

**SAFETY DATA SHEET (MSDS)
FOODFRESH (GRADES 4, 5, 7 & 9)**

Please ensure that this SDS is received by the appropriate persons

Review Date: 09/11/2021 v01

Emergency: 0860 02 02 02

Document Number: AFX-SDS-0046


1. PRODUCT AND COMPANY IDENTIFICATION

Product: FoodFresh Packaging Gas Mixtures
Chemical: CO₂ plus N₂
Formula:
Trade Name: FoodFresh 4
 FoodFresh 5
 FoodFresh 7
 FoodFresh 9
Colour Coding: Ivory bodies with the relevant grades stenciled on their bodies.
Product Code: 518704-SE-C
 518705-SE-C
 518707-SE-C
 518709-SE-C
Company Identification: African Oxygen Limited
 Grayston Office Park
 Building 7, 128 Peter Road
 Sandown, Sandton, 2196
 Tel. No: (011) 490-0400
 Fax No: (011) 490-0530
 Email: customer.service@afrox.linde.com
www.afrox.com
Emergency Numbers: 0860 02 02 02 (Afrox)

Chemical Hazards: - Both the carbon dioxide and nitrogen components of the listed grades of FoodFresh are relatively non-reactive and non-toxic.
 - They will not burn or support combustion.
Biological Hazards: The greatest physiological effect of carbon dioxide is to stimulate the respiratory centre, thereby controlling the volume and rate of respiration.
Vapour Inhalation: - At concentrations of 10 % and above of carbon dioxide, unconsciousness can result in one minute or less.
 - Impairment in performance has been noted during prolonged exposure to concentrations of 3 percent carbon dioxide even when the oxygen concentration was 21%.
 - In the case of FoodFresh, the nitrogen acts as a simple asphyxiant, death may result from errors in judgement, confusion, or loss of consciousness which prevents self-rescue.
Eye Contact: No known effect
Skin Contact: No known effect
Ingestion: (See "Vapour Inhalation" above).
GHS Classification: Compressed gas (Category 1)

2. HAZARD IDENTIFICATION

Classification: Classification under the Globally Harmonized System of classification and labelling of chemicals (GHS).
Emergency Overview: Colour: None
 Odour: None
 Taste: Acidic
 Physical State: Gas
 Form: Compressed gas
Main Hazards: - All Cylinders are portable gas containers, and must be regarded as pressure vessels at all times
 - The listed grades of FoodFresh do not support life. They can act as simple asphyxiants by diluting the concentration of oxygen in air below the levels necessary to support life. They are all heavier than air and will tend to concentrate at lower levels.
Adverse Health Effects: - The carbon dioxide component contained in the relevant grades of FoodFresh acts as a stimulant and a depressant on the central nervous system.
 - Increases in heart rate and blood pressure have been noted at a concentration of 7.6 percent, and dyspnea (laboured breathing), headache, dizziness and sweating occur if exposure at that level is prolonged.
 - In the case of FoodFresh, the inhalation of nitrogen in excessive concentrations can result in dizziness, nausea, vomiting, loss of consciousness and death.

GHS Pictogram: 
GHS Signal Words: Warning
GHS Hazard Statements: H280
 - Contains gas under pressure, may explode if heated.
GHS Precautionary Statements: **Storage:** P410+P403: Protect from sunlight and store in a well-ventilated place.
Other Hazards that do not result in classification: None.

3. COMPOSITION OF INGREDIENTS

Chemical name: Nitrogen (N₂)
Chemical family: Nitrogen
CAS No: 7727-37-9
UN No: 1066
ERG No: 121
Hazard class: 2.2
Hazchem Warning: Non-flammable gas
Chemical name: Carbon dioxide (CO₂)
Chemical family: Carbon dioxide
CAS No: 124-38-9
UN No: 1013
ERG No: 121
Hazard class: 2.2

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Hazchem Warning: Non-flammable gas

Methods and material for containment and cleaning up: Provide adequate ventilation.

4. FIRST AID MEASURES

Eye contact: Adverse effects not expected from this product.

Skin Contact: Adverse effects not expected from this product.

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

Inhalation:

- Low concentrations of CO₂ cause increased respiration and headache. In high concentrations may cause asphyxiation.
- Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.
- Remove victim to uncontaminated area wearing self-contained breathing apparatus.
- Keep victim warm and rested.
- Call a doctor.
- Apply artificial respiration if breathing stopped.

7. HANDLING AND STORAGE

Safe Handling:

- Only experienced and properly instructed persons should handle gases under pressure.
- Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Refer to supplier's handling instructions.
- The substance must be handled in accordance with good industrial hygiene and safety procedures.
- Protect containers from physical damage; do not drag, roll, slide or drop.
- Do not remove or deface labels provided by the supplier for the identification of the container contents.
- When moving containers, even for short distances, use appropriate equipment e.g., trolley, hand truck, fork truck etc.
- Secure cylinders in an upright position at all times, close all valves when not in use.
- Provide adequate ventilation.
- Suck back of water into the container must be prevented. Do not allow backfeed into the container. Avoid suckback of water, acid and alkalis.
- Keep container below 50°C in a well-ventilated place.
- Observe all regulations and local requirements regarding storage of containers.
- When using do not eat, drink or smoke.
- Store in accordance with local/regional/national/international regulations.
- Never use direct flame or electrical heating devices to raise the pressure of a container.
- Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.
- Damaged valves should be reported immediately to the supplier.
- Close container valve after each use and when empty, even if still connected to equipment.
- Never attempt to repair or modify container valves or safety relief devices.
- Replace valve outlet caps or plugs and container caps when supplied as soon as container is disconnected from equipment.
- Keep container valve outlets clean and free from contaminates particularly oil and water.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Material will not burn. In case of fire in the surroundings: use appropriate extinguishing agent.

Unsuitable extinguishing media: None.

Specific Hazards: None.

Special fire fighting procedures:

- In case of fire: Stop leak if safe to do so.
- Continue water spray from protected position until container stays cool.
- Use extinguishants to contain the fire.
- Isolate the source of the fire or let it burn out.

Special protective equipment for firefighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

- Evacuate area.
- Provide adequate ventilation.
- Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
- Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Environmental Precautions: Prevent further leakage or spillage if safe to do so.

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- Conditions for safe storage, including any incompatibilities:**
- If user experiences any difficulty operating container valve discontinue use and contact supplier.
 - Never attempt to transfer gases from one container to another.
 - Container valve guards or caps should be in place.
 - Containers should not be stored in conditions likely to encourage corrosion.
 - Stored containers should be periodically checked for general conditions and leakage.
 - Container valve guards or caps should be in place.
 - Store containers in location free from fire risk and away from sources of heat and ignition.
 - Keep away from combustible material.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

- Occupational Exposure Hazards (HCS): Engineering Control Measures:** Carbon dioxide:
TWA 5000 ppm
- Consider a work permit system e.g., for maintenance activities.
 - Ensure adequate air ventilation.
 - Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.
 - Oxygen detectors should be used when asphyxiating gases may be released.
 - Systems under pressure should be regularly checked for leakages. Preferably use permanent leak tight connections (e.g., welded pipes).
 - Do not eat, drink or smoke when using the product.
- Personal protection:**
- A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk.
 - Keep self-contained breathing apparatus readily available for emergency use.
 - Personal protective equipment for the body should be selected based on the task being performed and the risks involved.
- Eyes:** Wear safety glasses when handling cylinders; vapor-proof goggles and a face shield during cylinder changeout or whenever contact with product is possible.
- Hands:** Wear working gloves while handling containers.
- Body protection:** No special precautions.
- Feet:** Wear safety shoes while handling containers.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name:	<u>Nitrogen</u>
Chemical Symbol:	N ₂
Appearance	
Physical state:	Gas
Form:	Compressed gas
Colour:	Colourless
Odour:	Odourless
Odour Threshold:	Odour threshold is subjective and is inadequate to warn of over exposure.
pH:	Not applicable.
Melting Point:	No data available.
Boiling Point:	No data available.
Sublimation Point:	Not applicable.
Critical Temp. (°C):	No data available.
Flash Point:	Not applicable to gases and gas mixtures.
Evaporation Rate:	Not applicable to gases and gas mixtures.
Flammability (solid, gas):	This product is not flammable.
Flammability limit - upper (%):	Not applicable.
Flammability limit - lower (%):	Not applicable.
Vapour pressure:	No reliable data available.
Vapour density (air=1):	No reliable data available.
Relative density:	1.07
Solubility in Water:	No data available.
Partition coefficient (n-octanol/water):	Not known.
Autoignition Temperature:	Not applicable.
Decomposition Temperature:	Not known.
Viscosity	
Kinematic viscosity:	No data available.
Dynamic viscosity:	No data available.
Explosive properties:	Not applicable.
Oxidising Properties:	Not applicable
Chemical Name:	<u>Carbon dioxide</u>
Chemical Symbol:	CO ₂

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Relative density:	1.07
Solubility in Water:	No data available.
Partition coefficient (n-octanol/water):	Not known.
Autoignition Temperature:	Not applicable.
Decomposition Temperature:	Not known.
Viscosity	
Kinematic viscosity:	No data available.
Dynamic viscosity:	No data available.
Explosive properties:	Not applicable.
Oxidising Properties:	Not applicable

Conditions to avoid:	None.
Incompatible Materials:	No reaction with any common materials in dry or wet conditions.
Hazardous Decomposition of Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. TOXOLOGICAL INFORMATION

Acute Toxicity:	No known effect
Skin & eye contact:	No known effect
Chronic Toxicity:	No known effect
Carcinogenicity:	No known effect
Mutagenicity:	No known effect
Reproductive Hazards:	No known effect

12. ECOLOGICAL INFORMATION

Toxicity:	No ecological damage caused by this product.
Persistence and degradability:	Not applicable to gases and gas mixtures.
Mobility in soil:	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Ecology - soil:	No ecological damage caused by this product.
Results of PBT and vPvB assessment:	Not classified as PBT or vPvB.
Other adverse effects:	No ecological damage caused by this product.
Effect on ozone layer:	None.
Effect on the global warming:	Not Known

13. DISPOSAL CONSIDERATIONS

Disposal Methods:	- Dispose of container via supplier only. - For more detailed information or guidance contact the nearest Afrox branch.
Disposal of Packaging:	The container is the property of the supplier and the disposal of the containers must only be handled by the supplier.

10. STABILITY AND REACTIVITY

Reactivity:	No reactivity hazard other than the effects described in sub-section below.
Chemical stability:	Stable under normal conditions.
Possibility of hazardous reactions:	None.

14. TRANSPORT INFORMATION

Road Transportation

UN No.:	1956
Shipping Name:	Compressed gas
ERG No.:	121
Class:	2.2
Subsidiary Risk:	Chemical Asphyxiant
Hazchem Warning:	Non-flammable gas

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Sea Transportation

IMDG: 1956
Shipping Name: Compressed gas
ERG No.: 119
Class: 2.2
Subsidiary Risk: Chemical Asphyxiant
Label: Non-flammable gas

Air Transportation

ICAO/IATA Code: 1956
Class: 2.2
Subsidiary risk: Chemical Asphyxiant
Packaging instructions: - Cargo: Allowed (200)
- Passenger: Allowed (200)
Maximum quantity allowed: - Cargo: 150 kg
- Passenger: 75 kg

15. REGULATORY INFORMATION

Reference standard: SANS 10234
National legislation: OHSAct and Regulations (85 of 1993)

16. OTHER INFORMATION

- Ensure all national/local regulations are observed.
- Ensure users and relevant persons understand the asphyxiation hazard
- Regularly check suppliers information sources for updated versions of SDS's

Revision Date: 09/11/2021 v01

BIBLIOGRAPHY

Compressed Gas Association, Arlington, Virginia
Handbook of Compressed Gases – 3rd Edition
Matheson. Matheson Gas Data Book - 6th Edition

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