1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: R134a
Chemical Formula: CH2-F-CF3
Trade Name: R134a
Colour Coding: Cornflower Blue (F.29) shoulder with a Silver (Plascon 720-022) shoulder and guard. Bulk container Grey.

2 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Names: 1,1,1,2- Tetrafluoroethane
Chemical Family: Halocarbons
Cas No. 811-97-2
UN No. 3159
ERG No. 126
Hazchem Warning 2C non-flammable gas

3 HAZARDS IDENTIFICATION

Main Hazards: All cylinders are portable gas containers, and must be regarded as pressure vessels at all times. R134a does not support life. It can act as a simple asphyxiant by diluting the concentration of oxygen in air to below the levels necessary to support life.

Adverse Health effects: The inhalation of high concentrations of R134a vapour may cause temporary central nervous system depression, with narcosis, lethargy and anaesthetic effects. Continued breathing of high concentrations of R134a vapours may produce cardiac irregularities, unconsciousness and death.

Chemical hazards: R134a vapours decompose when exposed to high temperatures with the formation of toxic and irritating compounds such as hydrofluoric acid, carbon monoxide and carbonyl fluoride.

Biological hazards: Contact with the liquid phase could cause frost burns.

Vapour inhalation: Inhalation of small amounts of R134a vapour does not damage the respiratory organs. (For additional information see “Adverse Health Effects” above).

4 FIRST AID MEASURES

Emergency numbers: 086 011 1185 09 (011) 873 4382 (24 hours)

Inhalation: Provided the patient is conscious, wash out the mouth with water, and give 200-300 ml to drink. Obtain immediate medical attention.

5 FIRE FIGHTING MEASURES

Extinguishing: As R134a is non-flammable, it will not contribute to the 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: R134a does not support life. It can act as a 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 R134a. 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 AFROX BRANCH.

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

Environmental Precautions: R134a 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 areas where R134a has been spilled unless tests have shown that it is safe to do so.

Environmental Precautions: R134a does not pose a hazard to the environment. Small spills: Shut off source of the R134a. 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. R134a cylinders should be stacked vertically at all times, and should be firmly secured in order to prevent them from being knocked over. 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 R134a is a simple asphyxiant, avoid any areas where spillage has taken place. Only enter once testing has proved the atmosphere to be safe, and remember that the gas is heavier than air.

Engineering Control measures: Engineering control measures are preferred to reduce oxygen depleted atmospheres. General methods includes 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 areas 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

- Chemical Symbol: CH2F-CF3
- Molecular Weight: 102.03
- Boiling point @ 101.325 kPa: -26.18°C
- Density (saturated vapour) at boiling point: 5.26 kg / m³
- Auto-ignition temperature: 770°C
- Ozone depletion potential: 0
- Halocarbon global warning potential: 0.28
- Colour: Colourless
- Taste: Not applicable
- Odour: Slightly ethereal

10 STABILITY AND REACTIVITY

Conditions to avoid: The dilution of oxygen concentration 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 R134a. Never expose the cylinders to excessive heat, as this may cause sufficient build-up of pressure to rupture the cylinders.

Incompatible materials: Since the performance of plastic materials is affected by polymer variations, compounding agents, fillers, and moulding processes, verify compatibility using actual fabricated parts under end-use conditions is advised. The effects on specific elastomers depend on the nature of the polymer, the compounding formulation used and the curing of vulcanizing conditions. Actual samples should be tested under end-use conditions before specifying elastomers for critical components.

Hazardous Decomposition: R134a vapours will decompose when exposed to high temperatures from flames or electric resistance heaters. Decomposition may produce toxic and irritating compounds, such as hydrogen fluoride.

11 TOXICOLOGICAL INFORMATION

Acute Toxicity (TWA 8+12 hr): 1000 ppm
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

As R134a has an Ozone Depletion Potential (ODP) of 0, as well as a very low solubility in water, it does not pose a hazard to the ecology.

13 DISPOSAL CONSIDERATIONS

Disposal Methods: Disposal refers to the destruction R134a, and may be necessary when R134a has become badly contaminated with other products, and no longer meets the accepted specification. All badly contaminated products should be sent to qualified waste disposal firms for further treatment.

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION
- UN No.: 3159
- ERG No.: 126
- Hazchem warning: 2 C Non-flammable gas

SEA TRANSPORTATION
- IMDG: 3159
- Class: 2.2
- Label: Non-flammable gas

AIR TRANSPORTATION
- ICAO/IATA Code: 3159
- 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 gas
- Risk phrases:
  - R20 Harmful by inhalation
  - R34 Liquid phase could cause burns.
  - R44 Risk of explosion if heated under confinement.
- Safety phrases:
  - S2 Keep out of reach of children
  - S9 Keep container in a well-ventilated place
  - S15 Keep away from heat
  - S21 When using do not smoke
  - S16 Wear suitable protective clothing
  - S41 In case of fire/explosion do not breathe fumes
  - S51 Use only in well ventilated areas
  - S56 Do not discharge into the environment. Dispose to an authorised waste collection point.
- National legislation: None
  Refer to SABS 0265 for explanation of the above.

16 OTHER INFORMATION

Bibliography
- IATA Dangerous Goods Regulations 1996

17 EXCLUSION OF LIABILITY

Information contained in this publication is accurate at the date of publication. The company does not accept liability arising from the use of this information, or the use, application, adaptation or process of any products described herein.