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 COSHH Risk Assessment section of the OHSS website.

Section 1: Project Details

1.1.	**Title of project or activity**	Use of antibiotics in bacterial cell culture		
1.2.	**Principal investigator/responsible person**	Dr. Arnaud Basle /Dr. Johan Panek		
1.3.	**School/Institute/Service**	Newcastle University – Biosciences Institute		
1.4.	**Location of work** building and room numbers	M3.032, M3.036		
1.5.	**Brief description of work activity**	Antibiotics used as a selective marker in solid and liquid media-based bacterial cultures.		
1.6.	**Date of assessment**	03/03/2025	**1.7. Revision date***	dd/mm/yyyy

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 One of these should be the PI/responsible person Security can be contacted on extension 6666	**Name:**	Dr. Arnaud Basle	Dr. Johan Panek
	Position:	Facility Manager	Scientific officer
	Telephone number:	07528960883	07534980476

2.2. Hazard pictograms – select all that apply to the work activity.

 *Health hazard*	 *Toxic*	 *Corrosive*	 *Harmful/ Irritant*	 *Flammable*	 *Oxidising*	 *Explosive*	 *Compressed gas*	 *Danger for the environment*
✓			✓					

2.3. Name of hazard	**2.4. Properties of hazard** Briefly describe how the chemical is hazardous e.g. toxic, flammable, carcinogen	**2.5. Emergency procedures** Include, as appropriate, procedures for: • Contained Spill • Small uncontained spill, • Large uncontained spill • First aid • Fire
Ampicillin 	Harmful, may cause: Respiratory sensitisation Skin sensitisation	**Small uncontained spill** Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. **Fire precautions** SUITABLE EXTINGUISHING MEDIA, Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Special hazards arising from the substance or mixture: Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Sodium oxide **First aid**

2.3. Name of hazard	2.4. Properties of hazard Briefly describe how the chemical is hazardous e.g. toxic, flammable, carcinogen	2.5. Emergency procedures Include, as appropriate, procedures for: • Contained Spill • Small uncontained spill, • Large uncontained spill • First aid • Fire
		If inhaled, move person into fresh air. If not breathing, give artificial respiration. In case of skin contact, wash off with soap and plenty of water. In case of eye contact, flush eyes with water as a precaution. If swallowed, never give anything by mouth to an unconscious person. Rinse mouth with water.
Kanamycin 	May damage fertility or the unborn child	**Small uncontained spill** Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. **Fire precautions** SUITABLE EXTINGUISHING MEDIA, Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. **First aid** If inhaled, move person into fresh air. If not breathing, give artificial respiration. In case of skin contact, wash off with soap and plenty of water. In case of eye contact, flush eyes with water as a precaution. If swallowed, never give anything by mouth to an unconscious person. Rinse mouth with water.
Chloramphenicol 	**Carcinogenicity** (Category 1B) See Section 3.7	**Small uncontained spill** Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. **Fire precautions** SUITABLE EXTINGUISHING MEDIA, Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Special hazards arising from the substance or mixture: Carbon oxides, Nitrogen oxides (NOx), Hydrogen chloride gas **First aid** If inhaled, move person into fresh air. If not breathing, give artificial respiration. In case of skin contact, wash off with soap and plenty of water. In case of eye contact, flush eyes with water as a precaution. If swallowed, never give anything by mouth to an unconscious person. Rinse mouth with water.
Tetracycline 	Irritant	**Small uncontained spill** Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. **Fire precautions** SUITABLE EXTINGUISHING MEDIA, Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides (NOx), Hydrogen chloride gas **First aid** If inhaled, move person into fresh air. If not breathing, give artificial respiration. In case of skin contact, wash off with soap and plenty of water. In case of eye contact, flush eyes with water as a precaution. If swallowed, never give anything by mouth to an unconscious person. Rinse mouth with water.

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 of hazard including substances and by-products produced during or as a result of the activity.	**3.2. Properties of hazard** Provide details of how the substance could cause harm. Useful sources of information are the safety data sheet for the substance, Hazard (H) statements (give the whole phrase not just the code), and the workplace exposure limit.	**3.3. Physical form** e.g. powder, dust, granular, pellet, liquid, solution, gas.	**3.4. Quantity and concentration** (give units)	**3.5. Frequency of use** e.g. daily, weekly, monthly, one-off.	**3.6. Route of exposure** e.g. ingestion, inhalation, skin/eye contact, skin absorption, injection/sharps injury.
Ampicillin	H317 - May cause an allergic skin reaction. H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled	Powder Solution	99% 25g 100mg/ml in water	Monthly Daily	Inhalation, skin contact, ingestion
Kanamycin	H360 - May damage fertility or the unborn child.	Powder Solution	99% 25g 50mg/ml in water	Monthly Daily	Inhalation, skin contact, ingestion
Chloramphenicol	H350 - May cause cancer	Powder Solution	99% 25g 10mg/ml in Ethanol	Monthly Daily	Inhalation, skin contact, ingestion
Tetracycline	H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation	Powder Solution	99% 5g 5mg/ml in Ethanol 10mg/ml in Ethanol	Monthly Daily Daily	Inhalation, skin contact, ingestion
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 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 risk assessment		

3.9. Who might be at risk? (tick all that apply)	**Staff**	**Postgraduates**	**Undergraduates**	**New or expectant mothers** (Contact Occupational Health)	**Contractors**	**Public including visitors and children**
	✓	✓	✓			

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

Section 4: Controls

Specify for each hazard identified in section 3. Precautionary (P) statements are a useful source of information.	
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.**	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.
4.2. Administrative controls Training requirements, access control, signage.	Obtain special instructions before use. All Staff and PGR students carrying out this work activity will attend the chemical safety training course. In addition, UGR students will receive on the job training in the procedure. They will be supervised until deemed proficient in the procedure by competent research staff.
4.3 Personal Protective Equipment. Respirators, safety specs, face mask, lab coat, gloves etc. **Specify which type and when they are to be worn.**	Lab coat, gloves, facemask and safety glasses should be used when preparing this compound. Wash hands after handling. Respiratory protection: where risk assessment shows air-purifying respirators are appropriate use a full face particle respirator CEN (EU).
4.4. Storage requirements Include a description of how hazardous substances including flammable materials will be stored. Describe how incompatible materials will be segregated.	**Ampicillin, Kanamycin, Chloramphenicol:** Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Recommended storage temperature 2-8 °C. Storage class (TRGS 510): Non Combustible Solids, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects. **Tetracycline:** Recommended storage temperature: -20 °C
4.5. Transport of the hazardous substance Describe how you will transport substances between laboratories or different university sites.	N/A
4.6. Disposal procedures Carefully consider the safest means of disposal and identify when waste should be disposed of by a chemical waste contractor	Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

	Yes	**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 health after the application of controls (please use the risk assessment matrix at the end of this form)	**High**	**Medium**	**Medium/low**	**Low**
				✓

Section 5: Approval

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

Risk estimation matrix Use this to complete sections 2.10 and 3.10

Severity of Harm	**Likelihood of 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.