



This form is to be used in conjunction with the Environment Health and Safety Manual Procedure 3.2 Hazard Identification, Assessment and Control - Application.

## Information of Activity

Activity: Movement and use of compressed gas cylinders Location: Chemistry

Identified by: G. Papadopoulos Date: 11/8/06

Identified Hazard / Aspect: Escape of gas, manual handling, crushing from falling cylinder

## Risk Analysis matrix – level of risk

Identified Hazards	Risk Assessment			Risk Score	Risk Level
	Exposure (E)	Likelihood (L)	Consequence (C)	E x L x C	
Accidental release of gas from incorrect fitting of regulator	3	0.1	10	3	M
Moving gas cylinders (up to 80kg)	3	0.3	5	4.5	M
Crushing from falling cylinder	6	0.1	10	6	M

Definitions						
Exposure	E	Likelihood	L	Consequence	C	Risk Score
Continuously	10	Almost Certain	1.0	Catastrophic	20	<b>E</b> >20 <b>H</b> >10 <b>M</b> 3-10
Frequently	6	Likely	0.6	Major	10	
Occasionally	3	Possible	0.3	Moderate	5	
Infrequently	2	Unlikely	0.1	Minor	2	<b>L</b> < 3
Rarely	1	Rare	0.05	Insignificant	1	

Hierarchy of Risk Controls  
**Elimination** is a permanent solution and should be attempted in the first instance.  
**Substitution** involves replacing the hazard or environmental aspect by one of lower risk.  
**Engineering** controls involve physical barriers or structural changes to the environment or process.  
**Administrative** controls reduce hazard by altering procedures and providing instructions.  
**Personal protective equipment** last resort or temporary control.

### LEGEND

E: extreme/significant risk; immediate action required; must be managed by senior management with a detailed plan, notify RMO immediately.

H: high risk, senior management attention needed, detailed research and management planning at senior levels

M: moderate risk, management responsibility must be specified; manage by specific monitoring or response procedures

L: low risk, manage by routine procedures; unlikely to need specific allocation of resources

## Details of Risk Controls to be Taken

Risk Controls: (These should be determined by both the person(s) identifying the risk and the responsible manager and HSR or Environmental Representative). When determining risk controls refer to Hierarchy of Risk Control. Some examples are operating manuals, safe work procedures, licenses, permits to work, training and instruction etc

Cylinder trolleys to be used for transport, to which the cylinder must be securely chained. Cylinders must never be left freestanding, they must be chained securely to wall or bench when in use. Cylinders should only be left on a trolley for short periods of time, as a temporary measure ie when used in various locations in a lab.

Correct regulators to be used and all gas vented into a fume hood. Regulators must be removed when transporting cylinders.



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## RISK ASSESSMENT 3D Model

EHS Manual

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The number of cylinders should be kept to a minimum, and they must not be stored in labs. Flammable gases must never be stored near Oxygen. A fire resistant wall or separation of 3 metres is required.

Safety glasses or face shield should be worn when placing or removing the regulator and when opening the spindle valve. Suitable closed-toe shoes worn to prevent crushing when moving cylinders.

Person assessing the risk:  G. Papadopoulos  Date:  11/8/06

Authorised by:  G. Papadopoulos  Planned completion date:

### Risk Control Measures Completed

Actions by:  G. Papadopoulos  Completed (Initials & date):  11/8/06