RISK ASSESSMENT 3D Model

EHS Manual

THE UNIVERSITY OF MELBOURNE

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: Use of rotary evaporators Location: Chemistry labs (Organic usually)

Identified by: _G. Papadopetros_____ Date: __6/3/06_____

Identified Hazard / Aspect: Implosion, contact with hot liquid/steam, pressure build up, organic solvent fire

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	
Glass implosion	2	0.3	5	3	M
Contact with hot liquid/steam	2	0.1	5	1	L
Pressure build up causing apparatus breakage	2	0.1	5	1	L
Solvent spill/fire	2	0.1	10	2	L

Definitions

Exposure	E	Likelihood	L	Consequence	C	Risk Score	Hierarchy of Risk Controls
Continuously	10	Almost Certain	1.0	Catastrophic	20	**E** >20 **H** >10	**Elimination** is a permanent solution and should be attempted in the first instance.
Frequently	6	Likely	0.6	Major	10	**M** 3-10	**Substitution** involves replacing the hazard or environmental aspect by one of lower risk.
Occasionally	3	Possible	0.3	Moderate	5		**Engineering** controls involve physical barriers or structural changes to the environment or process.
Infrequently	2	Unlikely	0.1	Minor	2	**L** < 3	**Administrative** controls reduce hazard by altering procedures and providing instructions.
Rarely	1	Rare	0.05	Insignificant	1		**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

- Glass components of the rotary evaporator should be made of Pyrex or similar glass. Volumes of 1 litre or larger must be enclosed in tape or plastic mesh to restrain fragments in case of implosion. Visually inspect glassware before use. Do not use chipped or broken glass.
- Increase in rotation speed and application of vacuum to the flask whose solvent is to be evaporated should be gradual.
- Do not leave rotary evaporator switched on when unattended.
- Avoid contact with the water bath or the steam from it.

• Ensure that the apparatus is electrically checked on an annual basis and is maintained in good working order.
• Always check for blockages during the experiment.
• Always keep organic solvents and residues away from the hot water bath or the electrical components.
• Avoid heating the water bath or contents to extreme temperatures.
• Always wear a lab coat and safety glasses. Have a pair of thermal gloves available.

Person assessing the risk: G. Papadopetros Date: 6/3/06

Authorised by: ____ _____ G. Papadopetros ____ Planned completion date: _____

Risk Control Measures Completed

Actions by: _____ _____ Completed (Initials & date): _____