RISK ASSESSMENT FOR LABORATORY PROCEDURES

FORM TO BE FILLED IN BY THE RESEARCHER FOR ALL LABORATORY PROCEDURES. THIS FORM NEEDS TO BE **SIGNED OFF BY THE PI/SUPERVISOR AND THE HEAD OF DEPARTMENT**

Contents:

Risk assessment for Laboratory Procedures…..……. 2

Guidance Notes …..…….....5

Hazard and Risk identification ……...……..…...8

Geography, School of Natural Sciences
www.tcd.ie/geography

Risk Assessment for Laboratory Procedures

Before beginning, read guidance notes on pages 4-7

1. DESCRIBE THE ACTIVITY OR WORK PROCESS
2. SPECIFIC LOCATION OF WHERE PROCESS WILL BE CARRIED OUT AND THE PROPOSED ENGINEERING CONTROLS
3. IDENTIFY THE PERSONS WHO MAY BE AT RISK
4. NAME THE SPECIFIC SUBSTANCE(S)/EQUIPMENT INVOLVED IN THE PROCESS
5. WHAT ARE THE SPECIFIC RISKS? FOR CHEMICALS LIST THE HAZARD STATEMENTS AND RISK PHRASES
6. HAZARD TYPE?
7. POTENTIAL ROUTE OF EXPOSURE?
8. WHAT PERSONAL PROTECTION EQUIPMENT (PPE) SHOULD BE USED?
9. HANDLING AND STORAGE REQUIREMENTS
10.TRAINING, SUPERVISION AND LONE WORKING REQUIREMENTS

11. LIST THE SUMMARY OF CONTROLS ALREADY IN PLACE AND IDENTIFY ANY GAPS

12. HOW WOULD YOU RATE THE RISK ASSOCIATED WITH THIS ACTIVITY?

Low ☐ **Medium** ☐ **High** ☐

13. LIST ANY NEW CONTROLS THAT NEED TO BE IN PLACE TO GIVE ADEQUATE CONTROL

14. FINAL CHECK: IN YOUR OPINION, HAS THE RISK RATING BEEN REDUCED TO AS LOW AS POSSIBLE WITH THE ABOVE CONTROLS?

Yes ☐ **No**☐

15. EMERGENCY PLANS AND PROCEDURES

a) Are plans in place to deal with spillages or emergencies?

☐Yes

☐n/a

If yes, give details;

b) Has waste disposal been considered and established?

☐Yes

☐n/a

If yes, give details;

c) Refer to any potential first aid emergency that should be noted in this assessment;

16. IS THERE A REQUIREMENT TO CARRY OUT HEALTH SURVEILLANCE?

☐Yes

☐No

If yes, give details;

REVIEW DATE:	

APPROVAL:

Please sign below. Tick staff or student box as appropriate.

ASSESSED BY	PRINT NAME	SIGN	DATE
STAFF ☐ STUDENT ☐			
SUPERVISOR			
HEAD OF DEPARTMENT			

SIGN OFF SHEET

I have been taken through the health and safety and risk assessment for the listed task/process and understand the safety controls and responsibilities to ensure I work safely.

NAME	SIGNATURE	DATE

GUIDANCE NOTES

The information required for each section on this form need not be lengthy but it should include an adequate amount of detail to properly assess the risk. It is recommended that this form is completed and approved electronically before a hard copy is printed off; to allow for any additions or modifications. The space allowed in each box is not an indication of how much should be written; for some sections a few words may be sufficient while others may require additional space. In the electronic (Microsoft Word) format the document is editable and the boxes are therefore able to accommodate any additional information. When completed, the document should be assessed, electronically, by a Technical Officer before being approved by the Supervisor and Head of Department as appropriate. When this is done, print off the first three pages of the document for signing. This document should subsequently be read, understood and signed by all users of the method/ process then kept in the designated laboratory or a copy carried with you if the assessment is for field work purposes.

The following guidelines correspond to the questions asked in sections 1 – 16 in the Risk Assessment for Chemical Procedures, pages 1-3. The sections are listed below and suggest what information is required for each.

1. DESCRIBE THE ACTIVITY OR WORK PROCESS

Give a brief summary of the intended activity or task; Include any relevant timescales, e.g., how long does it take? How often will it be repeated? Give the general working environment; laboratory, classroom, in the field etc. What substance(s) will be used? How many people are involved? Include anything else that you think may be relevant.

2. SPECIFY THE LOCATION OF WHERE PROCESS WILL BE CARRIED OUT AND THE PROPOSED ENGINEERING CONTROLS

Give a detailed location of the laboratory, classroom or location of field work. This should be the intended location or locations; e.g. rooms/lab numbers within particular buildings. For field work; give precise details of location (GPS coordinates if available) and environment (e.g. mountain, lake, quarry etc.). List any physical controls required, e.g.; fume hood, containment measures, blast screen or any other specialist or engineered equipment required for safe working.

3. IDENTIFY THE PERSONS WHO MAY BE AT RISK

Include anyone who may be at risk from exposure to the process, e.g. employees, students, members of the public

4. LIST THE SUBSTANCE(S) AND QUANTITIES INVOLVED IN THE PROCESS

List the substances to be used as they are identified on their packaging or container. Include a safety data sheets (SDS) for each substance with this assessment. Similarly, list any new solutions or compounds derived from the processes being carried out (e.g. preparing a solution of zinc chloride from the base elements) and, if possible, include a SDS for the new compound or solution (most can be found through http://chemicalsafety.com/sds-search/). Consider any potential additional risks from any solutions or compounds not covered by an SDS.

5. WHAT ARE THE SPECIFIC RISKS? LIST THE RISK/SAFETY PHRASES AND THE HEALTH/PRECAUTIONARY STATEMENTS

Risk and safety phrases and health and precautionary statements can be found on the SDS, normally at Section 2 or 3.

6. HAZARD TYPE OR PHASE?

Are the risks from solids, liquids, gas, vapour etc.

7. POTENTIAL ROUTE OF EXPOSURE

Identify the route or routes of contact or exposure e.g. inhalation, ingestion, skin contact etc.

8. WHAT PERSONAL PROTECTION EQUIPMENT (PPE) SHOULD BE USED?

PPE required for procedure e.g. lab coat, safety glasses/goggles, gloves, aprons etc. Some indications may be given in the SDS, Section 7 for particular chemicals but also consider the whole process.

9. HANDLING AND STORAGE REQUIREMENTS

How should specific materials be stored with regard to; reaction to temperature, containers (e.g. glass, plastic, specialised), exposure to naked flames etc... How should it be handled e.g. in a fume hood, specialist PPE, only by trained persons etc. (Info from SDS)

10. TRAINING, SUPERVISION AND LONE WORKING REQUIREMENTS

Are there any specialist training requirements before work can begin? E.g. fire safety, handling of hazardous chemicals, laboratory safety course; is supervision or a 'Buddy System' required? If 'Lone Working' is not permitted for these procedures please state.

11. LIST THE SUMMARY OF CONTROLS ALREADY IN PLACE AND IDENTIFY ANY GAPS

Referring to the information you have given in sections 1-10, summarise your planned control measures. Review when completed and consider if any other measures are required.

12. HOW WOULD YOU RATE THE RISK ASSOCIATED WITH THIS ACTIVITY?

Using the information you have provided and with reference to the **Risk Assessment Matrix on page 8** of this document, how would you rate the risk; High, Medium or Low. Click on the check box provided to select.

13. LIST ANY NEW CONTROLS THAT NEED TO BE IN PLACE TO GIVE ADEQUATE CONTROL

Refer to your rating at section 12. consider the need for monitoring, changes to the procedure or substitution of the substances used which could lower the risk.

14. FINAL CHECK: IN YOUR OPINION, HAS THE RISK RATING BEEN REDUCED TO AS LOW AS POSSIBLE WITH THE ABOVE CONTROLS?

A final review of the risk. **If your answer is NO**, return to section 12 to consider further control measures or adaptations.

15. EMERGENCY PLANS AND PROCEDURES

Click on check boxes where required.

a) This applies to carcinogens, mutagens or any other severe health risks. Information on how to handle spills or releases can usually be found in section 6 of the SDS.

b) Identify whether the chemical is an environmental hazard (refer to sections 12 and 13 of SDS); if so, detail fully how the chemical waste is to be disposed of (by neutralisation or dilution, by specialist contractor, etc.)

c) Give details of any specific medical emergencies that could occur when carrying out this procedure.

16. IS THERE A REQUIREMENT TO CARRY OUT HEALTH SURVEILLANCE?

Medical surveillence is generally required for frequent or long term exposure. It should be considered if the procedure uses any materials that carry health statements (SDS section 2), where the proccess is carried out frequently or long term by the same people.

17. REVIEW DATE

A review date should be set at a maximum of 12 months from the date of signing.

18. APPROVAL

On completion, and after the assessment has been approved electronically, the assessor should print pages 1-3, sign and date the form and have their supervisor, sign and date the form. It should then be passed to the Geography Safety Officer for signing.

19. SIGN-OFF SHEET

Anyone expected to participate in the procedure detailled in the assessment should read and understand the assesment and procedure in full and sign and date the Sign Off Sheet on page 3. If any changes to the procedure (e.g. location, materials, equipment) are made, a review should be carried out before the new measures are implemented.

HAZARD AND RISK IDENTIFICATION

DEFINITIONS:

A Hazard is something that has potential to cause injury or damage

A Risk is the likelihood of someone being injured by a hazard and the severity of the injury.

When identifying and evaluating risks and appropriate control measures you should base your assessment on what a well-informed person would consider reasonable.

CONTROL MEASURES:

Control measures are actions that are taken to prevent or reduce the risk associated with a particular hazard. They can include hazard elimination and substitution, equipment provision, training, safety documentation, communication systems and protective clothing.

MATRIX

The following matrix is used to assess risk.

Likelihood				
	High	M	H	H*
	Medium	L	M	H
	Low	L	L	M
		Low	*Medium*	*High*

Severity/Consequences

Likelihood to be graded as:

Low: Rare – may only occur in exceptional circumstances

Medium: Possible – might possible occur at some time

High – probable – expected to occur in most circumstances

Severity/Consequences to be graded as:

Low: No injury or minor injury requiring first aid/doctors visit.

Medium: Reversible or severe injury requiring hospitalisation.

High: Fatality or irreversible/ serious injury requiring long term hospitalisation.

Yielding the Risk to be graded as:

L - LOW	**M - MEDIUM**	**H - HIGH (STOP)**	**H* -VERY HIGH (STOP)**

NOTE:

RISK RATING – H*
If the assessed risk is shown as H* the procedure should not go ahead and a significantly modified or alternative process should be considered.

RISK RATING – H
If the assessed risk is shown as H the procedure must be reviewed and further control measures or alternative substances used to reduce the risk before proceeding. If this is not possible the measures recommended for the H* risk category should be followed.

RISK RATING – M
If the assessed risk is shown as M a review of the controls measures should be carried out to attempt to further reduce the risk. If this is not possible, the procedure should be carried out with caution, paying particular attention to elements of the risk assessment which are regarded as higher risk. If at any time it is considered that anyone may be at risk of injury or illness, the procedure should be aborted and alternative substances or procedures considered.

RISK RATING – L
If the assessed risk is shown as L the procedure can be carried out with caution.

Any process or task should be aborted immediately, or when it is safe to do so, if it is considered that a risk to persons, property or equipment is likely.