THE UNIVERSITY OF MELBOURNE

RISK ASSESSMENT 3D Model

EHS Manual

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 metallic cyanide Location: _Chemistry_____

Identified by: ___ G. Papadopetros _____ Date: __31/1/06_____

Identified Hazard / Aspect: Very high toxicity, minute quantities can lead to death, production of Hydrogen cyanide gas upon reaction with acids and water.

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	
Exposure to metallic cyanides	2	0.3	20	12	H
Mixed with acids and water releases HCN in atmosphere	2	0.1	20	4	M

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

Supervision: Reactions using metal cyanides must only be undertaken by experienced handlers. Postgraduate students using it for the first time must only do so under the complete supervision of their academic supervisor. Afterwards, continuing casual supervision required by their supervisor.

Procedures outlined in the School Safety Manual must be adhered to at all times. Refer also to http://safety.chemistry.unimelb.edu.au/cyanide.php

Storage: Metal Cyanides are to be stored in the safe in the Chem. Store. Users are to fill in the log book, take their bottle to their lab, weigh out what they need and return the bottle to the Store. The Cyanide antidote kit must also be taken from the Store and be kept by the user while cyanide is in use. Reference must be made to an up-to-date Material Safety Data Sheet. Do not store cyanide in the lab.

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Use: Reactions using these materials must never be attempted out of normal working hours or over the lunch period when trained First Aiders may not be available. These materials must never be used by someone working alone and for larger scale operations, workers should operate in pairs.

All operations, including weighing material, must be carried out in a fume hood that has been tested in the last six months and is above minimum standard.

Appropriate personal protective equipment, *i.e.* impermeable gloves, lab coat and safety glasses, must be worn.

A large container of aqueous ferrous sulphate solution must be kept at hand for the immediate immersion of all equipment that has contained or contacted this material (weighing boats, spatulae, *etc.*) and for the neutralisation of small spills.

Person assessing the risk: __ G. Papadopetros _____ Date: ___31/1/06_____

Authorised by: _____ G. Papadopetros _____ Planned completion date: _31/1/06_

Risk Control Measures Completed

Actions by: ____ G. Papadopetros _____ Completed (Initials & date): __31/1/06_____