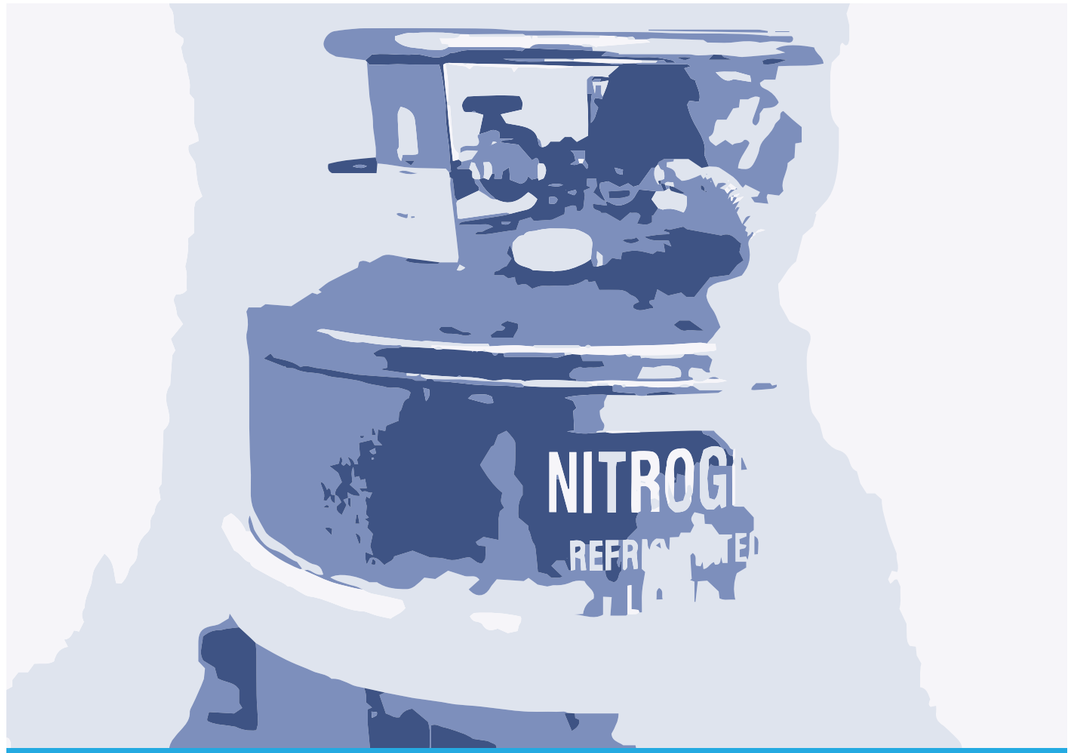

HEALTH

HSEQ library

TOOLBOX INFORMATION

NITROGEN GAS

June 2021

HSEQ Direct is a digital communication, registration and training platform with a focus on Health, Safety, the Environment and Quality.
Designed specifically for the workplace!

Associated IOGP Life-Saving Rules

HSEQ DIRECT safer healthier workplace

WHAT IS IT? (1/2)

Nitrogen gas is naturally present in the air, of which it comprises approximately 78%. Highly compressed nitrogen gas is used for maintenance and inspection purposes.

When it is released, it displaces the oxygen in the atmosphere. In concentrations higher than natural levels, nitrogen gas poses a major health risk. It can even lead to death.
This means that extreme caution is necessary when nitrogen gas is being used.

WHAT IS IT? (2/2)

PROPERTIES OF NITROGEN GAS

- odorless
- tasteless
- invisible
- non-combustible
- oxygen displacing
- heavier than air

HAZARDS

In general: Nitrogen gas displaces oxygen.

Inhalation: difficulty breathing, headache, dizziness, nausea, unconsciousness, death through asphyxiation.

Skin contact: risk of freezing: redness, pain, blisters, wounds.

Eye contact: risk of freezing: redness, pain, vision impairment.

PREVENTION (1/2)

PREPARING FOR WORK

- read the work permit carefully
- ensure you are familiar with the risks of the job
- thoroughly discuss the risks (toolbox meeting)
- inspect your workplace
- familiarize yourself with safety routes and assembly point(s); ask your company for more information about this
- take the necessary precautionary measures
- use the correct (extra) Personal Protection Equipment (PPE)
- respect the areas marked as potentially containing high concentrations of nitrogen gas

PREVENTION (2/2)

PREVENTING EXPOSURE – BEFORE STARTING WORK

- ensure monitoring of oxygen levels by an authorized gas tester
- ensure registration of these measurements in the work permit

PREVENTING EXPOSURE – DURING WORK

- work and operate according to procedures and instructions; ask your company about their specific requirements
- use the correct (extra) PPE
- ensure measurements are carried out regularly
- work with wind at your back
- ensure good ventilation or deploy extra air extraction

PROTECTION

Always use the correct extra PPE in workplaces where nitrogen gas is suspected. Ask your company for further information in relation to this.

IN CASE OF... (1/2)

CALAMITIES

Ensure your personal safety first:

- leave the workplace diagonally to the wind
- go to an assembly point located in a windward location; ask your company about this

Please note: never re-enter the workplace without independent respiratory protection equipment!

IN CASE OF... (2/2)

EXPOSURE

In general: when rescuing any affected person use independent respiratory protection equipment only (pressurized air)
Inhalation: request medical assistance immediately - commence artificial resuscitation until professional help arrives
Skin contact: rinse with plenty of lukewarm and clean water - if clothing is stuck to the skin, never peel it off
Eye contact: rinse with plenty of lukewarm and clean water - remove any contact lenses (if possible)
Severe exposure: alert a doctor immediately; contact the health and safety service (ask your company about this)

IMPORTANT INFORMATION (1/2)

Stop work in cases of uncertainty, danger or deviations from the work permit; never improvise!

Report any unforeseen event or situation that deviates from the work permit to the HSE Manager immediately.

IMPORTANT INFORMATION (2/2)

1 **Work with the wind behind you** and ensure that the workplace is **properly ventilated.**

2 **Cordon off the workplace** and r**espect barriers and cordons** during maintenance work (nitrogen gas tanks).

3 Have **oxygen levels measured** by an authorised gas tester.

4 Take measurements **regularly**.

5 Use **the required additional PPE** in workplaces with a risk of exposure to nitrogen.

QUESTIONS? MORE INFORMATION? UNSAFE WORKING CONDITIONS?

Your HSE Manager is there to help answer any questions and ensure a safe working environment for all.

QUESTION 1

What are the characteristics of nitrogen gas?

A. It smells strongly, it is invisible, non-combustible and oxygen displacing.

B. It smells strongly, it is invisible, tasteless, non-combustible, toxic and oxygen displacing.

C. It is odorless, invisible, tasteless, non-combustible and oxygen displacing.

ANSWER 1

What are the characteristics of nitrogen gas?

A. It smells strongly, it is invisible, non-combustible and oxygen displacing.

B. It smells strongly, it is invisible, tasteless, non-combustible, toxic and oxygen displacing.

C. It is odorless, invisible, tasteless, non-combustible and oxygen displacing.

QUESTION 2

When do the main risks of exposure to nitrogen gas occur?

A. During maintenance and inspections.

B. During workforce shift changes.

C. During strong winds.

ANSWER 2

When do the main risks of exposure to nitrogen gas occur?

A. During maintenance and inspections.

B. During workforce shift changes.

C. During strong winds.

QUESTION 3

What are the hazards of nitrogen gas?

A. If you inhale nitrogen gas you can experience breathing difficulties, a headache, dizziness and/or nausea. As nitrogen is extremely toxic, unconsciousness and death could occur.

B. If nitrogen gas comes into direct contact with your skin it may freeze. This creates redness, and you will experience pain, blisters and wounds.

C. Nitrogen gas displaces oxygen. If nitrogen gas comes into direct contact with your eyes you may become blind.

ANSWER 3

What are the hazards of nitrogen gas?

A. If you inhale nitrogen gas you can experience breathing difficulties, a headache, dizziness and/or nausea. As nitrogen is extremely toxic, unconsciousness and death could occur.

B. If nitrogen gas comes into direct contact with your skin it may freeze. This creates redness, and you will experience pain, blisters and wounds.

C. Nitrogen gas displaces oxygen. If nitrogen gas comes into direct contact with your eyes you may become blind.

QUESTION 4

How do you prevent exposure to nitrogen gas before starting work?

A. Ensure good ventilation or deploy extra air extraction.

B. Have an authorized gas tester monitor oxygen levels.

C. Cordon-off the workplace.

ANSWER 4

How do you prevent exposure to nitrogen gas before starting work?

A. Ensure good ventilation or deploy extra air extraction.

B. Have an authorized gas tester monitor oxygen levels.

C. Cordon-off the workplace.

QUESTION 5

How do you prevent exposure to nitrogen gas during work?

A. Regularly carry out gas measurements yourself and register the outcome on the Permit to Work, work with the wind to your back and ensure good ventilation or deploy extra air extraction.

B. Have measurements carried out regularly and register the outcome on the Permit to Work, work with the wind to your back and ensure good ventilation or deploy extra air extraction.

C. Have measurements carried out regularly, work with the wind to your back and ensure good ventilation or deploy extra air extraction.

ANSWER 5

How do you prevent exposure to nitrogen gas during work?

A. Regularly carry out gas measurements yourself and register the outcome on the Permit to Work, work with the wind to your back and ensure good ventilation or deploy extra air extraction.

B. Have measurements carried out regularly and register the outcome on the Permit to Work, work with the wind to your back and ensure good ventilation or deploy extra air extraction.

C. Have measurements carried out regularly, work with the wind to your back and ensure good ventilation or deploy extra air extraction.