Safety Documentation

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

☑ **Process 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	PRAVEENKUMAR KAVERI
email address	P.Kaveri@lboro.ac.uk
Location	H34 & T.2.08b
Project / Activity / Task	Enzyme linked Immunosorbent Assay (ELISA)
Supervisor Name	Dr. Sourav Ghosh

Version : 2.15

Loughborough University
CENTRE FOR BIOLOGICAL ENGINEERING

Process Risk Assessment

Reference: SAF/MEME/6088

Location: H34 & T.2.08b

Originator: PRAVEENKUMAR KAVERI

Project / Activity / Task: Enzyme linked Immunosorbent Assay (ELISA)

Is this process risk assessment for a : ☑ Laboratory / Workshop ○ Office

Category 1: Machinery & work equipment:

Design and Construction	Mechanical hazards	Electrical hazards	Radiation hazards	+
N/A	N/A	Electrical test labels current	N/A	x

Category 2: Workplace

+
N/A x

Category 3: Hazardous and/or Harmful substances

+
Irritant substances x

Category 4: Work activity

+
N/A x

Category 5: Work organisation

+
N/A x

Explain the risks associated with these hazards

People / Groups at risk: Operator only x

Enter risk details here:-	Impact	Probability	Risk Score
May cause skin irritation or eye irritation	Slightly Harmful	Highly Unlikely	

What are the control measures?	Lowers Impact	Lowers Probability	+
Wear protective equipment. Keep unprotected persons away. Ensure good ventilation/exhaustion at the workplace. Avoid contact with skin, eyes and clothing Avoid breathing fumes.	Significantly	Significantly	x

Residual Risk: Low

+ Add another Risk

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	0	0	0	0	0	0	0

Process Risk Assessment Form (Continued)

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
Research Staff (PDRA)	1	0	1	0	0	0	2
Research Students (PhD)	1	0	1	0	0	0	2
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	0	2	0	0	0	4

◯ **This work involves the use of lasers**

With these controls in place, the risk is:

The activity is LOW RISK - and is effectively controlled

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CENTRE FOR BIOLOGICAL ENGINEERING

Safety Method Statement

Reference: SAF/MEME/6088

Location: H34 & T.2.08b

Originator: PRAVEENKUMAR KAVERI

Project / Activity / Task: Enzyme linked Immunosorbent Assay (ELISA)

What equipment will be used in this activity?

OmegaFluorostar Microplate reader

What training must be completed to do this activity?

Aseptic technique training has been completed.

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

Synthetic urine solution

Spill and accident procedures.

Personal precautions, protective equipment and emergency procedures. Wear protective equipment. Keep unprotected persons away.· Environmental precautions:Dilute with plenty of water.Do not allow to enter sewers/ surface or ground water.· Methods and material for containment and cleaning up:Ensure adequate ventilation. Use neutralizing agent. Absorb with liquid-binding material (i.e. sand, diatomite, acid binders, universal binders, sawdus).Recommendation: Disposal must be made according to official regulations. Recommended cleansing agent: Water, if necessary with cleansing agents

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

Wear protective equipment. Keep unprotected persons away. Wear protective equipment. Keep unprotected persons away.· Environmental precautions:Dilute with plenty of water.Do not allow to enter sewers/ surface or ground water.· Methods and material for containment and cleaning up:Ensure adequate ventilation.Use neutralizing agent. Absorb with liquid-binding material (i.e. sand, diatomite, acid binders, universal binders, sawdus).Recommendation: Disposal must be made according to official regulations. Recommended cleansing agent: Water, if necessary with cleansing agents

References.

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Detailed sequential description of the process

Process step	Precautionary measures and comments
Enzyme-linked Aptamer Assay (ELAA) for validating selected aptamer performance in synthetic urine. The 100 micro-liter of biotin-antibody will be added to streptavidin coated wells on 96 well microtiter plate. Each well will be then separately added with 100µl of bacterial spiked synthetic urine (ranging from 5000 to 100 cells) and then the plate will be covered and incubated for 2 hours at room temperature in the Biological safety cabinet. The plates will be washed three times by filling the wells with 100 µl PBS-0.1%Tween20. The solutions or washes are removed by flicking the plate over a tray containing 1% Virkon solution. About 100µl of diluted antibody (1:1000 dilutions in PBS) to each well and then the plate will be incubated for an hour with gentle shaking. Finally, 100µl of Aptamer or Antibody conjugated FITC (1:2000 dilutions in PBS with 3% BSA or 3% skim milk), will be added to each well.	Wear protective equipment. Keep unprotected persons away.

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CENTRE FOR BIOLOGICAL ENGINEERING

COSHH Form

Reference: SAF/253

Location: H34 & T.2.08b

Originator: PRAVEENKUMAR KAVERI

Project / Activity / Task: Enzyme linked Immunosorbent Assay (ELISA)

CHEMICAL NAME

Artificial Urine Medium

CAS No. 7732-18-5

W.E.L. (Itel / stel) Long-term va

Amount used		Period of use (hrs)	The process is:	Physical State
2.5	ml	2	Semi Closed	Non-Volatile Liquid

- [x] Eyes
- [x] Skin
- [x] Inhaled
- [x] Ingested

Hazard Rating: High

Exposure Potential: Low

OVERALL RISK: Medium

Hazard Statement and Description	Precaution Statement and Description
H335 May cause respiratory irritation.	No Precaution statements applicable
H315 Causes skin irritation.	No Precaution statements applicable
H302 + H308 Harmful if swallowed or in contact with skin.	No Precaution statements applicable
H319 Causes serious eye irritation.	No Precaution statements applicable

How will the precautions listed above be implemented?

Wear protective equipment. Keep unprotected persons away.
Ensure good ventilation/exhaustion at the workplace.
Avoid contact with skin, eyes and clothing
Avoid breathing fumes.

Special Storage and Containment Measures	Disposal Method
Keep container tightly closed in a dry and well-ventilated place. Store in cool place. Recommended storage temperature 2 - 8 °C or store frozen.	Aqueous waste - Check with Technician or Supervisor

How will spillages be dealt with?

Spill kit

+ Add another chemical

Statement of work (Process to be undertaken)

Enzyme-linked Aptamer Assay (ELAA) for validating selected aptamer performance in synthetic urine.
The 100 micro-liter of biotin-antibody will be added to streptavidin coated wells on 96 well microtiter plate. Each well will be [illegible]parat

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Personal protection requirements not covered in the precaution statements above.

Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Environmental precautions:
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
Methods and material for containment and cleaning up:
Ensure adequate ventilation.
Use neutralizing agent.
Absorb with liquid-binding material (i.e. sand, diatomite, acid binders, universal binders, sawdust).

COSHH Form (Continued)

Sources of information and references	Reference to **existing approved** Risk Assessment
Safety Data Sheet (SDS) OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.	Biological risk assessment

With the current controls, the risk of using these chemicals is: Medium

Supervisor to check that the process involving the safe use of these chemicals has been satisfactorily evaluated

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: Sourav Ghosh — Digitally signed by Sourav Ghosh Date: 2019.01.08 12:42:58 Z

Form Reference Numbers

Risk Assessment	Method Statement	COSHH Assessment
SAF/MEME/6088	SAF/MEME/6088	SAF/253

DSO Signature: R I Temple — Digitally signed by R I Temple Date: 2019.01.08 14:25:37 Z

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: 08/01/2020

Review comments