

**Important:** This Risk Assessment Form is a sample only. Each school must conduct its own risk assessment, taking into account all relevant local factors and conditions. Please consult your local OH&S Officer and procedures.

## RACI NSW SCHOOLS TITRATION COMPETITION LABORATORY RISK ASSESSMENT

### PROJECT

**Staff/Students Present:** Accompanying teachers, Laboratory Technicians, Visiting high-school students for RACI NSW Schools Titration Competition, accompanying parents.  
**Supervisors at Venue:** Venue Supervisor, Venue Laboratory Staff, Teachers, Members of RACI NSW Chemical Education Group (possibly)  
**Venue & Location:**  
**Project Title:** RACI NSW Schools Titration Competition

### Briefly outline the procedure for this project/experiment:

Students carry out a series of acid–base titrations that they have previously practised at their high schools. See competition instructions for detailed methodology.

### LEGAL OBLIGATIONS

The NSW OHS Act 2000 and OHS Regulation 2001 (Chapter 2) requires identification of all foreseeable hazards in the workplace, assessment of the risks that these hazards pose to health and safety and the elimination or control of these risks.

### SUMMARY OF RISK ASSESSMENT

Physical Hazards -	Yes	Electrical Hazards -	No	Outdoor/Farm Hazards -	No
Chemical Hazards -	Yes	Biological Hazards -	No	Field Work Hazards -	No
		Radiation Hazards -	No		

### DISSEMINATION OF RISK ASSESSMENT

It is imperative that copies of this form be distributed to relevant personnel, such as teaching staff involved in the project and laboratory supervisors.

Has a copy of this form been disseminated to all relevant personnel? YES / NO

### DECLARATION

We the undersigned declare that this Laboratory Risk Assessment is an accurate estimation of the risk undertaken.

School Competition Supervisor/s: \_\_\_\_\_ Date: \_\_\_\_\_

Head of School/ Principal: \_\_\_\_\_ Date: \_\_\_\_\_

Signature:

Date:

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### RISK ASSESSMENT FOR PHYSICAL HAZARDS

Physical hazards relate to the equipment and processes that you use and include heat, cold, noise, dust, machinery, manual handling, power tools, working at heights, electrical equipment, vacuum and pressure equipment, ignition sources, projectiles, fire/explosion etc.

Are there **Standard Operating Procedures** available for any of the identified physical hazards? No

Physical Hazard	Risk (Harm) Determine the risks associated with the hazard	Risk Rating (R) <sup>1</sup>			Risk Control Measures Determine control measures required to eliminate or minimise the risk using 'hierarchy of control measures'.	Risk Rating (R) <sup>2</sup>			Trained in Control Measure <sup>3</sup> Y/N/NA
		A C	P	R		A C	P	R	
Chipped or broken glassware	Students may scratch or cut themselves	C	I I I	4	1. Technical staff check glassware as it is being laid out on the benches; 2. Students are advised what to do if they encounter any broken or chipped glassware; 3. Students are advised to take care that they do not strike glassware on hard surfaces. 4. Appropriate first aid is available.	D	I I I	5	
Liquid spills on the floor	Staff or students may slip and fall. Chemical spills present a hazard to staff or students who are wearing open shoes.	C	I I I	4	1. Students are told to be vigilant for any slip-spills and tell laboratory staff if any occur; 2. Laboratory staff are also vigilant, and mop up spills immediately. 3. Closed shoes must be worn in the laboratory.	C	I V	5	
Student bags and cases	Trip hazard	C	I I I	3	Students are instructed to leave bags to the side of the laboratory. Staff ensure no obstruction to corridors.	C	I V	5	

Signature:

Date:

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### RISK ASSESSMENT FOR CHEMICAL HAZARDS

Has MSDS* for each chemical been read and understood?	Yes / No	(teacher to obtain most up-to-date MSDS form)
Are there adequate transport and storage facilities available?	Yes	
Are there appropriate chemical waste disposal systems available?	Yes	
Are there appropriate procedures in place in the event of a spill, leak or emergency?	Yes	
Is health surveillance and/or monitoring required for any chemical?	No	

Chemical Hazard	Qty and Conc.	Specific procedure for spill, leak or emergency <sup>5</sup> (Specify)	Risk (Harm) Refer to MSDS* (see risk statements)  Specify if Hazardous Substance or Dangerous Goods classified	Risk Rating (R) <sup>1</sup>			Risk Control Measures Refer to MSDS*	Risk Rating (R) <sup>2</sup>			Trained in Control Measure <sup>3</sup> Y/N/NA
				A C	P	R		A C	P	R	
Sodium hydroxide solution	1000 mL; 0.1 M	Mop up small spills using absorbent paper and wearing gloves; neutralise larger spills with dilute acetic acid	May be harmful if swallowed. May cause irritation. Avoid breathing vapours. Use with adequate ventilation. Avoid contact with eyes, skin, and clothes. Wash thoroughly after handling.	B	II	3	Eye protection is mandatory. Students are advised to exercise care with the solution, quickly mop up any spills, and wash hands thoroughly if they come into contact with it. Gloves may be available for use. Students may bring and wear laboratory coats.	B	IV	4	
Hydrochloric acid solution	500 mL; 0.1 M	Mop up small spills using absorbent paper and wearing gloves; neutralise larger spills with sodium bicarbonate	May be harmful if swallowed. May cause irritation. Avoid breathing vapours. Use with adequate ventilation. Avoid contact with eyes, skin, and clothes. Wash thoroughly after handling.	B	II	2	Eye protection is mandatory. Students are advised to exercise care with the solution, quickly mop up any spills, and wash hands thoroughly if they come into contact with it. Gloves may be available for student and staff use.	B	IV	4	
Acetic acid solution	500 mL; 0.1 M	Mop up small spills using absorbent paper and wearing gloves; neutralise larger spills with sodium bicarbonate	May be harmful if swallowed. May cause irritation. Avoid breathing vapours. Use with adequate ventilation. Avoid contact with eyes, skin, and clothes. Wash thoroughly after handling.	B	II	2	Eye protection is mandatory. Students are advised to exercise care with the solution, quickly mop up any spills, and wash hands thoroughly if they come into contact with it. Gloves may be available for student use.	B	IV	4	
Phenolphthalein in 50% ethanol/water solution	20 mL; 0.5%	Mop up spills using absorbent paper and wearing gloves.	Flammable; harmful if swallowed.	C	IV	5	Ensure that there are no exposed flames or electrical sparks in the laboratory. Students are advised to mop up any spills, and wash hands thoroughly if they come into contact with it. Gloves are available for use.	C	IV	5	

\* Material Safety Data Sheet

Signature:

Date:

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## APPENDIX 1

### Explanatory Notes

1. The **Risk Rating (R<sup>1</sup> and R<sup>2</sup>)** is determined using the Risk Assessment Table in Appendix 2.

For each hazard, *using the Risk Assessment Table*, record the outcomes or adverse consequences (**AC**) – i.e. how severely could it harm someone if they are exposed to that hazard? The worst-case scenario is considered. In the column ‘**AC**’, recorded are A, B, C or D as follows:

- A** fatality, etc
- B** long-term illness, etc
- C** medical attention, etc
- D** first aid needed, etc

Then the probability (**P**) or likelihood of each consequence occurring. In the column ‘**P**’, is recorded I, II, III, or IV as follows:

- I** very likely
- II** likely
- III** unlikely
- IV** rare

Using the Risk Assessment table, determine the Risk Rating for each hazard, and record the priority for action (T, M, or L) in the column ‘**R**’. The risk rating number, from 1 – 6, indicates the level of priority i.e. it shows how important it is to do something about the hazard:

- T** Top priority **1 & 2**
- M** Medium priority **3 & 4**
- L** Low priority **5 & 6**

The priority rating for medium and low priority hazards is reduced to the lowest possible number (risk) before proceeding. Laboratory environments are inherently potentially dangerous and there will always be a level of risk associated with the work undertaken. **You will need to make a judgement as to whether the level of risk is acceptable to your school given a defined set of circumstances.**

**R<sup>1</sup>** refers to the Risk Rating **before** risk control measures have been determined.

2. **R<sup>2</sup>** refers to the Risk Rating **after** control measures have been determined and implemented.
3. All staff and students involved in the procedure must be satisfactorily **trained in control measure by teachers at the school**. Such measures include personal protective equipment (e.g. gloves, safety glasses, laboratory coat, fully enclosed shoes).

Signature:

Date:

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## APPENDIX 2

**How dangerous is the hazard you've found?** For each risk associated with a hazard think about:

1 – How severe are the adverse consequences or outcomes (AC) if exposed?

2 – How likely is it to occur?

### PROBABILITY (or likelihood)

		I Very likely Could happen any time	II Likely Could happen sometime	III Unlikely Could happen but very rarely	IV Rare Could happen but probably never will
<b>C O N D E V Q E U R E S N C E S</b>	<b>A</b> <b>Fatality or permanent disability,</b> or property or environmental damage over \$50,000	<b>1</b>	<b>1</b>	<b>2</b>	<b>3</b>
	<b>B</b> <b>Long term illness or serious injury,</b> or property or environmental damage between \$5,000 and \$50,000	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
	<b>C</b> <b>Medical attention and several days off work,</b> or property or environmental damage between \$500 and \$5,000	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<b>D</b> <b>First aid needed,</b> or property or environmental damage up to \$500	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>

The numbers below show you how important it is to do something, and the action to take:

- |                  |                            |   |
|------------------|----------------------------|---|
| <b>1 &amp; 2</b> | <b>Top Priority (T)</b>    | <b>Eliminate or isolate the hazard immediately. Must fix the cause(s) immediately.</b>        |
| <b>3 &amp; 4</b> | <b>Medium Priority (M)</b> | <b>Must reduce the risk to the lowest possible level using hierarchy of control measures.</b> |
| <b>5 &amp; 6</b> | <b>Low Priority (L)</b>    | <b>Reduce the risk further if possible, and manage by routine procedures</b>                  |

Signature:

Date: