------------------|-----------------|-----------------|--|
| <b>Helium</b>         | Not available   | Not available   | Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, fatigue, dizziness, disorientation, emotional disturbances, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma |
| <b>Argon</b>          | Not established | Not established | Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, dizziness, disorientation, mood swings, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma                     |
| <b>Carbon Dioxide</b> | Not established | Not established | Ringling in the ears, nausea, irregular heartbeat, headache, drowsiness, dizziness, tingling sensation, visual disturbances, suffocation, convulsions, coma  |

|                       | Eye Irritation                                | Skin Irritation                               | Sensitization        |
|-----------------------|---|---|----------------------|
| <b>Helium</b>         | Liquid: frostbite, blurred vision             | Liquid: frostbite                             | Difficulty breathing |
| <b>Argon</b>          | No information on significant adverse effects | No information on significant adverse effects | Difficulty breathing |
| <b>Carbon Dioxide</b> | Irritation, frostbite, blurred vision         | Liquid: blisters, frostbite                   | Difficulty breathing |

### Chronic Effects

|                       | Carcinogenicity | Mutagenicity    | Reproductive Effects | Developmental Effects |
|-----------------------|-----------------|-----------------|----------------------|-----------------------|
| <b>Helium</b>         | Not available   | Not available   | Not available        | No data               |
| <b>Argon</b>          | Not established | Not established | Not established      | No data               |
| <b>Carbon Dioxide</b> | Not available   | Not established | Available.           | No data               |

## Section 12: Ecological Information

### Fate and Transport

|                       | Eco toxicity   | Persistence / Degradability   | Bioaccumulation / Accumulation                             | Mobility in Environment  |
|-----------------------|--|---|--|--------------------------|
| <b>Helium</b>         | Fish toxicity: Not available<br>Invertebrate toxicity: Not available<br>Algal toxicity: Not available<br>Phyto toxicity: Not available<br>Other toxicity: Not available  | Not available   | Not available  | Not available            |
| <b>Argon</b>          | Fish toxicity: Not available<br>Invertebrate toxicity: Not available<br>Algal toxicity: Not available<br>Phyto toxicity: Not available<br>Other toxicity: Not available  | Not available   | Not available  | Not available            |
| <b>Carbon Dioxide</b> | Fish toxicity: 150000 ug/L 48 day(s) (Mortality) Brown trout (Salmo trutta)<br>Invertebrate toxicity: Not available<br>Algal toxicity: Not available<br>Phyto toxicity: Not available<br>Other toxicity: Not available | Relatively non-persistent in the environment. Moderately volatile from water. | Accumulates very little in the bodies of living organisms. | Leaches through the soil |

## Section 13: Disposal Considerations

|                       |  |
|-----------------------|--|
| <b>Helium</b>         | Dispose in accordance with all applicable regulations. |
| <b>Argon</b>          | Dispose in accordance with all applicable regulations. |
| <b>Carbon Dioxide</b> | Dispose in accordance with all applicable regulations. |

## Section 14: Transportation Information

### U.S. DOT 49 CFR 172.101

#### DOT Information For This Mixture

|                           |                        |
|---------------------------|------------------------|
| <b>Shipping Name</b>      | Compressed gas, n.o.s. |
| <b>UN Number</b>          | UN1956                 |
| <b>Hazard Class</b>       | 2.2                    |
| <b>Hazard Information</b> | Non-Flammable Gas      |

|  |  |
|--|--|
|  |  |
|--|--|

### Individual Component Information

|                       | Proper Shipping Name | ID Number | Hazard Class or Division | Packing Group  | Labeling Requirements | Passenger Aircraft or Railcar Quantity Limitations | Cargo Aircraft Only Quantity Limitations | Additional Shipping Description |
|-----------------------|----------------------|-----------|--------------------------|----------------|-----------------------|--|--|---------------------------------|
| <b>Helium</b>         | Helium, compressed   | UN1046    | 2.2                      | Not applicable | 2.2                   | 75 kg or L   | 150 kg                                   | N/A                             |
| <b>Argon</b>          | Argon, compressed    | UN1006    | 2.2                      | Not applicable | 2.2                   | 75 kg or L   | 150 kg                                   | N/A                             |
| <b>Carbon Dioxide</b> | Carbon dioxide       | UN1013    | 2.2                      | Not applicable | 2.2                   | 75 kg or L   | 150kg                                    | None                            |

### Canadian Transportation of Dangerous Goods

|                       | Shipping Name      | UN Number | Class | Packing Group / Risk Group |
|-----------------------|--------------------|-----------|-------|----------------------------|
| <b>Helium</b>         | Helium, compressed | UN1046    | 2.2   | Not applicable             |
| <b>Argon</b>          | Argon, compressed  | UN1006    | 2.2   | Not applicable             |
| <b>Carbon Dioxide</b> | Carbon dioxide     | UN1013    | 2.2   | Not applicable             |

## Section 15: Regulatory Information

### U.S. Regulations

|                       | CERCLA Sections | SARA 355.30    | SARA 355.40    |
|-----------------------|-----------------|----------------|----------------|
| <b>Helium</b>         | Not regulated.  | Not regulated. | Not regulated. |
| <b>Argon</b>          | Not regulated.  | Not regulated. | Not regulated. |
| <b>Carbon Dioxide</b> | Not regulated.  | Not regulated. | Not regulated. |

### SARA 370.21

|                       | Acute | Chronic | Fire | Reactive | Sudden Release |
|-----------------------|-------|---------|------|----------|----------------|
| <b>Helium</b>         | Yes   | No      | No   | No       | Yes            |
| <b>Argon</b>          | Yes   | No      | No   | No       | Yes            |
| <b>Carbon Dioxide</b> | Yes   | No      | No   | No       | Yes            |

### SARA 372.65

|                       |                |
|-----------------------|----------------|
| <b>Helium</b>         | Not regulated. |
| <b>Argon</b>          | Not regulated. |
| <b>Carbon Dioxide</b> | Not regulated. |

### OSHA Process Safety

|                       |                |
|-----------------------|----------------|
| <b>Helium</b>         | Not regulated. |
| <b>Argon</b>          | Not regulated. |
| <b>Carbon Dioxide</b> | Not regulated. |

### State Regulations

|                       | CA Proposition 65 |
|-----------------------|-------------------|
| <b>Helium</b>         | Not regulated.    |
| <b>Argon</b>          | Not regulated.    |
| <b>Carbon Dioxide</b> | Not regulated.    |

### Canadian Regulations

|                       | WHMIS Classification |
|-----------------------|----------------------|
| <b>Helium</b>         | A                    |
| <b>Argon</b>          | A                    |
| <b>Carbon Dioxide</b> | A                    |

### National Inventory Status

|               | US Inventory (TSCA)  | TSCA 12b Export Notification | Canada Inventory (DSL/NDSL) |
|---------------|----------------------|------------------------------|-----------------------------|
| <b>Helium</b> | Listed on inventory. | Not listed.                  | Not determined.             |
| <b>Argon</b>  | Listed on inventory. | Not listed.                  | Listed on inventory.        |

|                       |                      |             |                      |
|-----------------------|----------------------|-------------|----------------------|
| <b>Carbon Dioxide</b> | Listed on inventory. | Not listed. | Listed on inventory. |
|-----------------------|----------------------|-------------|----------------------|

## Section 16: Other Information

|                       | <b>NFPA Rating</b>           |
|-----------------------|------------------------------|
| <b>Helium</b>         | HEALTH=0 FIRE=0 REACTIVITY=0 |
| <b>Argon</b>          | HEALTH=0 FIRE=0 REACTIVITY=0 |
| <b>Carbon Dioxide</b> | HEALTH=2 FIRE=0 REACTIVITY=0 |

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard