



Quiz: Safe Handling & Use of
Liquid Nitrogen and Dry Ice

1. Please fill out the table below for the items listed:

Gas	Heavier or Lighter than Air?	Asphyxiation Hazard?
Dry Ice	Heavier	Yes
Oxygen	Oxygen	No
Helium	Lighter	Yes
Nitrogen	Lighter	Yes

2. List at least 3 different hazards associated with cryogenic material and indicate how you might protect yourself from them using Personal Protective Equipment (PPE) and non-PPE controls (i.e. administrative controls, Safe Handling Procedures? **(only one answer is needed in each box)**)

Hazard	Non-PPE Controls	PPE Controls
Asphyxiation	<ol style="list-style-type: none">1. Always use, store and handle in areas with sufficient ventilation.2. Use an oxygen monitor3. Ensure tanks are not leaking4. Only use approved containers	<ol style="list-style-type: none">1. Wear a respirator with an oxygen sources if asphyxiation is possible2. Dispose of unwanted dry ice in a fume hood
Contact burns	<ol style="list-style-type: none">1. Use tools instead of hands where possible.2. Store containers upright at all times3. Do not use open pail type containers4. Use proper handling equipment	<ol style="list-style-type: none">1. Wear temperature resistant gloves.2. Wear long loose fitting pants3. Wear long sleeves4. Wear lab coat



	<ol style="list-style-type: none">5. Never create adaptors6. Do not change or remove fittings	
Shattering	<ol style="list-style-type: none">1. Avoid sudden temperature changes2. Transfer liquid slowly3. Only use approved containers4. Avoid the use of hard glass and plastic	<ol style="list-style-type: none">1. Wear safety glasses
Pressure rupture	<ol style="list-style-type: none">1. Use only approved containers.2. Store containers upright at all times.3. Do not change or interfere with fittings and valves	<ol style="list-style-type: none">4. Wear temperature resistant gloves.5. Wear long loose fitting pants6. Wear long sleeves7. Wear lab coat
Musculoskeletal Injuries	<ol style="list-style-type: none">1. Use proper lifting procedures2. Work in teams to limit the amount of strain on a single body	<ol style="list-style-type: none">1. Wear appropriate clothing and shoes2. Wear gloves



Circle true or false to the following questions:

3. Cold sealed rooms should be used for long term storage of cryogenic materials.

TRUE

FALSE

4. When moving a cryogenic cylinder, all openings and orifices must be completely sealed to prevent leakage.

TRUE

FALSE

5. Cleaning up a spill of liquid nitrogen is an emergency and an evacuation should take place.

TRUE

FALSE

6. PPE is the last line of defence and should never be used as your first means of controlling a risk.

TRUE

FALSE

7. A cryogenic container with frost on the top is an unsafe condition and it should be melted off with hot water.

TRUE

FALSE

8. Intermittent release of gas through the safety relief valve is likely to be due to normal operating conditions.

TRUE

FALSE

9. Random spots of frost may indicate a damaged container and the container should be inspected / replaced.

TRUE

FALSE

10. Pouring cryogenics (i.e. liquid nitrogen) in an open area (like a loading dock), is unsafe because you do not have control of the material in case of a spill.

TRUE

FALSE

Please present this completed quiz to your supervisor for discussion and assessment.