MATERIAL SAFETY DATA SHEET
NAF S227
(Please ensure that this MSDS is received by appropriate person)

Date: March 2017 **Version: 02** **Ref.: MS127**

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Name: NAF S227

Chemical Formula: HFC

Trade Names: NAF S227

Company Identification African Oxygen Limited

23 Webber Street

Johannesburg

Tel No: (011) 490 0400 Fax No: (011) 490 0506

EMERGENCY NUMBER: 0860 020202 or (011) 873 4382 (24 hours)

2. COMPOSITION /INFORMATION ON INGREDIANTS

Chemical Name NAF S227 UN No: 3296

ERG: 126

3. HAZARD IDENTIFICATION

Main Hazards. All cylinders are portable gas containers, and must be treated as pressure vessels at all times. Uncontrolled release of compressed gas may cause physical injuries. Cylinders should never be exposed to excessive temperatures as this may cause rupturing of the cylinders with escape of the gas.

Adverse health effects. Uncontrolled release of compressed gas may cause physical injuries.

Swallowed: Unlikely exposure route. If swallowed discomfort in the gastrointestinal tract would result from rapid evaporation of liquid and consequent evolution of gas. Some of the effects of inhalation would be expected. Necrosis from freezing of tissue could occur.

Eye/Skin: May cause irritation and cold burns. **Inhaled**: May replace oxygen in the inhaled air and cause asphyxiation. As the amount of oxygen inhaled is reduced from 21 to 14 volume % the pulse rate will accelerate and the rate and volume of breathing will increase. The ability to maintain attention and think clearly is diminished, muscular co-ordination is somewhat disturbed. As oxygen decreases from 14 to 10 volume % judgment becomes faulty, severe injuries may cause no pain. Muscular effort leads to rapid fatigue. Prolonged exposure to high concentrations may result in sensitization to the effects of adrenalin on the heart. Further reduction to 6% may cause nausea and vomiting. Ability to move may be lost. Permanent brain damage may result even after resuscitation from exposure to this low level of oxygen. Below 6% breathing is in grasps and convulsions may occur. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death will follow in a few minutes.

4. FIRST-AID MEASURES

Eyes: Rinse immediately with plenty of water for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

Skin: Liquefied gas may cause frostbite. Wash frostbitten areas with plenty of water. Do not remove clothing. Wash off with warm water. If skin irritation persists, call a physician.

Inhalation: Move to fresh air in case of accidental inhalation of vapours. Oxygen or artificial respiration if needed. Do not apply artificial respiration if patient is breathing. Consult a physician after significant exposure. Do not give adrenaline or similar drugs. **Ingestion:** Do not induce vomiting without medical advice. Call a physician immediately. Do not give drugs from adrenaline-ephedrine group.

General advice: Consult a physician after significant exposure.

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5. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment. Evacuate personnel to safe areas. Do not breathe vapours or spray mist. Ensure adequate ventilation.

Methods for cleaning up: Shut off leaks if without risk. Solid evaporates. Ensure adequate ventilation.

6. HANDLING AND STORAGE

Handling: Keep away from heat, sources of ignition. Do not puncture or drop container. Provide sufficient air exchange and or exhaust in work rooms.

Storage: Keep containers tightly closed in a cool, well ventilated place. Store in cool well shaded area. Do not expose to temperatures above 50 C. Keep tightly closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures to reduce exposure:
Ensure adequate ventilation, especial in confined areas.

Personal protection equipment:

Respiratory protection: In case of insufficient
ventilation wear suitable respiratory equipment, preferable a compressed airline breathing apparatus.

Hand protection: impervious butyl rubber gloves.

Eye protection: Wear as appropriate: safety glasses, goggles. Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection: chemical resistant apron, long sleeved clothing, safety shoes.

Exposure limits: safety Hi-Tech: 1000

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: colourless gas (as liquefied)

Odour: citrus like odour

Ph: not applicable

Boiling point/range: -16.4 C

Melting point/range: -131 C

Flash point: not applicable

Flammability (solid, gas): not applicable

Autognition temperature: not determined

Explosion limits: not applicable

Oxidising properties:

Vapour pressure (at 21 C):4054.3hP Relative density (at 20 C):1.46g/cm Water solubility: 260mg/l Solubility in other solvents Partition coefficient (n-octane/water

Vapour density:

6.04(air=1) Evaporation rate: no data

available Other information:

100%volatile

10. STABILITY AND REACTIVITY

Stability: stable at normal condition. No decomposition if stored and applied as directed. Decomposition starting from 250 degree Celsius.

Conditions to avoid: fire or intense heat way may cause violent rupture of packages. Do not exposure to temperatures above 50 C.

Materials to avoid at high temperatures: strong acids and strong bases, strong oxidizing agents, alkaline metals, alkaline earth metals, finely divided aluminium.

Hazardous decomposition products: halogenated compounds, hydrogen halides (HCl, HF0, carbonylhalides (COCL), carbon monoxide, carbon dioxide (CO_2

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11. TOXICOLOGICAL INFORMATION

Acute toxicity: Cardiac sensitization threshold (dog): no-observed-effect level (NOEL) 9%LC50

Irritation:

Skin: slightly irritating. May cause frostbite.

Eyes: slightly irritating.

Chronic toxicity: Did not show carcinogenic effects in animal experiments

12. ECOLOGICAL INFORMATION

Mobility: aquatic toxicity is unlikely due to low solubility.

13. DISPOSAL CONSIDERATION

Waste from residues/unused products: Offer surplus and non-recyclable solutions to an established disposal company. In accordance with local and national regulations. S59 – Refer to manufacture/supplier for information on recovery/recycling.

Contaminated packaging: Do not reuse containers. Empty pressure vessels should be returned to the supplier.

14. TRANSPORT INFORMATION

UN No: 3296

ADR/RID Proper shipping name: pentafluoroethane (R125)

HI No: 23 UN No: 3296

15. REGULATORY INFORMATION

Classification according to European directive on classification of hazardous preparations 88/379/EEC

16. OTHER INFOMATION

Ensure all national/ regulations are observed. Asphyxiant in high concentrations. Keep container in well ventilated place. Do not breathe the gas. The hazard of asphyxiation is often overlooked and must be stressed during operator training. Users of breathing apparatus must be trained. Contact with liquid may cause cold burns/frostbite. Details given in this document are believed to be correct at the time of going press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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