Risk Assessment for the Preparation of Liposomes by Extrusion

Location(s): *(where will the activity or task take place?)*				**CGxxx**	**Reference**	**Example_Risk_1**
Description of task or Activity *(enough information to establish the foreseeable hazards)*	**Hazards** *(things with the potential to cause harm)*	**Those at risk** *(people who could be harmed)*	**How could they be harmed?** *(nature of injuries, damage that could result)*	**Uncontrolled risk level** *(level of risk without control)*	**Required controls** *(how the risk can be removed or reduced by for example engineered methods, safe systems of work, training and/ or personal protective equipment)*	**Controlled risk level** *(level of risk remaining when controls are in place)*
Lipid handling, preparation of thin films, aqueous dispersion, freeze thawing	Chemical exposure	All personnel in CGxxx	Effects of chemical exposure	**CAUTION**	See accompanying COSHH assessment (Ref: Example_COSHH_1)	**CARE**
	Chemical incompatibility	All personnel in CGxxx	Explosion, formation of toxic or harmful byproducts	**CAUTION**	See accompanying COSHH assessment (Ref: Example_COSHH_1)	**CARE**
	Chemical spillage	All personnel in CGxxx	Effects of chemical exposure	**CAUTION**	See accompanying COSHH assessment (Ref: Example_COSHH_1)	**CARE**
	Fire	All laboratory personnel	Burns, explosion and debris	**CAUTION**	See accompanying COSHH assessment (Ref: Example_COSHH_1)	**CARE**
	Use of glassware	Researcher	Cuts, chemical contamination from broken glass	**CARE**	Good laboratory practice; used glass vials cleaned and disposed in glass bin	**CARE**
	Use of sharps	All in CGxxx	Needlestick injuries	**CARE**	Good laboratory practice; no re-sheathing of sharps; approved code of practice for correct disposal in sharps containers	**CARE**
	Use of cryogens	All in CGxxx	Burns, explosion	**CAUTION**	No use of liquid nitrogen mixed with flammable solvents; no systems cooled by liquid nitrogen left open to the air; gradual addition of solid carbon dioxide to cold fingers.; eye protection (EN 166-F); loose fitting gloves, non-rubber; lab coat	**CARE**
	Use of vacuum equipment	All in CGxxx	Implosion, effects of chemical exposure	**CAUTION**	inspection of vacuum lines before use; no use of damaged, scratched or cracked glassware; use of covered glassware to minimise the likelihood of generating high velocity glass fragments; eye protection (EN 166-F); lab coat	**CARE**
	Use of rotary	All in CGxxx	As for ‘Use of	**CAUTION**	As for ‘Use of vacuum equipment’ and ‘Use of	**CARE**

	evaporator		vacuum equipment' and 'Use of cryogens', plus hazards from rotating equipment		cryogens'; no manipulation of rotating glassware	
Lipid extrusion	Pressurised equipment	All in CGxxx	Release of stored enegy; flying debris; formation of aerosols	**CAUTION**	Instrument failsafe mechanisms (pressure relief valve; equipment unable be opened whilst pressurised); code of practice; user training; regular inspection.	**CARE**

Assessment prepared by		**Supervisor/PI acceptance**		**Review date**
Name:	A Researcher	Name:	T. H. E. Supervisor	1/6/2024
Signature:	A Researcher	Signature:	T. H. E. Supervisor	
Date:	1/6/2023	Date:	1/6/2023	
Competency Level:	2	Competency Level:	1 (must be Level 1 to authorise)	
Assessment read and understood by				
Researchers trained to use the Lipex liposome extruder.				

Durham University

Responsible Safety

… together we can stay safe & healthy.

RISK LEVEL

		Likelihood of Occurrence			
		Very Unlikely Little or no chance of occurrence	**Unlikely** A rare combination of factors would be required for an incident to result.	**Possible** Not certain to happen but an additional factor may result in an accident	**Probable** More likely to occur than not
Hazard Severity	**Minor** No or minor injury (first aid)	**CARE**	**CARE**	**CARE**	**CAUTION**
	Moderate Off-site medical treatment or DAFW*	**CARE**	**CARE**	**CAUTION**	**ALERT**
	Serious More than one DAFW, long-term absence	**CARE**	**CAUTION**	**ALERT**	**STOP!**
	Major Permanent disability or harm, fatality	**CAUTION**	**ALERT**	**STOP!**	**STOP!**

***DAFW – Day Away From Work**

CARE	Minor harm possible, serious harm very unlikely to occur; implement controls and ensure care is taken when performing activity.
CAUTION	Minor harm probable, major harm unlikely to occur; follow all control measures, increased level of competence required and ongoing self-assessment of risks identified.
ALERT	Moderate degree of harm probable but major harm unlikely; critically assess the risks and appropriate controls. Specific competence required and ongoing assessment of risks by individual and/or supervisor.
STOP!	Serious or major harm will probably occur; stop the activity and critically assess the risks, review safety aspects of activity and implement further, appropriate controls. Consider referencing HSE or other Best Practice, consider involving HSS.