**Risk Assessment Department of Physics and Astronomy**



| **Date:** (1) | **Assessed by:** (2) | **Checked / Validated\* by:** (3) | **Location:** (4) | **Assessment ref no:** (5) | **Review date:** (6) |
| --- | --- | --- | --- | --- | --- |
| **Task / premises:** (7)  Transport and Use of Gas Cylinders and Regulators  Only trained competent persons should use and transport gas cylinders and of attended the Staff Learning and Development – TLCA105 – Gas Safety and Regulators Course – Compressed Gas Workshop. | | | | | |

| **Activity** (8) | **Hazard** (9) | **Who might be harmed and how** (10) | **Existing measures to control risk** (11) | **Risk rating** (12) | **Result** (13) |
| --- | --- | --- | --- | --- | --- |
| Transport of Gas Cylinder | Manual Handling | User and other in proximity – risk of damage to back, crush injuries to hands and feet. | Only trained users must transport gas cylinders around the building.  **NEVER** attempt to catch a falling gas cylinder.  Cylinder trolleys must be used to transport cylinders around the building and a second person must assist with collection/moving of the cylinders in order to open doors etc.  The trolley should be visually inspected before transport for any signs of wear or damage. Do not use a faulty trolley. Report defects to the Safety Advisor. Gas cylinders should be firmly secured to the trolley before transit.  Correct safety footwear and gripper gloves must be worn when transporting cylinders.  **NEVER** transport a cylinder with attached regulators. The cylinder should be closed at the cylinder head valve.  All cylinders should be visually inspected before moving. Faulty cylinders should never be moved, the supplier should be contacted.  Cylinder must only be transported between floors via the goods lift, unaccompanied. **NEVER** travel in a lift with a cylinder even if thought empty.  The goods lift must be locked out during this time to prevent entry by any other user and a signage stand or barrier must be placed inside the lift to warn others not to enter the lift during transit of hazardous materials.  Building users are not permitted to start using the passenger lift for transport of hazardous materials when the goods lift is broken. Contact the SSA who will arrange safe transport.  **Do not use the goods lift to transport hazardous material during the weekly fire alarm test in Schuster on Wednesday at 9:15 am.** The lift controls are overridden in the event of a fire alarm and the lift will descend to street level. However, on deactivation of the fire alarm anyone can then enter the goods lift. | Low | A |
| Use of Gas Cylinder and Regulators | Gas leak/ Explosion  /Asphyxiation. | Staff and others in the proximity. | All users must be trained in the safe use and handling of compressed gases.  All cylinders are clearly labelled and are not to be used if the label is unclear.  Cylinders must always be stored in an appropriate secure chain, clamp or stand even when not in use.  Cylinder trolleys are not suitable for the use or storage of cylinders.  Regulators must be to European or British standard BS EN 2503.  **ALWAYS** open connections slowly and close all valves on the gas cylinder and make safe any experiments.  Cylinders should be fitted with the correct regulator and key, and should be closed when not in use. The cylinder pressure should not be more than the regulator pressure rating. Out-of-date regulators **MUST NOT** be used.  **NEVER** use a faulty regulator.  After connecting a regulator to a cylinder use a leak detection spray to check for any gas leaks.  DO NOT use oils, greases, solvents or PTFE tape on cylinder NEVOC valves or regulator bullnoses.  The number of cylinders kept within the building should be kept to a minimum.  Any intention to use flammable or toxic gases within the building should be reported to the School Safety Advisor so the fire plans can be updated.  **NEVER** store Oxygen and Hydrogen cylinders within 3 m of one another and preferably not in the same laboratory.  There are special requirements for storage and use of acetylene – please contact the School Safety Advisor **BEFORE** ordering.  Avoid naked flames and other ignition sources near flammable gas cylinders. | Low | A |
|  |  |  | Flashback arrestors **MUST** be fitted downstream of the regulator, for any flammable gas. Purge equipment before use. 90% of all flashback incidents were caused by failure to carry out a purging procedure.  **NEVER** open a gas cylinder without a regulator in place.  **ALWAYS** open connections slowly and close all valves on cylinders and regulators when not in use, even when empty.  Oxygen depletion monitors **MUST** be installed where there is a chance of an oxygen depleted atmosphere being generated.  Reinforced tubing should be used to pipe gas from a cylinder to the point of use. Where possible rigid tubing should be installed.  In the event of a considerable gas leak:-  Evacuate the area immediately. If safe to do so close gas cylinder and make safe experiments and electrical equipment. Inform the School Safety Advisor at once. |  |  |
| Use of Manifolds | Gas leak/ Explosion  /Asphyxiation/Impact injury from hose. | Staff and others in the proximity. | **NEVER** use a faulty Manifold.  Cylinders must be chained in place and not free standing.  **DO NOT USE** past manufactures recommendations.  Visual inspection of manifold, hose and pigtails should be performed before use. Report defects to the School Safety Advisor.  Always depressurise the system and close cylinders before removing. If pressurised the hose could whip back and cause serious injury.  Use only full cylinders as replacements, otherwise the manifold will not operate properly. | Low | A |

I confirm that I have read this Risk Assessment and that I understand the hazards and risks involved and will follow all of the safety procedures stated.

| **Name (please print)** | **Signed** | **Line manager /PI countersignature** | **Date** |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |