



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: Solvent distillation

Location: __Chemistry__

Identified by: G.Papadopoulos

Date: 4/7/07

Identified Hazard / Aspect: Drying and distilling solvents over flammable solids (sodium, calcium hydride, magnesium methoxide or ethoxide)

Risk Analysis matrix – level of risk

Identified Hazards	Risk Assessment			Risk Score E x P x C	Risk Level
	Exposure (E)	Likelihood (L)	Consequence (C)		
Contact with chemicals	6	0.3	5	9	Med
Hot burns	6	0.3	2	3.6	Med
Explosion	6	0.1	20	12	High
Electric shock from cable touching hot surface, melting insulation and making appliance live	6	0.1	10	6	Med

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	
Occasionally	3	Possible	0.3	Moderate	5	
Infrequently	2	Unlikely	0.1	Minor	2	L < 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 Action to be Taken

Actions: (These should be determined by both the person(s) identifying the risk and the responsible manager and HSR or Environmental Representative). When determining action refer to Hierarchy of Risk Control.

- Ensure no open flames or sparks are used around the distillation apparatus
- Do not allow solvents to evaporate to dryness as this has the potential to cause excess heating and therefore explosion.
- This should be set up in a fume hood. Where this is not practicable, ensure a blast shield is placed around the apparatus to guard against projectiles in the event of an explosion. A blast shield should also be considered if set up in a fume hood as secondary protection.



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- Transfer of purified liquid from flask into containers should be done in a fume hood. Container should be labeled if the chemical is not put to immediate use.
- Because distillation of a stabilized liquid will remove the stabiliser, the distillate must be stored with care and monitored for peroxide formation.
- Use a heating mantle rather than a hotplate so that all hot surfaces are enclosed as much as possible. Ensure that the power cord is secured away from the heating mantle and apparatus.
- Use heat proof gloves or tongs to handle any hot equipment.
- Ensure equipment has been electrically tested. Visually inspect leads prior to use.
- Lab coat, safety glasses, closed shoes and appropriate gloves should be worn when handling chemicals.

Person assessing the risk: G.Papadopetros Date: 4/7/07

Authorised by: G.Papadopetros Planned completion date: 4/7/07

Actions Completed

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