Risk Assessment Guidance

Title Use & Storage of Gas Cylinders

This risk assessment guidance covers the use and storage of gas cylinders associated with the activities used by the company. Employees and contractors who use gas cylinders on the production must familiarize themselves with the requirements set out within this risk assessment that form the minimum requirements; other risk assessments may also be applicable depending on the transportation, storage and use of the gas cylinders.

Poor ventilation is not addressed; this would be a hazard more likely to be considered in a COSHH assessment.

Any damaged or faulty equipment must not be used and reported to your head of department.

Hazards	Those at Risk	Existing Controls & Measures
Explosion, sudden gas or fluid release, exposure to cylinder contents and fire. ● Impact from the blast of a gas cylinder explosion or rapid release of compressed gas; ● Impact from parts of gas cylinders that fail or any flying debris; ● Contact with the release of gas or fluid from a cylinder (e.g. chlorine); ● Fire resulting from the escape of flammable gasses or fluids (e.g. methane) or the release of oxidising gasses (e.g. oxygen) Struck by a cylinder or suffering a manual handling injury ● Impact from falling cylinder; Manual handling injuries from moving or handling cylinders	Personnel using or in the vicinity of the cylinders. Persons in the vicinity of the cylinders.	In general, the main causes of gas cylinder accidents and incidents that need to be address are: ● Inadequate training and/or supervision; ● Poor installation and/or maintenance; ● Faulty equipment and/or design ● Poor storage ● Poor handling ● Poor ventilation Specific control measures are considered below, under specific elements / aspects of using gas cylinders.

Job Sequence	Hazard Identification	Controls
Gas cylinder regulators. Explosion, sudden gas or fluid release, exposure to cylinder contents and fire.	Personnel using or in the vicinity of the cylinders.	Ensure that regulators are labelled such that individual regulators can be identified and matched to their service history. Ensure that the gas regulator is subject to an inspection and maintenance regime as follows: ● Pre-use visual inspection – check for rating, type, fitting, contamination and obvious damage. ● Annual visual inspection and function check. ● Periodic full service by a competent person as recommended by the manufacturer or replacement. Most manufacturers recommend a full service / replacement five years after manufacture. Note that some components in a regulator will deteriorate even if a regulator remains unused.

		Ensure that the gas regulator rating exceeds the maximum pressure of the gas cylinder. Note: Regulators will have manufacturer markings stamped into them from which their age can be determined, but markings vary between manufacturers'. The BCGA has published guidance on interpreting manufacturer markings.
Gas cylinders in use Explosion, sudden gas or fluid release, exposure to cylinder contents and fire. Struck by a cylinder or suffering a manual handling injury	Personnel using or in the vicinity of the cylinders.	Gasses should preferably be piped to the point of use from outside the building, eliminating the need to house cylinders in stages or workshops. However, this is not always possible or practical. Before a gas cylinder is attached to any equipment: ● Double check that the correct gas is being used. ● Double check that the regulator and other equipment are suitable for the gas and the pressure to be used. During use: ● Cylinders must only be used in an upright position, unless the supplier has specified otherwise. ● Unless a cylinder has been designed to be free standing, it must be secured in position. ● Oil and grease must not be used on valves, regulators or other fitting. Doing so may cause an explosion. During down time: ● Close the cylinder valve (to reduce the chance of unintentional gas release) and replace dust caps. Cylinders must only be used for their intended purpose; they must not be used as rollers, supports or props as this may damage the cylinder or cause the valve to open. **Cylinders and attachments must be regularly inspected to ensure that gas is not leaking.**
Gas cylinders in storage Explosion, sudden gas or fluid release, exposure to cylinder contents and fire. Struck by a cylinder or suffering a manual handling injury	Personnel using or in the vicinity of the cylinders.	Rotate stock of cylinders, so that older cylinders are used first. Gas cylinders must be suitably segregated: ● Flammable and oxidising gasses must be separated from each other; they must be either at least three metres apart or separated by fire walls. ● Incompatible gases must be stored apart. ● Empty and full gas cylinders must be stored apart. Gas cylinder stores must: ● Be well ventilated;

		● Be sheltered from indirect heating. ● Be a naked-flame and smoke-free area. ● Be well drained; so that cylinders do not have to sit or lie in water. ● Be secured so as to prevent unauthorised entry and access to the cylinders. Gas cylinders must be stored in an upright position and secured so that they cannot fall over.
Gas cylinder movement around location Explosion, sudden gas or fluid release, exposure to cylinder contents and fire. Struck by a cylinder or suffering a manual handling injury	Persons moving the cylinders. Persons with existing injuries / disabilities or of small stature will be more vulnerable. Persons in the vicinity of the cylinders	Consider: ● Eliminating or reducing manual handling hazards by piping gas to the point of use. ● Reducing the manual handling hazard by automating cylinder handling using a crane or mobile hoist. ● Reducing the manual handling hazard by specifying and using smaller gas cylinders in preference to larger cylinders. ● Reducing the manual handling hazards by using handling aids, such as a cylinder trolley. When moving a cylinder: ● Make sure that the person handling the cylinder is equipped with personal protective equipment o Safety shoes with steel toe caps. o Safety gloves to protect from mechanical damage. ● Make sure that the cylinder valve has been closed. ● Make sure that regulators and hoses have been removed, unless the equipment has been designed to be moved in this way (e.g. portable welding equipment in a trolley) ● Make sure that a suitable route has been identified that takes into account the stability and requirements of any equipment used. If using a cylinder trolley: ● Make sure that the cylinder trolley is in good order. Loose or damaged hand grips can cause the trolley to be dropped. A loose or damaged trolley wheel can cause the trolley to tip over. ● Make sure that the cylinder is secured to the trolley. If using a crane or hoist: ● Make sure that suitable slings and/or clamps are used. Chain slings can damage a cylinder or its markings and should not be used. Magnetic lifting devices should not be used. ● Do not lift cylinders by valves, shrouds or caps for lifting unless designed for the purpose.

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		● Do not lift cylinders on the fork of fork lift trucks unless precautions are taken to stop them falling or rolling. If moving by hand only: ● Do not roll horizontal cylinders along the floor; this can cause cylinder valves to open and can damage cylinder markings and labels. Only 'churn' a cylinder over flat, smooth surfaces and then only for short distances (less than two meters).
Gas cylinder movement by road		The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 regulate the transportation of 'dangerous goods' by road or rail. This includes the carriage of both full and empty gas cylinders. This risk assessment does not cover carriage of gas cylinders outside the company.
First Aid		Make sure you are aware of the first aid provisions in place at the event. All accidents & near misses must be reported to your Supervisor

All persons working with this equipment or within close vicinity must sign and show that they have read and understood the risk assessment guidance and that they will follow the above control measures set out above during their work processes.

Additional Guidance	COSHH Assessment	Method Statement	Other (Specify)
Manual Handling		**N/A**	**Only trained persons are allowed to operate this equipment.**
Name			
Signed			Date