



Safety Documentation

Risk Assessment

Reference

CBE 192

Method Statement

Reference

Chemicals COSHH

Reference

School or Service School of Aeronautical, Automotive, Chemical and Materials Engineering

Department Department of Chemical Engineering

Originator name Nishant Joglekar

email address n.joglekar@lboro.ac.uk

Location H25, Centre for Biological Engineering

Project / Activity / Task Operation of Asymptote VIA Freeze Research controlled rate freezer

Supervisor Name Karen Coopman

Overall Assessment Scores

Risk Assessment The activity is LOW RISK - and is effectively controlled

COSHH Risk Assessment Low

Loughborough University

Department of Chemical Engineering

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Category 1: Machinery & work equipment:			
Design and Construction	Mechanical hazards	Electrical hazards	Radiation hazards
N/A	Crushing	Direct contact	N/A
Category 2: Workplace			
Localised cold surfaces			
Category 3: Hazardous and/or Harmful substances			
N/A			
Category 4: Work activity			
N/A			
Category 5: Work organisation			
N/A			

Explain the risks associated with these hazards			
People / Groups at risk	<input type="text" value="Operator only"/>		
Enter risk details here:-	Impact	Probability	Risk Score
<input type="text" value="Cold burns from localised cold surfaces (up to -110C)"/>	<input type="text" value="Very Harmful"/>	<input type="text" value="Unlikely"/>	High
What are the control measures?	Lowers Impact	Lowers Probability	
<input type="text" value="Restricted usage to authorised users"/>	<input type="text" value="Significantly"/>	<input type="text" value="Significantly"/>	
<input type="text" value="Appropriate PPE worn"/>	<input type="text" value="Significantly"/>	<input type="text" value="Significantly"/>	
			Residual Risk
			Low
People / Groups at risk	<input type="text" value="Operator only"/>		
Enter risk details here:-	Impact	Probability	Risk Score
<input type="text" value="Possibility of electrical shocks and burns"/>	<input type="text" value="Very Harmful"/>	<input type="text" value="Highly Unlikely"/>	Medium
What are the control measures?	Lowers Impact	Lowers Probability	
<input type="text" value="Suitable PAT testing performed regularly to ensure freezer is safe to use, with no electric defects and plugs and leads correctly earthed"/>	<input type="text" value="Significantly"/>	<input type="text" value="Significantly"/>	

Process Risk Assessment Form (Continued)

			Residual Risk
			Low
People / Groups at risk	Operator only		
Enter risk details here:-	Impact	Probability	Risk Score
Risk of crushing of fingers between door and chamber	Harmful	Highly Unlikely	Low
What are the control measures?	Lowers Impact	Lowers Probability	
Appropriate training provided for safe use	Significantly	Significantly	
			Residual Risk
			Low
People / Groups at risk	Operator only		
Enter risk details here:-	Impact	Probability	Risk Score
Risk of crushing of fingers between plate and chamber	Harmful	Highly Unlikely	Low
What are the control measures?	Lowers Impact	Lowers Probability	
Appropriate training provided for safe use	Significantly	Significantly	
			Residual Risk
			Low

Who may be at risk as a result of this activity?

Personnel Group	Maximum (Task setup/ Re-configuration)	High (Performing the task)	Medium (Observing the task)	Low (Present, but not involved)	Lone Working (Out of hours)	No Exposure Permitted	Total
Academic Staff	0	0	0	0	0	0	0
Technical Staff	1	1	0	0	0	0	2
Research Staff (PDRA)	1	1	0	0	0	0	2
Research Students (PhD)	0	1	0	0	0	0	1
Students (Undergraduate / MSc)	0	0	0	0	0	0	0
Visitors	0	0	0	0	0	0	0
Others - Over-type as needed	0	0	0	0	0	0	0
Total	2	3	0	0	0	0	5

With these controls in place, the risk is:

Process Risk Assessment Form (Continued)

The activity is LOW RISK - and is effectively controlled

Loughborough University

Department of Chemical Engineering

Safety Method Statement



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What equipment will be used in this activity?

What training must be completed to do this activity?

What chemicals are being used? (These must be included in the COSHH Form)

Spill and accident procedures.

Procedure in the event of an emergency. (How to leave the process in a safe condition in such an event)

References.

Detailed sequential description of the process

Process step	Precautionary measures and comments
Open lid and clip in SBS plate.	Be careful not to trap fingers between lid and chamber/ between plate and chamber
Turn on controlled rate freezer (CRF), log in and select appropriate protocol. If required, create new protocol as per the user manual.	Make sure system has booted up before logging in
Prepare samples in cryovials and place in the cooled SBS plate. If preferred, the cooled SBS plate can be removed from the CRF to add the samples outside of the CRF following which the plate can then be placed back in the freezer. Once samples are loaded, close the lid of the CRF and continue the run. Refer to user manual for further details.	When opening/closing the lid, be careful not to trap fingers between lid and chamber. If removing/inserting the plate, be careful not to trap fingers between plate and chamber.
When run is complete, remove the SBS plate and transfer vials to cryostores for long-term storage. (the run can be stopped at any stage). Refer to user manual for further details.	Depending on the protocol, the plate temperature can go as low as -110C. Wear appropriate gloves to avoid cold burns. Refer to SOP031 for stepwise instructions and safety precautions of transferring vials to the cryostores.

Safety Method Statement (Continued)

Process step	Precautionary measures and comments
Press 'finish' on user interface and leave lid open (heating cycle should have now started). Refer to user manual for further details.	Make sure the lid is kept open as the heating cycle starts
At this stage, if required, the run data can be exported using a USB, or can also be emailed. Refer to user manual for details.	N/A
Once the heating cycle is complete, a new run can be started or the machine can be switched off.	When closing the lid, be careful not to trap fingers between lid and chamber.



Supervisor and Departmental Safety Office (DSO) Sign-off.

Supervisors

Please check the documents above and if you want to approve them:

- 1) Electronically sign this document
- 2) Save it to a local drive (You will be prompted to do this)
- 3) eMail the signed document to the DSO.

DSO

Please review the documents above and if you want to approve them:

- 1) Enter the reference numbers as appropriate
- 2) Electronically sign this document
- 3) Save it to a local drive (You will be prompted to do this)
- 3) eMail the signed document to the originator

IF YOU DO NOT WANT TO AUTHORISE THE FORMS,

Please do not sign the form, but click the "Not Approved" check-box and return it to the originator by email stating why and what you expect them to do to put it right in the comments box below.

Not Approved

Supervisors Signature

Karen Coopman

Digitally signed by Karen Coopman
Date: 2020.10.14 09:40:51 +01'00'

Form Reference Numbers

Risk Assessment

Method Statement

COSHH Assessment

DSO Signature

Carolyn Kavanagh

Digitally signed by Carolyn Kavanagh
Date: 2021.05.11 12:59:30 +01'00'

This document set must be reviewed and re-approved at the following times:

- 1) After the first occurrence of the activity described above (Review only)
- 2) After any change to the procedure or reagents used
- 3) After any incident resulting from this activity
- 4) At least annually from the date of approval

Next Review:

Review comments

