



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: Storage and handling of flammable liquids Location: Chemistry

Identified by: G. Papadopoulos Date: 4/12/06

Identified Hazard / Aspect: Fire, explosion, spillage, exposure through inhalation, absorption or ingestion.

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	
Fire or explosion due to contact with ignition source or chemical reaching auto-ignition temp	6	0.3	10	18	H
Chemical spillage	6	0.3	5	9	M
Worker exposure	6	0.3	5	9	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	
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 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

TRANSPORT: Flammable liquids in bottles of 1lt or greater must be transported in a plastic winchester carrier. 20lt drums must be transported on a trolley with sidewalls in case of spills and to prevent slipping off, and the chemicals decanted on the roof. (See decanting RA and procedure)

STORAGE: Flammable liquids to be kept to the practical minimum amount in the laboratory, in containers of no more than 5 litres. Flammable liquids must be stored in appropriate containers and appropriately labelled. (See labelling procedure). Bottles of flammable liquids must be stored separately from all other dangerous goods, in flammable liquid cabinets when not in use and put away at night, not stored in or on the workbench. When stored on open shelves they must be segregated from Classes 4.2, 4.3, 5.1 and 5.2, and conc. nitric acid (strong oxidiser). (Segregation=reasonable space or physical barrier separating incompatibles, vertically



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and horizontally) Where practicable, solvents should be stored in spill trays. When requiring refrigeration, flammable liquids must be stored in intrinsically safe refrigerators or freezers, and a Flammable Liquid diamond placed on the door. Waste solvent is as flammable as pure solvent and containers should not be left in the open laboratory. On hot days, Diethyl ether drums and bottles may require venting to relieve pressure build-up.

USE: Solvents and other flammable liquids should be used with constant regard to the danger they pose to life and property, particularly the ones with a sub risk of class 6.1. Under normal circumstances they should always be used in a fume-hood away from possible sources of ignition. The MSDS must be consulted before use to ensure reactions don't reach auto-ignition temperature. Flammable liquids must never be poured down sinks. Small chemical spills must be immediately cleaned up. Vermiculite spill kits are present in all labs and mobile spill stations. For major spills, contact the Safety Officer. Electrical equipment used in the fume hood with flammable liquids must be intrinsically safe and electrically tested.

PPE: Lab coat, glasses, appropriate gloves and closed shoes to be worn at all times. Consult with the MSDS for appropriate gloves to use.

Also refer to <http://safety.chemistry.unimelb.edu.au/Chemsafety.php>

Person assessing the risk: G. Papadopoulos Date: 4/12/06

Authorised by: Prof. K. Ghiggino Planned completion date:

Risk Control Measures Completed

Actions by: G. Papadopoulos Completed (Initials & date): 4/12/06