

Safety Documentation

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

Method Statement

Risk Assessment

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	School of Aeronautical, Automotive, Chemical and Materials Engineering
Department	Department of Chemical Engineering
Originator name	Rod Dring
email address	r.a.dring@lboro.ac.uk
Location	Lab H29, Centre for Biological Engineering - Holywell Park
Project / Activity / Task	Advion Expresslon Mass Spectrometer
Supervisor Name	Dr E Ratcliffe

Loughborough University

Department of Chemical Engineering

Safety Method Statement

Reference wolfson RA & MS SAF/ME

Location Lab H29, Centre for Biological Engineering - Holywell P Originator Rod Dring

Project / Activity / Task Advion Expresslon Mass Spectrometer

What equipment will be used in this activity?	+
Advion Expression compact mass spectrometer	X

What training must be completed to do this activity?	+
Advion CMS familiarization by competent member of staff	X
Pressurised gases training	X
Induction into the CBE / Have a permit to work	X

What chemicals are being used? (These must be included in the COSHH Form)	+
Nitrogen gas	X
Biological samples	X

Spill and accident procedures.	+
Specific biological spill and accident procedures will be covered in experimental risk assessments specific to the material being analyzed.	X
All accidents that result in personal injury or damage to equipment must be reported to the CBE Lab Managers without delay.	X

Procedure in the event of an emergency. (How to leave the process in a safe condition in such an event)	+
Turn off the nitrogen gas at the regulator if safe to do so.	X
Return biological samples to BSC or incubator if safe to do so	X
Do NOT turn off instrument or vacuum pump. If fire alarm sounds continuously make equipment safe as possible then evacuate the building. Only return when informed that it is safe to do so	X

References.	+
	X

Detailed sequential description of the process

Process step	Precautionary measures and comments	+
Ensure the Nitrogen cylinders outside in Gas Pod 3 are not empty, connected and switched on.	Cylinders are to be used according to training and SOP's supplied. If not trained, request assistance from the Technical staff.	X
Check vacuum pump is running. You should be able to hear it.	The pump will be hot, to avoid burns, do not touch the pump.	X
Check oil level in vacuum pump by using the sight glass in the pump housing. it should be at least 3/4 full. If not, get assistance from the technical staff.	The pump will be hot, to avoid burns, do not touch the pump. A torch (mobile phone) would be useful to see the oil level as the area is quite dark.	X

Safety Method Statement (Continued)

Process step	Precautionary measures and comments	+
The instrument will ordinarily be in a standby state. If not, consult a member of Technical staff. Switch on PC/Laptop and log in. The green light on the instrument should be on. A blue light will be illuminated when the instrument is sampling.	When reaching around to switch on, be careful not to dislodge any pipework.	X
Start the Advion control software - (Mass Express)		X
Turn on the "house" Nitrogen gas at the regulator. Open the regulator slowly by turning counter clockwise until fully open. The regulator will adjust to the required pressure (4 bar) automatically.	There might be a hissing sound from the regulator - this is normal. NEVER attempt to change the pressure setting of the regulator.	X
Using the control software, turn on the instrument gases, heaters and select the "Right" input channel.	The "Left" channel is used for calibrating the instrument.	X
If using the vAPCI (Volatile Atmospheric Pressure Chemical Ionization) probe, attach the supplied manometer to the end of the probe to measure the inlet flow-rate.	Care to be taken when attaching the manometer to avoid damage. The flow-rate should be around 0.6 L/min	X
The instrument is now ready for use.		X
The instrument should be left in "standby" mode - set from the control software. The procedure after putting the instrument in this state is the reverse of the actions above. (Turn off gas, close the software and PC	Never turn off the instrument or vacuum pump! Uncontrolled venting of the instrument WILL destroy it!	X
		X
		X
		X
		X
		X
		X
		X
		X
		X

Risk Assessment

Reference

Location Originator

Project / Activity / Task

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

Category 1: Machinery & work equipment:				
Design and Construction	Mechanical hazards	Electrical hazards	Radiation hazards	
N/A		Electrical test lables current		+
Category 2: Workplace				
Gases under pressure				+
Localised vacuum system				X
Category 3: Hazardous and/or Harmful substances				+
Biological substances (Infection)				X
Toxic substances				X
Category 4: Work activity				
				+
				X
Category 5: Work organisation				
				+
				X

Explain the risks associated with these hazards				
People / Groups at risk	<input type="text" value="Everyone in the room"/>			X
Enter risk details here:-	Impact	Probability	Risk Score	
<input type="text" value="Infection by bacteria used in analysis."/>	<input type="text" value="Harmful"/>	<input type="text" value="Unlikely"/>	Medium	
What are the control measures?	Lowers Impact	Lowers Probability	+	
<input type="text" value="Keep bacterial samples securely covered at all times when sampling to limit exposure."/>	<input type="text" value="None"/>	<input type="text" value="Moderately"/>	X	
<input type="text" value="Limit the time bacterial samples are out of incubator/BSC to a minimum to limit exposure."/>	<input type="text" value="None"/>	<input type="text" value="Moderately"/>	X	
			Residual Risk	
			<input type="text" value="Low"/>	

Process Risk Assessment Form (Continued)

People / Groups at risk	Operator and people in proximity		X
Enter risk details here:-	Impact	Probability	Risk Score
Effects of exposure to chemicals	Harmful	Unlikely	Medium
What are the control measures?	Lowers Impact	Lowers Probability	+
All containers to be kept closed when not in use.	None	Significantly	x
Actions appropriate to hazards (COSHH) to be observed	None	Significantly	x
			Residual Risk
			Low
People / Groups at risk	Everyone in the room		X
Enter risk details here:-	Impact	Probability	Risk Score
Injury from uncontrolled gas leak (N2)	Harmful	Highly Unlikely	Low
What are the control measures?	Lowers Impact	Lowers Probability	+
Regulator not to be adjusted unless trained and competent	None	Significantly	x
Tubing joints to be visually checked at start-up of instrument	None	Moderately	x
			Residual Risk
			Low
People / Groups at risk	Operator and people in proximity		X
Enter risk details here:-	Impact	Probability	Risk Score
Injury from vacuum system failure	Harmful	Highly Unlikely	Low
What are the control measures?	Lowers Impact	Lowers Probability	+
Vacuum pump not to be ordinarily switched off. Signage is in place as a reminder.	None	Significantly	x
			Residual Risk
			Low
People / Groups at risk	Equipment damage due to uncontrolled loss of vacuum		X
Enter risk details here:-	Impact	Probability	Risk Score
Turbo pump failure due to uncontrolled vacuum loss	Very Harmful	Likely	Unacceptable
What are the control measures?	Lowers Impact	Lowers Probability	+
Vacuum pump not to be switched off unless part of a controlled venting process.	Significantly	Significantly	x
UPS system to allow controlled vent in the case of power loss	None	Significantly	x
Primary vacuum pump condition (esp. oil level) to be visually checked before starting work.	None	Moderately	x
			Residual Risk
			Low
People / Groups at risk	Operator only		X

Process Risk Assessment Form (Continued)

Enter risk details here:- Risk of electric shock from untested equipment (PAT)	Impact Harmful	Probability Highly Unlikely	Risk Score Low
What are the control measures?	Lowers Impact	Lowers Probability	+
Ensure equipment is regularly tested and the test labels displayed. Equipment failing the test must be immediately removed from service.	None	Significantly	x
			Residual Risk Low
People / Groups at risk	Operator only		x
Enter risk details here:- Burns from touching hot vacuum pump	Impact Slightly Harmful	Probability Unlikely	Risk Score Low
What are the control measures?	Lowers Impact	Lowers Probability	+
Users will be advised during training that the pump will be hot and must take care when inspecting it. The position of the pump will limit accidental contact. Users to be briefed as part of induction training.	None	Moderately	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	1	0	0	0	1
Technical Staff	1	0	0	0	0	0	1
Research Staff (PDRA)	0	0	0	0	0	0	0
Research Students (PhD)	0	0	0	0	0	0	0
Students (Undergraduate / MSc)	0	2	0	0	0	0	2
Visitors	0	0	0	0	0	0	0
Others - Over-type as needed	0	0	0	0	0	0	0
Total	1	2	1	0	0	0	4

With these controls in place, the risk is:

Process Risk Assessment Form (Continued)


The activity is LOW RISK - and is effectively controlled

COSHH Form

Reference

Location Originator

Project / Activity / Task

CHEMICAL NAME				Hazard Rating		OVERALL RISK:
<input type="text" value="Nitrogen Gas"/>				High		
CAS No.	<input type="text" value="7727-37-9"/>	Amount used	Period of use (hrs)	The process is:	Physical State	Exposure Potential
W.E.L. (Itel / stel)	<input type="text"/>	<input type="text" value="10"/> ml	<input type="text" value="1"/>	<input type="text" value="Open"/>	<input type="text" value="Gas"/>	
<input type="checkbox"/> Eyes <input type="checkbox"/> Skin <input type="checkbox"/> Inhaled <input type="checkbox"/> Ingested						

Consider a semi closed system process

Hazard Statement and Description	Precaution Statement and Description	
H280 Contains gas under pressure; may explode if heated.	P410 Protect from sunlight.	X
	P403 Store in a well-ventilated place.	X
	P281 Use personal protective equipment as required.	X
	P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position com	X
How will the precautions listed above be implemented?		
Cylinders to be securely stored outside the building (Gas Pod 3). PPE to be worn at all times All gas lines to be checked for leaks (at least visually/audibly). Checks with "Snoop" only if a leak is suspected.		
Special Storage and Containment Measures	Disposal Method	
Cylinders to be securely stored outside the building (Gas Pod 3).		X
How will spillages be dealt with?	<i>Please note: any material used to clean up a spill of hazardous material must also be disposed of as hazardous material. Click here to see spill procedures</i>	
If a gas leak is suspected, all biological material to be moved to BSC/Incubator and the lab doors opened. Gas to be turned off at the regulator or at cylinder.		

[+ Add another chemical](#)

Statement of work (Process to be undertaken)

Show image

Personal protection requirements not covered in the precaution statements above.

Sources of information and references

Reference to **existing approved** 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

CBE Advion CMS Rod Dr

Method Statement

wolfson RA & MS SAF/M

COSHH Assessment

SAF/MEME/1932

DSO Signature

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:

28 Apr 2024

Review comments