

FOODFRESH 11

(Please ensure that this MSDS is received by the appropriate person)

Ref. no.: MS118

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Version no.2

1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Names	FOODFRESH PACKAGING GAS MIXTURE
Chemical Formula	O ₂ plus CO ₂
Trade Name	FOODFRESH 11
Colour Coding	Ivory body with the relevant grade stencilled on the body of the cylinder
Valve	3SO – Brass, 5/8-inch BSP right hand female
Company Identification	African Oxygen Malawi Limited Johnstone Road Ginnery Corner, Blantyre Tel. No: +265(1)871 611 Fax No: +265(1) 871 260

EMERGENCY NUMBER +265(1)871 611
(24 hours)

2 COMPOSITION/INFORMATION ON INGREDIENTS

UN No.	1956
ERG No	121
Hazchem Warning	2 C Non-flammable gas

3 HAZARDS IDENTIFICATION

Main Hazards. All Cylinders are portable gas containers, and must be regarded as pressure vessels at all times. FoodFresh 11 does not support life. It can act as a simple asphyxiant by diluting the concentration of oxygen in air below the levels necessary to support life. As it is heavier than air it will tend to concentrate at lower levels.

Adverse Health effects. The carbon dioxide in FoodFresh 11 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.

Chemical hazards. FoodFresh 11 is relatively non-reactive and non-toxic. It will not burn or support combustion. In the presence of moisture it can aggressively bring about corrosion in a variety of steel materials.

Biological hazards. The greatest physiological effect of FoodFresh 11 is to stimulate the respiratory centre, thereby controlling the volume and rate of respiration. It is able to cause dilation and constriction of blood vessels and is a vital constituent of the acid-base mechanism that controls the pH of the blood.

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 percent.

Eye Contact	No known effect
Skin Contact	No known effect
Ingestion	(See "Vapour Inhalation" above)

4 FIRST AID MEASURES

Prompt medical attention is mandatory in all cases of overexposure to FoodFresh 11. Rescue personnel should be equipped with self-contained breathing apparatus. FoodFresh 11 is an asphyxiant. Concentrations of 10 percent or more of CO₂ can produce unconsciousness or death. Lower concentrations may cause headache, sweating, rapid breathing, increased heartbeat, shortness of breath, dizziness, mental depression, visual disturbances and shaking. Quick removal from the contaminated area is most important. Unconscious persons should be removed to an uncontaminated area and given mouth-to-mouth resuscitation and supplemental oxygen.

Eye contact	No known effect
Skin contact	No known effect
Ingestion	No known effect

5 FIRE FIGHTING MEASURES

Extinguishing media. Food fresh 11 is an extinguishing medium.

Specific hazards. FoodFresh 11 does not support life. It can act as simple asphyxiant by diluting the concentration of oxygen in the air below the levels to support life.

Emergency actions. If possible, shut off the source of excess FoodFresh 11. Evacuate area. All cylinders should be removed from the vicinity of the fire. Cylinders that cannot be removed should be cooled with water from a safe distance. Cylinders which have been exposed to excessive heat should be clearly identified and returned to supplier. CONTACT THE NEAREST AFROX BRANCH.

Protective clothing. Self-contained breathing apparatus. Safety goggles and shoes, or boots, should be worn when handling cylinders.

Environmental precautions. FoodFresh 11 is heavier than air and could accumulate in low-lying areas. Care should be taken when entering a potentially oxygen-deficient environment. If possible, ventilate the affected area.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions. Do not enter any area where FoodFresh 11 has been spilled unless tests have shown that it is safe to do so.

Environmental precautions. As FoodFresh 11 is classified as a "greenhouse" gas, any spillage should be avoided at all times.

Small spills. Shut off the source of the escaping FoodFresh 11. Ventilate the area.

Large spills. Evacuate the area. Shut off the source of the spill if this can be done without risk. Restrict access to the area until completion of the clean-up procedure. Ventilate the area using forced draught if necessary.

7 HANDLING AND STORAGE

Do not allow cylinders to slide or come into contact with sharp edges. FoodFresh 11 cylinders may be stacked horizontally provided that they are firmly secured at each end to prevent rolling. Use a "first in - first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Keep out of reach of children.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure hazards . As FoodFresh 11 is a simple asphyxiant, avoid any areas where spillage has taken place. Only enter once testing has proved the atmosphere to be safe.

Engineering control measures. Engineering control measures are preferred to reduce exposure to oxygen depleted atmospheres. General methods include forced-draught ventilation, separate from other exhaust ventilation systems. Ensure that sufficient fresh air enters at, or near, floor level.

Personal protection. Self-contained breathing apparatus should always be worn when entering area where oxygen depletion may have occurred. Safety goggles, gloves and shoes, or boots, should be worn when handling cylinders.

Skin No known effect.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Carbon Dioxide

Chemical Symbol	CO ₂
Molecular Weight	44.01
Specific volume @ 20°C & 101,325 kPa	547 ml/g
Relative density of gas @ 101,325 kPa (Air = 1)	1.53
Colour	None
Taste	Acidic
Odour	None

Oxygen

Chemical Symbol	O ₂
Molecular Weight	32.00
Specific volume @ 20°C & 101,325 kPa	755 ml/g
Relative density of gas @ 101,325 kPa (Air = 1)	1,053
Colour	None
Taste	None
Odour	None

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10 STABILITY AND REACTIVITY

Conditions to avoid. The dilution of oxygen in the atmosphere to levels which cannot support life. Never use cylinders as rollers or supports, or for any other purpose than the storing of FoodFresh 11. Never expose cylinders to excessive heat, as this may cause sufficient build-up of pressure to rupture the cylinders.

Incompatible materials. As dry FoodFresh 11 is inert it may be contained in systems constructed of any of the common metals which have been designed to safely withstand the pressures involved.

Hazardous Decomposition Products. None

11 TOXICOLOGICAL INFORMATION

Acute Toxicity	TLV 5000 vpm (for CO ₂)
Skin & eye contact	No known effect
Chronic Toxicity	No known effect
Carcinogenicity	No known effect
Mutagenicity	No known effect
Reproductive Hazards	No known effect

(For further information see Section 3. Adverse health effects)

12 ECOLOGICAL INFORMATION

FoodFresh 11 is heavier than air and can cause pockets of oxygen-depleted atmosphere in low-lying areas. It does not pose a hazard to the ecology.

13 DISPOSAL CONSIDERATIONS

Disposal Methods	Small amounts may be blown to the atmosphere under controlled conditions. large amounts should only be handled by the gas supplier.
Disposal of Packaging	The disposal of cylinders must only be handled by the gas supplier.

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION

UN No.	1956
ERG No	121
Hazchem warning	2C Non-flammable gas

SEA TRANSPORTATION

IMDG	1956
Class	2.2
Label	Non-flammable gas

AIR TRANSPORTATION

ICAO/IATA Code	1956
Class	2.2
Packaging instructions	
- Cargo	200
- Passenger	200
Maximum quantity allowed	
- Cargo	150 kg
- Passenger	75 kg

15 REGULATORY INFORMATION

EEC Hazard class:	Non-flammable
National legislation:	OHSact and Regulations (85 of 1993)
Reference:	Standard SANS 10234

16 OTHER INFORMATION

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

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