رقيط للغازات الصناعية
Rakeeth Industrial Gases

MATERIAL SAFETY DATA SHEET (MSDS)
NITROGEN

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name NITROGEN

Chemical Formula N_2

Company Identification Rakeeth Industrial Gases Co LLC
483/1 Street
Al Sajaa industrial Area
Mob No:0565264603
Tel No: 06265161

HAZARDS IDENTIFICATION

Main Hazards: Extremely cold liquid (-196^{O}C) can cause severe frostbite and cold burns. Nitrogen gas can act as an asphyxiant as it dilutes the concentration of oxygen in air below the levels necessary to support life. Rescue workers may require self-contained breathing apparatus and protective clothing.

Adverse Health Effects: Inhalation of nitrogen in excessive concentrations can result in dizziness, nausea, vomiting, loss of consciousness, rapid breathing, asphyxiation without warning and death.

Skin and Eye Contact: May cause severe cold burns and frostbite.

Biological Hazards: Contact between the skin and Nitrogen or uninsulated piping or vessel containing it, can cause severe cold burn injuries.

Environmental Hazard: No known effects to the environment, but in confined space ensure adequate ventilation.

Chemical Hazards. Nitrogen is relatively inert to most materials under ordinary conditions. It becomes more reactive at elevated temperatures when it combines with hydrogen, oxygen and some metals.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Nitrogen
Chemical Family	Inert gas
Chemical Abstract Service Number (CAS No.)	7727-37-9
United Nations Number (UN No.)	1977
Emergency Response Guide Number (ERG No.)	120
Hazchem Warning	2.2 Non- flammable gases

4 FIRST AID MEASURES

Skin/Eye Contact: Immediately flush with large quantities of tepid water for at least 15 minutes.
In case of frostbite, spray with tepid water for at least 15 minutes. Apply a sterile dressing, and obtain medical assistance.
If water is not available or impractical to use, wrap the affected part gently with blankets. Keep victim warm and qui**et,** and obtain medical assistance

Ingestion or Swallowing: Ingestion is not considered a potential route of exposure

Inhalation: In high concentration may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Remove victim to fresh air wearing self-contained breathing apparatus. Apply artificial respiration if victim is not breathing. Obtain medical assistance.

5 FIRE FIGHTING MEASURES

Special hazards: Exposure to fire may cause containers or vessels to rupture/explode. Nitrogen is non-flammable.

Extinguishing media As Nitrogen is an inert gas; it does 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. Keep the PCC, bulk tank or tanker cool by spraying with water if exposed to fire.

Special protective equipment for fire fighters: In confined space use self-contained breathing apparatus.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions Do not enter any area where nitrogen has been spilled or a serious leak has occurred unless tests have shown that it is safe to do so. If the area must be entered by the emergency personnel, self-contained breathing apparatus, leather gloves, and appropriate foot and leg protection should be worn.

Environmental Protection Nitrogen poses no harm to the environment.
Small spills Shut off the source of escaping nitrogen. Ventilate the area.

Large spills Evacuate the area. Shut off the source of the spill/leak if this can be done without risk. Prevent Nitrogen from entering sewers, basements and work pits. If tanker has overturned, do not attempt to right or move it. Restrict access to the area until is fully ventilated. Ventilate the area using forced-draught if necessary. Monitor the surrounding area for Oxygen level. Oxygen must be at least 19.5% before personnel may be allowed into the area without self-contained breathing apparatus. Large spills can also be dispersed using a water fog spray.

7 HANDLING AND STORAGE

Safe handling When Nitrogen is held in any closed vessel or space, there must be an appropriate pressure relief device because of the large pressure increases that can occur as the Nitrogen is vaporised. Use only containers designed for cryogenic liquids. Do not use any stopper or other device that will interfere with venting of gas. Unauthorised modification to these liquid containers is forbidden.

Storage Store in a cool and well ventilated area. If containers are stored outside, provide shelter to protect against extreme weather conditions. Excessive exposure to any heat could cause the internal pressure to increase significantly with the consequent loss of liquid product that has vaporised. Keep out of reach of children.

Personal Protective Equipment Wear face shield; leather gloves and leather apron when using or decanting Nitrogen. Do not put hands (even in the best gloves) in the cryogenic liquid. Wear safety boots and overalls.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Hazards As nitrogen is a simple asphyxiant, avoid any areas where spillage has taken place unless entering with self-contained breathing apparatus. 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 or exhaust ventilation systems. Ensure that sufficient fresh air enters at, or near, floor level.

Personal Protection Face shield, leather gloves, leather apron and Safety shoes, or boots, should be worn when handling containers.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Chemical Symbol	N_2
Molecular Weight	28,01
Boiling point @ 101,325 kPa	-195,8°C
Density, liquid @ boiling point	803,6 kg/m^3
Relative density (Air = 1) @ 101,325 kPa	0,967
Latent heat of vaporisation @ boiling point	199,1 kJ/kg
Colour	None
Taste	None
Odour	None

10 STABILITY AND REACTIVITY

Acute Toxicity	None
Skin & eye contact	none
Carcinogenicity	Severe cold burns could result in cancerous growth.
Reproductive Hazards	No known effect

For further information, see Section 3. **(Adverse Health Effects).**

11 TOXICOLOGICAL INFORMATION

Incompatible At the temperature of liquid nitrogen ordinary carbon steels, and most alloy steels lose their ductility, and are therefore considered to be unsatisfactory.

Materials Metals and alloys that have satisfactory

Conditions to avoid The dilution of the oxygen concentration in the atmosphere to levels which cannot support life.

12 ECOLOGICAL INFORMATION

It does not pose a hazard to the ecology but it can cause frost damage to vegetation

13 DISPOSAL CONSIDERATIONS

Disposal Methods Small amounts may be allowed to evaporate to 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. ductility includes austenitic stainless steel (i.e. types, 304 and 316), and nickel-chromium alloys, nickel, Monel 400, copper, brasses, bronze and aluminium.

Hazardous Decomposition Products None

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION

United Nations Number (UN No.)	1977
Emergency Response Guide (ERG No.)	120
Hazchem warning	2.2 Non-flammable gases

SEA TRANSPORTATION

IMDG	1977
Class	2.2
Packaging group	
Label	Non-flammable gas

AIR TRANSPORTATION

ICAO/IATA Code	1977
Class	2.2
Packaging group	
Packaging instructions	
- Cargo	202
- Passenger	202
Maximum quantity allowed	
- Cargo	500 kg
- Passenger	50 kg