



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: Using a schlenk line Location: Chemistry

Identified by: G. Papadopoulos Date: 15/5/07

Identified Hazard / Aspect: Implosion/explosion hazard

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	
Implosion/explosion hazard	6	0.1	5	3	M

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

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

Schlenk lines are used as a control measure for successfully manipulating air sensitive compounds. The high vacuum is also often used to remove the last traces of solvent from a sample.

An implosion can occur due to the use of a high vacuum and flaws in the glass apparatus. Always check for cracks or faults in the apparatus before use.

An explosion can occur due to the common use of liquid nitrogen in the cold trap, used to protect the vacuum pump from solvents. If a reasonable amount of air is allowed to enter the Schlenk line, liquid oxygen can condense into the cold trap as a pale blue liquid. An explosion may occur due to reaction of the liquid oxygen with any organic compounds also in the trap. Ensure that inert gas is always present in the line.

Keep the fume hood sash as low as possible to prevent glass flying out of the fume hood in the event of an explosion/implosion.

Person assessing the risk: G. Papadopoulos Date: 15/5/07

Authorised by: G. Papadopoulos Planned completion date: 15/5/07



THE UNIVERSITY OF
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RISK ASSESSMENT 3D Model

EHS Manual

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Risk Control Measures Completed

Actions by: _____ G. Papadopoulos _____ Completed (Initials & date): ___15/5/07___