

Newcastle University - Risk Assessment

Project title	Use of Gas Cylinders		
Description of work activity	The following risk assessment and guidance has been developed to assess the hazards, risks related to the use of Gas Cylinders. It identifies the appropriate prevention and control measures to reduce them		
Unit name	Newcastle University – Biosciences Institute	Location	M3036 Cookson Building
Assessor	Dr. Johan Panek	Approver (Manager / Responsible person)	Dr. Arnaud Basle
Date of assessment	05/03/2025	Review Date (2 years)	Click or tap to enter a date.

	Hazards	Risks (Who might be harmed & how?)	Controls
1.	Gas cylinders contain a gas under high pressure.	Facility staff	<ul style="list-style-type: none"> - The lowest number of cylinders is kept. - The regulators are not over 5 years old. - The user must check that the cylinder / gas is suitable for the intended use. - User's should always carry out an external visual examination of gas cylinder and regulator to determine whether there is any physical damage.
2.	Large release of the gas in a confined area may cause asphyxiation.	Facility staff	<ul style="list-style-type: none"> - The cylinders are located in well aerated areas. - O2 sensor alarm are installed in the room.
3.			

Additional Controls (is there anything you need to plan for?)	Who	Target Date	Completion Date
NA	[Insert Name]	Click or tap to enter a date.	Click or tap to enter a date.

Emergency procedures

If a Gas Cylinder is Leaking

- Evacuate the area immediately and do not attempt to stop the leak unless trained to do so.
- Ventilate the area (open windows/doors if safe to do so).
- Shut off the cylinder valve if safe to approach (turn clockwise).
- Call emergency services (999/112/911) and provide information on the gas type, location, and extent of the leak.
- If there is a risk of asphyxiation, use an oxygen monitor before re-entering the area.

If a Gas Cylinder is Knocked Over or Damaged

- Evacuate the area if a cylinder is hissing, leaking, or venting gas uncontrollably.
- If the valve is broken, do not attempt to stop the leak—treat it as an emergency.
- Keep people away and call emergency services immediately.
- If the cylinder falls but is intact, carefully upright it while wearing PPE and check for leaks.

If Someone is Experiencing Symptoms of Oxygen Deficiency

DO NOT enter the area if you suspect an oxygen-deficient atmosphere unless properly trained and equipped with a self-contained breathing apparatus (SCBA).

- Activate the emergency alarm (if available).
- Call emergency services (999/112/911) and report a suspected asphyxiation incident.
- If safe, immediately ventilate the area by opening doors/windows or activating exhaust systems.

If the Person is Unconscious in a Confined Space:

- DO NOT attempt a rescue without proper respiratory protection (SCBA). Entering without protection could lead to additional casualties.
- Call emergency services immediately and provide details on the situation.
- Monitor the victim from a safe distance and prepare to give first aid once the area is safe.

If the Person is Conscious but Feeling Unwell:

- Move them to a well-ventilated area or outdoors immediately.
- Loosen restrictive clothing and keep them calm and warm.
- Provide oxygen if trained to do so.
- Seek medical attention even if symptoms seem to improve.

Prevent Further Risks

- Evacuate all personnel from the affected area until oxygen levels are confirmed to be safe (>19.5%).
- Use an oxygen meter (if available) to assess air quality before re-entry.
- Isolate and inspect LN₂ sources (dewar leaks, cryostorage failures, etc.).
- Only allow re-entry once trained personnel confirm the environment is safe.

Signature of Responsible Person (Double click on the signature box below)

Johan Panek