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	Wolfson School T.2.08 B - Loughborough University
Project / Activity / Task	Enzyme linked Immunosorbent Assay (ELISA) method for LPS antigen detection using fluorescent aptamer probe
Supervisor Name	Dr. Sourav Ghosh

Version : 2.15

Loughborough University
CENTRE FOR BIOLOGICAL ENGINEERING

Process Risk Assessment

Reference: CBE/137

Location: Wolfson School T.2.08 B - Loughborough University

Originator: PRAVEENKUMAR KAVERI

Project / Activity / Task: Enzyme linked Immunosorbent Assay (ELISA) method for LPS antigen detection using fluorescent aptamer probe

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
Harmful if swallowed.	Harmful	Highly Unlikely	Low

What are the control measures?	Lowers Impact	Lowers Probability	+

Process Risk Assessment Form (Continued)

Eye or Face protection : Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Skin protection Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Body Protection Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. GGeneral advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area. If inhaled: If breathed in, remove to fresh air. If not breathing, give artificial respiration. Consult a physician. In case of skin contact: Wash skin with soap and plenty of water. Consult a physician. In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.	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
Research Staff (PDRA)	1	0	1	0	0	0	2
Research Students (PhD)	1	1	1	0	1	0	4
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	1	2	0	1	0	6

Process Risk Assessment Form (Continued)

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

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

Reference: CBE/137

Location	Wolfson School T.2.08 B - Loughborough University	Originator	PRAVEENKUMAR KAVERI
Project / Activity / Task	Enzyme linked Immunosorbent Assay (ELISA) method for LPS antigen detection using fluorescent aptamer probe		

What equipment will be used in this activity?

Tecan F200 Microplate reader in Wolfson T.2.08.B	x

What training must be completed to do this activity?

Aseptic technique training has been completed.	x
ELISA Risk assessment has been completed	x

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

Lipopolysaccharides from Escherichia coli O55:B5 and Lipopolysaccharides from Escherichia coli O111:B4	x

Spill and accident procedures.

Personal precautions, protective equipment and emergency procedures Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust. Do not let product enter drains. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal according to local regulations	x

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

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.	x

References.

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006 Revision Date 06 Feb. 2019	x

Detailed sequential description of the process

Process step	Precautionary measures and comments

Safety Method Statement (Continued)

Process step	Precautionary measures and comments	+
Enzyme-linked Immunosorbent Assay (ELISA) or Enzyme-linked Aptamer Assay (ELAA) for validating selected aptamer performance in buffer. Coat the wells of a polystyrene microtiter plate with the Lippopollysachride at 1–10 µg/mL concentration in carbonate/bicarbonate buffer (pH 9.6). The plate will be incubated overnight at 4 degrees. The plates will be washed with the washing solution(100 µl PBS-0.1%Tween20), and the washed solution will be stored in a separate container. Finally, 100µl of Aptamer (2 micromole)or Antibody conjugated FITC (1:2000 dilutions in PBS with 3% BSA or 3% skim milk), will be added to each well, and then the plate will be covered and incubated for an two hour in the Biological Safety Cabinet. After 2 hours of incubation the plates will be washed with washing solution(100 µl PBS-0.1%Tween20). The covered plate will be used for fluorescence measurement in the Tecan F200 Microplate reader After the fluoroscence reading, the plates will be sealed tightly and discarded to the autoclave bag. Note : The LPS is polymer and already detoxified, it cannot be treat with Virkon. Hence, it will be sealed in autoclave bag and sent to treatment by incineration to achieve complete inactivation.	Wear protective equipment. Keep unprotected persons away.	x

Loughborough University
CENTRE FOR BIOLOGICAL ENGINEERING

COSHH Form

Reference: CBE/324

Location: Wolfson School T.2.08 B - Loughborough University

Originator: PRAVEENKUMAR KAVERI

Project / Activity / Task: Enzyme linked Immunosorbent Assay (ELISA) method for LPS antigen detection using fluorescent aptamer probe

CHEMICAL NAME

Lipopolysaccharides from Escherichia coli O55:B5

CAS No. 93572-42-0

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

Amount used		Period of use (hrs)	The process is:	Physical State
0.000001	g	2	Closed	Dusty Solid

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

Hazard Rating: Low

Exposure Potential: Low

OVERALL RISK: Low

X

Hazard Statement and Description	Precaution Statement and Description
H302 Harmful if swallowed.	P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
H302 Harmful if swallowed.	P270 Do no eat, drink or smoke when using this product.
H302 Harmful if swallowed.	P330 Rinse mouth.
H302 Harmful if swallowed.	P501 Dispose of contents/container to ...

How will the precautions listed above be implemented?

Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Evacuate personnel to safe areas. Avoid breathing dust.
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.

Special Storage and Containment Measures	Disposal Method
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.	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 t... parat...

Show image

Personal protection requirements not covered in the precaution statements above.

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

COSHH Form (Continued)

Sources of information and references	Reference to **existing approved** Risk Assessment
SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006 Version 5.3 Revision Date 12.02.2015 Print Date 10.11.2018	Biological risk assessment

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

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

Form Reference Numbers

Risk Assessment	Method Statement	COSHH Assessment
CBE/137	CBE/137	CBE/324

DSO Signature

R I Temple

Digitally signed by R I Temple
Date: 2019.10.16 14:05:48 +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