

**MATERIAL SAFETY DATA SHEET (MSDS)  
SUREMIX**

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

Ref. no.: MS059                      DATE: January 2018

**1 PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT IDENTIFICATION**

**Product Name** SUREMIX  
**Chemical Formula** CO<sub>2</sub>  
                                   N<sub>2</sub>  
                                   CO<sub>2</sub> plus N<sub>2</sub>  
**Trade Names** Suremix N  
                           Suremix 30  
                           Suremix 50  
                           Suremix 60  
                           Suremix 100  
**Colour coding** Suremix N  
                           Ivory body with a French Grey (H30) shoulder. The relevant grade is stencilled on the cylinder. Suremix 30 – Ivory body with a Brunswick green (H07) shoulder. The relevant grade is stencilled on the cylinder. Suremix 60 – Ivory body with a Purple shoulder. The relevant grade is stencilled on the cylinder. Suremix 100 – Ivory body with the grade stencilled on the cylinder.  
**Valves** Suremix N – Brass ¾ inch BSP right hand female. Suremix 30, 50 and 60 – Brass 5/8 inch BSP, right hand female. Suremix 100 – Brass 0,860 inch by 14 tpi right hand male.

**Company Identification**

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**2 COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Names	Carbon dioxide	
	Nitrogen	
	<u>Carbon Dioxide</u>	<u>Nitrogen</u>
Cas Nos.	124-38-9	7727-37- 9
UN Nos.	1013	1066
	<u>Carbon Dioxide /Nitrogen Mixtures</u>	
UN Nos.	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. The various grades of Suremix 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. Excepting for Suremix N, 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 Suremix 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 Suremix N, the inhalation of nitrogen in excessive

**Chemical hazards** concentrations can result in dizziness, nausea, vomiting, loss of consciousness and death. both the carbon dioxide and nitrogen components of the listed grades of Suremix are 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. 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 percent of carbon dioxide and above, 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. In the case of Suremix N, the nitrogen acts as a simple asphyxiant and death may occur in seconds without warning.

**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 Suremix. Rescue personnel should be equipped with self-contained breathing apparatus. For those grades of Suremix that contains carbon dioxide, concentrations of 10 percent or more can produce unconsciousness or death. Lower concentrations may cause headache, sweating, rapid breathing, increased heartbeat, and shortness of breath, dizziness, mental depression, visual disturbances and shaking. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. 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** (See section 3 above)

**5 FIRE FIGHTING MEASURES**

**Extinguishing Media** All the grades of Suremix are non-flammable and do not support combustion, thus do not contribute to a fire, but could help with the extinguishing by reducing the oxygen content of the air by dilution to below the level to support combustion.

**Specific hazards** Suremix does not support life. They can act as simple asphyxiants 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 Suremix. 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 the supplier. CONTACT THE NEAREST BOC ZIMBABWE BRANCH.

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

**Environmental Precautions** Excepting for Suremix N, all the other grades are heavier than air and could accumulate in low-lying areas. Care should be taken when entering a potentially oxygen-deficient environment. If

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possible, ventilate the affected area. Suremix N is lighter than air and disperses rapidly in the atmosphere. Care should be taken when entering a potentially oxygen-deficient environment. If possible, ventilate the affected area.

Molecular Weight	28,013
Specific volume @ 20°C & 101,325 kPa	861, 5 ml/g
Relative density of gas @ 101,325 kPa (Air = 1)	0,967
Colour	None
Taste	None
Odour	None

### 6 ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions</b>	Do not enter any area where Suremix has been spilled unless tests have shown that it is safe to do so.
<b>Environmental Precautions</b>	Suremix does not pose a hazard to the environment.
<b>Small spills</b>	shut off the source of the escaping Suremix. Ventilate the area.
<b>Large spills</b>	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. Excepting for Suremix 100, which should be stacked vertically, all other grades 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

<b>Occupational Exposure hazards Engineering Control measures</b>	As Suremix is a simple asphyxiant, avoid any areas where spillage has taken place. Engineering control measures are preferred to reduce exposures to oxygen depleted atmospheres. General methods include forced-draught ventilation, separate from other exhaust ventilation systems.
<b>Personal protection</b>	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.
<b>Skin</b>	No known effect.

### 9 PHYSICAL AND CHEMICAL PROPERTIES

#### PHYSICAL DATA

<b>Carbon Dioxide</b>	
Chemical Symbol	CO <sub>2</sub>
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
<b>Nitrogen</b>	
Chemical Symbol	N <sub>2</sub>

### 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 Suremix. Never expose cylinders to excessive heat, as this may

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
SABS 10234 and its supplement for explanation of the above.	

### 16 OTHER INFORMATION

Bibliography	
Compressed Gas Association, Arlington, Virginia Handbook of Compressed Gases - 3 <sup>rd</sup> Edition Matheson. Matheson Gas Data Book - 6 <sup>th</sup> Edition SABS 0265 - Labelling of Dangerous Substances	

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