Safety Documentation

Please select the forms you require by selecting the check boxes below.
You can select more than one.

☑ **Risk Assessment** ☑ **Method Statement** ☐ **Chemicals COSHH**

Once you have made your selections, scroll down and complete the forms.

Buttons: [+] will add a row to a list [X] will delete a row from a list

You may save this file to a local drive at any time.
When you have finished, save the file to a local drive and email it to your supervisor for authorisation.

Supervisors - There is a sign-off section at the end of the document set that must be completed.

Staff may "self authorise", (as a supervisor), but the forms must still be submitted to the DSO for approval.

IMPORTANT:

YOU ***MUST NOT*** START ANY PRACTICAL WORK UNTIL THESE FORMS HAVE BEEN RETURNED TO YOU WITH **BOTH** YOUR SUPERVISOR's AND DSO's APPROVAL SIGNATURES ATTACHED.

Please complete these fields

School or Service	Wolfson School of Mechanical, Electrical and Manufacturing Engineering
Department	Centre for Biological Engineering
Originator name	Carolyn Kavanagh
email address	c.l.kavanagh@lboro.ac.uk
Location	CBE H31
Project / Activity / Task	Use of the 2 x Systec VX 95 Autoclave(S) in CBE
Supervisor Name	Mark Taylor

Version : 2.19

Loughborough University
Centre for Biological Engineering

Risk Assessment

Reference: SAF/MM6401

Location: CBE H31

Originator: Carolyn Kavanagh

Project / Activity / Task: Use of the 2 x Systec VX 95 Autoclave(S) in CBE

Is this process risk assessment for a : ○ Laboratory / Workshop ◉ General use

Category 1: Workplace	+
Localised hot surfaces	x
Category 2: Hazardous and/or Harmful substances	+
Substances under high pressure	x
Substances at high temperature	x
Biological substancees (Infection)	x
Toxic substances	x
Category 3: Activity	+
Awkward/Heavy lifting/Handling	x
Category 4: Organisation	+
	x

Explain the risks associated with these hazards

People / Groups at risk: Operator only — x

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	+
All Laboratory users have specific training on how to use the autoclaves safely and are made aware of the hazards. This training is detailed in the training file.	Significantly	Significantly	x
The door to the autoclave needs to be manually closed by the operator so minimal risk of door closing on fingers by a mechanical means. The lid stays up and back while not in use. Regular service and maintenance is carried out to detect any issues with the springs or hydraulics.	Significantly	Significantly	x

Residual Risk: Low

People / Groups at risk: Everyone in the room — x

Enter risk details here:-	Impact	Probability	Risk Score
Risk of Infection from biological material	Harmful	Highly Unlikely	Low

What are the control measures?	Lowers Impact	Lowers Probability	+

Process Risk Assessment Form (Continued)

All Biological material is of a good provenance and screened for infectious agents. All waste biological material is contained within a leak proof autoclave bag and secured at the top (with just a small gap for steam to penetrate) so there is little chance of exposure to worker.	Significantly	Significantly	x
All Laboratory users wear gloves at all times and other PPE as appropriate	Significantly	Significantly	x
Autoclave waste cycles are validated and set up to ensure sterilisation of biological material.	Significantly	Significantly	x
		Residual Risk	Low
People / Groups at risk	Operator only		x
Enter risk details here:-	Impact	Probability	Risk Score
Electrical shock from using equipment	Harmful	Highly Unlikely	Low
What are the control measures?	Lowers Impact	Lowers Probability	+
Equipment has two yearly PAT testing and visual checking of cables	Significantly	Significantly	x
		Residual Risk	Low
People / Groups at risk	Operator only		x
Enter risk details here:-	Impact	Probability	Risk Score
Risk of burns or scalding from hot surfaces	Harmful	Likely	High
What are the control measures?	Lowers Impact	Lowers Probability	+
Laboratory users are given specific training on what PPE to use and how to use the autoclaves safely. Procedure detailed in SOP 24 and 25.Training is recorded in training files.	Significantly	Significantly	x
Specific PPE is supplied (orange heat resistant gloves, impervious apron, safety glasses).	Significantly	Significantly	x
The Autoclaves will not open at extreme high temperatures. Door lock is temperature dependent. There is also an audible alarm when the door is opened to warn laboratory users to stand back to avoid steam hitting the face. Opening of door at high temperatures (due to failed cycle) is restricted using authorisation code.	Significantly	Significantly	x
Regular servicing and maintenance is carried out including annual calibration of temperatures.	Significantly	Significantly	x
		Residual Risk	Low
People / Groups at risk	Everyone in the room		x
Enter risk details here:-	Impact	Probability	Risk Score
Risk of explosion due to being a pressure vessel	Harmful	Unlikely	Medium
What are the control measures?	Lowers Impact	Lowers Probability	+

Process Risk Assessment Form (Continued)

Autoclaves are serviced twice a year and undergo a pressure vessel inspection every 12 months as preventative maintenance to identify potential risks.	Significantly	Significantly	x
Laboratory users are trained how to use the autoclaves correctly and safely to avoid creating a dangerous situation. (e.g leaving lids loose on bottles to prevent an explosion).	Significantly	Significantly	x
		Residual Risk	Low

People / Groups at risk	Operator only		x
Enter risk details here:-	Impact	Probability	Risk Score
Risk of injury from loading heavy items into autoclave	Harmful	Likely	High
What are the control measures?	Lowers Impact	Lowers Probability	+
Laboratory users are trained with regards to the hazards and avoid avoid awkward lifting. Trolleys are available to transport heavier loads to and from the autoclave.	Significantly	Significantly	x
Hoist available to lower heavy items into autoclave. Trolleys also available for transporting heavier items	Significantly	Significantly	x
		Residual Risk	Low

People / Groups at risk	Everyone in the room		x
Enter risk details here:-	Impact	Probability	Risk Score
Toxic vapours due to autoclaving of hazardous substance	Harmful	Unlikely	Medium
What are the control measures?	Lowers Impact	Lowers Probability	+
Laboratory users are trained (and training recorded) about the dangers of autoclaving hazardous substances	Moderately	Moderately	x
CBE air handling provides regular air changes	Significantly	Significantly	x
		Residual Risk	Low

People / Groups at risk	Operator and people in proximity		x
Enter risk details here:-	Impact	Probability	Risk Score
Mis-use of autoclave	Harmful	Unlikely	Medium
What are the control measures?	Lowers Impact	Lowers Probability	+
All CBE Laboratory users are trained on the use of the autoclaves and associated hazards and consequences of mis-use.	Moderately	Moderately	x
		Residual Risk	Low

People / Groups at risk	Operator and people in proximity		x
Enter risk details here:-	Impact	Probability	Risk Score
Risks from sterilisation of liquids	Harmful	Unlikely	Medium

Process Risk Assessment Form (Continued)

What are the control measures?	Lowers Impact	Lowers Probability	+
Dedicated liquid waste cycle has been set up for sterilisation of liquids and authorised users are trained to use it.	Significantly	Significantly	x
Use of PPE	Moderately	Moderately	x
Autoclave has temperature dependent door lock	Significantly	Significantly	x
Only temperature -resistant vessels are used	Moderately	Moderately	x

Residual Risk
Low

+ Add another Risk

With these controls in place, the risk is:

The activity is LOW RISK - and is effectively controlled

Loughborough University
Centre for Biological Engineering
Safety Method Statement

Loughborough University

Reference: SAF/MM6401

Location: CBE H31

Originator: Carolyn Kavanagh

Project / Activity / Task: Use of the 2 x Systec VX 95 Autoclave(S) in CBE

What equipment will be used in this activity?	+
2 x Systec VX Autoclaves	x
de-ionised water	x
Hoist (if required for heavy items)	x
steel buckets (for certain cycles)	x

What training must be completed to do this activity?	+
Waste Disposal and Autoclave training	x

What chemicals are being used? (These must be included in the COSHH Form)	+
None	x

Spill and accident procedures.	+
SOP038 Spill Response offers guidance on how to deal with spills. Any accidents must be reported through the University accident reporting procedures.	x

Procedure in the event of an emergency. (How to leave the process in a safe condition in such an event)	+
If it has not been possible to make turn off the autoclave (if cycle was running) before leaving the laboratory inform emergency services about pressure vessel in operation.	x

References.	+
SOP024 and SOP025	x

Detailed sequential description of the process

Process step	Precautionary measures and comments	+
Place waste/item in appropriate bag/vessel and ensure autoclave indicator strip is correctly positioned. Place into autoclave basket/ bucket. Close the door to the autoclave.	Always check if a load is already inside the autoclave by checking the log or screen. Wear PPE and stand back if load has just finished. If sterilising liquid ensure lids are not tightly closed and correct cycle is used. Ensure bucket is used if liquids present.	x
Ensure the de-ionised water tank has been topped up sufficiently		x
Select programme and start. Complete the log.		x
When cycle has finished check the screen for errors. Wearing PPE, press open and stand back. Once lid has opened carefully open up fully and retrieve material. Check it has worked successfully. (Check the autoclave indicator tape ,print out and on the screen.) Place autoclaved waste in appropriate disposal area.	Ensure the door has been opened fully to avoid the lid crushing fingers. If an error message appears or indicator strip not black the load may not be sterile and run must be repeated. If liquid cycle has been used tighten the lid of bottle after cycle completed and return reference probe to holder. Use trolley/hoist for heavy items.	x

Safety Method Statement (Continued)

Process step	Precautionary measures and comments	+
Complete the log and put print out in collection bag.		x
Full details in SOP024 and SOP25		x

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: Mark Taylor — Digitally signed by Mark Taylor
Date: 2019.12.09 08:57:50 Z

Form Reference Numbers

Risk Assessment	Method Statement	COSHH Assessment
SAF/MM6401	SAF/MM6401	

DSO Signature: Digitally signed by David Green
Date: 2020.03.11 16:01:58 Z
Adobe Acrobat version: 2020.006.20034

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: 08/12/2020

Review comments