COSHH Risk Assessment

Newcastle University OHSS: H&S Form 401.1a

This form should be completed electronically and signed by the Principal Investigator or responsible person. Guidance on completing this form is provided in the <u>COSHH Risk Assessment section of the OHSS website</u>.

Section 1: Project Details

1.1.	Title of project or activity	Protein Purification				
1.2.	Principal investigator/respons ible person	Dr. Arnaud Basle /Dr	r. Johan	Panek		
1.3.	School/Institute/ Service	Newcastle University	/ – Bios	ciences Institute		
1.4.	Location of work building and room numbers	Cookson Building M	3.032, N	ИЗ.036		
1.5.	Brief description of work activity	Purification of over-expressed and natively expressed proteins by FPLC and gel chromatography from bacteria.				
1.6.	Date of assessment	05/03/2025	1.7.	Revision date*		

Section 2: Emergency Quick Reference

The purpose of this section is to provide easy access to emergency information. A full assessment of risk will be provided in the next sections and **completing this section last is advisable.**

2.1. Emergency contacts			Name:		Dr Arnaud Basle			Dr Johan Panek	
One of these should be the		Position:		Facility Manager		r	Scientific officer		
PI/responsible person Security can be contacted on extension 6666		Telephone number:		07528960883		07534980476			
2.2. Hazaro	d pictogram	ıs – select a	ll that apply	y to the w	vorl	k activity.			
Health hazard	Toxic	Corrosive	Harmful/ Irritant	Flammabl	le	Oxidising	Explosive	Compressed gas	Danger for the environment
Х		Х							

2.3. Name	2.4.	2.5. Emergency procedures
of hazard	Properties of hazard	Include, as appropriate, procedures for: Contained Spill
	Briefly describe	Small uncontained spill, Large uncontained spill
	how the chemical	 First aid
	toxic, flammable,	• Fire
	carcinogen	
Ethanol	Flammable	Small uncontained spill: Wear appropriate PPE. Remove sources of ignition and
		contain spill. Soak up with inert absorbent material and dispose of via closed waste route.
		Large uncontained spill: Wear appropriate PPE. Remove sources of ignition, contain spill and adequately ventilate area. Soak up with inert absorbent material and dispose of via closed waste route.
		Fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Use water spray to cool containers. Carbon monoxide and carbon dioxide pose as bazardous combustion products. Beware flashback
Sodium	Corrosive	Small uncontained spill: Evacuate area, wear appropriate PPE. Prevent water
Hydroxide		contamination. Collect up spill with brushing, avoid creating dust. Use absorbent
		material to clean up solution spill and dispose of through hazardous waste route.
		First Aid: Inhalation – move to fresh air and contact physician. Skin contact –
		Wash off immediately with soap and plenty of water, removing contaminated
•		clothes and shoes, seek medical attention. Eye contact – Seek immediate medical
		Indestion – Seek immediate medical attention and drink plenty of water
Ethvlenedia	Irritant	Small uncontained spill: Wear appropriate PPE. Contain spill and collect material
minetetraac		using wet brushing and place in labelled container and dispose via hazardous
etic acid		waste.
(EDTA)		First Aid: Skin contamination- remove clothing and wash exposed area with soap
		and water. Seek medical advice. If inhaled move person to well ventilated area
		(fresh air) and seek medical attention. In cases of contact with eyes rinse
		swallowed do not induce vomiting seek medical attention
		Fire : Special hazards arising from the substance or mixture-Carbon oxides,
		Nitrogen oxides. Use water spray, alcohol-resistant foam, dry chemical or carbon
		dioxide
MES	Irritant	First Aid: Inhalation – remove to fresh air. Skin contact – rinse with plenty of
		water. Eye contact – rinse with water. Ingestion - seek medical attention, drink water.
Imidazolo	Corrosivo	First Aid: Inhalation remove to fresh air Skin contact. Demove contaminated
	Flammable	clothing and wash with soap and water. Eve Contact – Rinse with plenty of water
	Health Hazard	for at least 15 minutes.
		Fire: Use water spray. Special hazards include products of carbon oxides,
		nitrogen oxides and hydrogen cyanide.
, du		Small uncontained spill: Wear appropriate PPE. Void dust formation.
		Ensure adequate ventilation.

Additional rows can be added to this table as required

Section 3: The Risk Assessment

Additional rows can be added to this table as required

3.1. Name	3.2. Properties of hazard	3.3.	3.4.	3.5.	3.6. Route
of hazard	Provide details of how the substance	Physical	Quantity	Frequency	of
including	could cause harm. Useful sources of	form e.g.	and	ofuse	exposure
substances	information are the safety data sheet for	powder, dust,	concentrati	e.g. daily,	e.g. ingestion,
and by-	(give the whole phrase not just the	granular,	on (give units)	weekly,	inhalation,
produced	code), and the <u>workplace exposure limit.</u>	pellet, liquid,	-	monthly, one-	skin/eye
during or as a		solution, gas.		011.	absorption
result of the					injection/shar
activity.					ps injury.
Ethanol	H225 – Highly flammable liquid	Solution	99.8% 2.5L	Monthly	Contact
	vapour				skin/eye,
	H319 – Causes serious eye irritation	Solution	20% 1L	Monthly	ingestion
Sodium	H312 – Acute toxicity (Dermal)	Powder	1 KG	Monthly	Contact
Hydroxide	H314 – Skin corrosion/irritation			, , , , , , , , , , , , , , , , , , ,	skin/eye,
	H318 – Serious eye damage/eye	Solution	1 M 1L	Monthly	Ingestion
	irritation				
\mathbf{X}	H412 – Chronic aquatic toxicity	Solution	10 M 100 ml	Monthly	
Ethylenedia	H319-Causes serious eye irritation.	Powder	>99% 500g	Monthly	Ingestion,
minetetraac		Solution	0.25M 500ml	Monthly	Innalation,
		Solution	0.25101 5001111	Monuny	
		Solution	50mM 11	Monthly	зкплеуе
•		Solution	1mM 10L	Monthly	
MES	H315 – Causes skin irritation	Powder	500G	Monthly	Contact
	H319 – Causes serious eye irritation				skin/eye,
	H335 – May cause respiratory	Solution	50 mM 1L	Monthly	Inhalation
	irritation	Colution	1 1 100 ml		
Imidazolo	H202 Harmful if swallowed	Bowdor		Weekly	Contact
	H314 – Causes severe skin hurns	FOWLEI		VVEEKIY	skin/eve
	and eve damage	Solution	500 mM 1L	Monthly	ingestion
- <u>-</u>	H360D – May damage unborn child				
	, , ,				
•/					

3.7 Carcinogens All carcinogens and users of carcinogens should be notified to OHSS using the following link http://www.ncl.ac.uk/ohss/chemical/carcinogens.htm

3.8. Dangerous Substances and Explosive Atmospheres (DSEAR)	Yes	No
Are you carrying out an activity/chemical reaction that is at risk of thermal		✓

runaway or explosion?		
Will the activity involve handling or storage of pyrophoric or unstable		\checkmark
substances such as peroxide?		
Will flammable vapours, solid particles, fibrous particles etc. capable of	✓	
forming an explosive atmosphere be present in the working atmosphere?		
If the answer to any of the above questions is yes, you will need to complete a short 'add-on' DSEAR ri	sk assessment	

If the answer to any of the above questions is yes, you will need to complete a short 'add-on' DSEAR risk assessment

3.9. Who might be at risk? (tick all that	Staff	Postgraduat es	Undergradua tes	New or expectant mothers (Contact Occupational Health)	Contractors	Public including visitors and children
арріу)	\checkmark	\checkmark	\checkmark	\checkmark		

3.10. Assessment of inherent risk to	High	Medium	Medium/low	Low
human health prior to the use of			✓	
controls (please use the risk assessment matrix				
at the end of this form)				

Section 4: Controls

Specify for <u>each hazard</u> identified information.	in section 3 . <u>Precautionary (P) statements</u> are a useful source of
4.1. Physical or Engineering Controls. LEV, fume hood, glove box, total containment etc. Specify at which point in the work activity they are to be used.	N/A
4.2. Administrative controls Training requirements, access control, signage.	All staff and postgraduates carrying out this work activity will attend the chemical safety training course. In addition, postgraduates will receive on the job training in the procedure. They will be supervised until deemed proficient in the procedure by competent research staff. Stock solution swill only be made when needed and at a volume that should last some time –this reduces frequency of exposure to concentrated/neat substances.
4.3 Personal Protective Equipment. Respirators, safety specs, face mask, lab coat, gloves etc. Specify which type and when they are to be worn.	A lab coat must be warned at all times. Nitrile gloves must be worn in the preparation of all buffers.
4.4. Storage requirements Include a description of how hazardous substances including flammable materials will be stored. Describe how incompatible materials will be segregated.	Stock Ethanol is stored in the flammable shed, 20% Ethanol maybe kept in 1L Duran bottles. Buffers to be stored with clear labels in appropriate volume Duran bottles.
4.5. Transport of the hazardous substance Describe how you will transport substances between laboratories or different university sites.	Hazardous substances will not be transported outside the laboratory.
4.6. Disposal procedures Carefully consider the safest means of disposal and identify when waste should be disposed of by a chemical waste contractor	Spent buffer maybe washed down the sink with large volumes of water.

	Ye s	No	Describe the findings of exposure monitoring or health surveillance
4.7. Is exposure monitoring required? For example if you suspect that exposure to a chemical exceeds the workplace exposure limit. Contact OHSS for further advice		✓	
4.8. Is health surveillance required? See		✓	

Occupational Health surveillance policy and		
programme. Contact Occupational Health for		
further advice		

4.9. Assessment of residual risk to human	High	Medium	Medium/	Low
health after the application of controls (please use			low	
the risk assessment matrix at the end of this form)				✓

Section 5: Approval

I confirm that this is a suitable and	Name	Signature	Date
sufficient risk assessment for the above		5	
described work activity			
Assessor This is the person who has	Johan Panek		05/03/2025
completed this form			
Principal	Arnaud Basle		
Investigator/responsible			
person			

Risk estimation matrix

Use this to complete sections 2.1

Severity of	Likelihood of harm			
Harm	High	Medium	Low	
Severe	High	High	Medium	
Moderate	High	Medium	Medium/	
			low	
Minor	Medium/	Low	Low	
	low			

Please keep a record of this risk assessment

*Review of assessment

This assessment should be reviewed every 2 years and immediately if there is reason to believe that it is no longer valid (e.g. after an accident/incident), if there is a significant change in the work activity to which it relates or if the results of monitoring or health surveillance indicate it to be necessary.