

**MATERIAL SAFETY DATA SHEET (MSDS)
FOODFRESH GRADES 11 & 22**

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

Ref. no.: MS119 DATE: December 2015

1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Names FOODFRESH PACKAGING GAS MIXTURE
Chemical Formula CO2 plus O2
Trade Names FoodFresh 19
FoodFresh 22
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 BOC Zimbabwe
1282 Hull Road
Southerton, Harare
P.O Box 1282 Harare
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EMERGENCY NUMBER 0800 322230
(24 hours)

COMPOSITION/INFORMATION ON INGREDIENTS

UN No. 3156
ERG No 121
Hazchem Warning 5A 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 19 & 22 gas mixtures are non-flammable, but readily supports combustion. Never permit oil, grease or other readily combustible substance to come into contact with high concentrations of oxygen.

Adverse Health effects. The inhalation of carbon dioxide/oxygen gas mixtures may produce sweating, nausea and headache in a small number of patients.

Chemical hazards. Because of the high concentrations of oxygen in these gas mixtures, they will strongly support combustion.

Biological hazards. No overdose effects are seen with carbon dioxide/oxygen gas mixtures.

Vapour Inhalation. When a carbon dioxide/oxygen gas mixture is inhaled, the carbon dioxide absorption from the lungs into the blood is rapid and a new equilibrium is established in alveolar solution in the plasma, but mostly either as bicarbonate or carbamino compound. The relative quantities in solution and as bicarbonate regulate the reaction of the blood and buffer any change in pH produced by stronger organic acids. The blood concentration of carbon dioxide is set at a higher level and the excretion of the gas is adjusted to maintain the new equilibrium by increasing output.

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 these FoodFresh gas mixtures. Rescue personnel should be cognisant of extreme fire hazard associated with oxygen-rich atmospheres. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. They should be kept warm and quiet. Quick removal from the contaminated area

is most important. The physician should be informed that the patient has experienced hyperoxia.

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

5 FIRE FIGHTING MEASURES

Extinguishing media As FoodFresh 19 and 22 are non-flammable, but strongly support combustion, the correct type of extinguishing media should be used depending on the combustible material involved.

Specific hazards Foodfresh 19 and 22 vigorously accelerate combustion. Materials that would not normally burn in air could combust vigorously in atmosphere having high concentrations of oxygen.

Emergency actions -If possible, shut off the source of excess FoodFresh 19 or 22. 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. Safety goggles, gloves and shoes, or boots, should be worn when handling cylinders.

Environmental precautions. As the gas is heavier than air, pockets of oxygen-enriched air could occur. These could lead to the fire spreading rapidly. If possible ventilate the affected area.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions-Although FoodFresh 19 and 22 are not combustible, they will support and accelerate combustion. Clothes and other materials, not normally considered flammable, will burn fiercely in the presence of oxygen, and can be set alight by a single spark, or even hot cigarette ash.

Environmental Precautions-FoodFresh 19 and 22 do not pose a hazard to the environment. Beware of oxygen-enriched atmospheres coming into contact with readily combustible materials.

Small spills shut off the source of FoodFresh 19 or 22. Ventilate the area.

Large spills evacuate the area. Shut off the source of the spill if this can be done without risk. 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. Cylinders of FoodFresh should not be stored near cylinders of acetylene or other combustible gases. FoodFresh cylinders may be stacked horizontally provided that they are firmly secured at each end to prevent rolling. Prevent dirt, grit of any sort, oil or any other lubricant from entering the cylinder valves, and store cylinders well clear of any corrosive influence, e.g. battery acid. Compliance with all relevant legislation is essential. 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. Avoid exposure to oxygen-enriched atmospheres, as this could result in clothing becoming saturated by oxygen. On ignition the clothing could burn fiercely resulting in serious burns.

Engineering control measures. Engineering control measures are preferred to reduce exposure to oxygen enriched atmospheres. General methods include forced-draught

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ventilation, separate from other exhaust ventilation
systems. Ensure that sufficient fresh air enters at, or near,
floor level.

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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

10 STABILITY AND REACTIVITY

Conditions to avoid. The build-up of oxygen-enriched atmospheres, as, depending on temperature, oxygen reacts with all of the elements, excepting the inert gases, to form oxides. These reactions can sometimes be violent, as with highly combustible materials such as oil and grease. Never use cylinders as rollers or supports, or for any other purpose than the storing of FoodFresh. Never expose cylinders to excessive heat, as this may cause sufficient build-up of pressure to rupture the cylinders.

Incompatible Materials. Since dry FoodFresh 19 and 22 are non-corrosive, most materials of construction are suitable. Avoid flammable materials (for further information see Section 3. Chemical Hazards)

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 19 and 22 are heavier than air, and care should be taken to avoid the formation of oxygen enriched pockets. 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 containers must only be handled by the gas supplier.

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION

UN No.	3156
ERG No	121
Hazchem warning	5A Non-flammable gas

SEA TRANSPORTATION

IMDG	3156
Class	2.2
Label	Non-flammable gas

AIR TRANSPORTATION

ICAO/IATA Code	3156
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
SABS 10234 and its supplement for explanation of the above.

16 OTHER INFORMATION

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

17 EXCLUSION OF LIABILITY

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