THE UNIVERSITY OF ADELAIDE AUSTRALIA | Chemistry Curriculum and Methodology B

Summative Task: Classroom Management and Safety

Review the Material Safety Data Sheets (MSDS) provided and identify any potential hazards and outline how you will respond to the hazards during the investigation to limit risk to undertake the investigation safety.

Complete a Risk Assessment, using the provided pro-forma (or Risk Assess) for the Organic Preparation – Ester Hydrolysis.

https://www.riskassess.com.au/ Login: USCSTUDENT Password: 1234

Take on the role of supervisor (as the teacher) for a short duration during the practical and complete a reflection on the management of safety, apparatus, and students.

Assessment

The completed task is to be submitted at the conclusion of the Intensive.

Learning Intentions

- Assemble a range of subject-appropriate resources, including online, that engage a diversity of students in their learning.
- Develop a broad repertoire of subject-appropriate teaching and learning strategies, including use of ICT.
- Demonstrate broad knowledge of appropriate strategies that can be used to evaluate teaching programs to improve student learning.

Rubric

Assessment Design Criteria	**Fail 0 < F < 49%**	**Pass 50 < P < 64%**	**Credit 65 < C < 74%**	**Distinction 75 < D < 84%**	**High Distinction 85 < HD < 100%**	**Weighting**
Response to M/SDS and hazards	Limited acknowledgment of safety requirements and response to them	Some acknowledgement of safety requirements and response to them	Acknowledgment of a range of safety requirements and appropriate response to them	Acknowledgment of a range of appropriate safety requirements and appropriate response to them	Acknowledgment of a range of highly appropriate safety requirements and highly appropriate response to them	10%
Reflection on classroom management and safety	Limited recognition and reflection	Some recognition and reflection	Considered recognition and reflection	Detailed recognition and reflection	Highly detailed and perceptive recognition and critical reflection	10%
					Result:	20%

Comments:	

MSDS

Hazard	Response

Risk Assessment Tool For Practical Activities

Practical Investigation - ..... Reference: .....

HAZARD (tick the hazard)											
Chemical				**ALL PRACTICALS REQUIRE SAFETY INSTRUCTIONS AND OTHER CONTROLS (tick control measures used)**							
Solids	☐	Product of Practical	☐	MSDS Available	☐	MSDS requirement followed	☐				
Liquids	☐			SOPs*	☐	Safety Equipment	☐	PPE	☐		
Gas/es	☐			Clean Up	☐	Spillage	☐	Disposal	☐		
				Storage	☐						
Biological											
Insects	☐	Microbes	☐	SOP*	☐	Safety Equipment*	☐	PPE	☐		
Plants	☐	Zoonoses	☐	Clean Up	☐	Spillage	☐	Disposal	☐		
Animal	☐	Parasites	☐	Storage	☐						
Thermal											
Hot	☐	Cryogenic	☐	Heat Mats	☐	PPE	☐	Tongs	☐		
Cold	☐			Insulated Gloves	☐						
Sharps											
Pipettes	☐	Scalpels/Blades	☐	PPE	☐	Clean Up	☐				
Scissors	☐	Glass	☐			Disposal (e.g. broken glass bin)	☐				
Other	☐										
Electrical											
240 Volt	☐	High Voltage	☐	Visual inspection (current appliance tag)							☐
				RCD required available							☐
				RCD tested per requirements (portable – before use, hard wired)							☐
Radiation											
Laser	☐	Ionizing (e.g. Gamma)	☐	Code of Practice – safe use of Ionizing Radiation in Sec Schools							☐
				Code of Practice – for the use of Lasers in Schools							☐
				PPE	☐	Appropriate signage/storage					☐
Excursions											
Refer to Excursion Procedure				Instructions and safety material for experiments							
				Consent Forms	☐	Mobile Phone					☐
				First Aid Kit	☐	Medical Info checked					☐
						Staff Ratio – Duty of Care					☐
Machinery											
Vibration	☐	Rotational Motion	☐	Guarding		Correct Equipment	☐				
		Linear Motion	☐	SOP*		PPE	☐				

PPE = e.g. gloves, apron, goggles Safety equipment = e.g. eyewash/shower, ventilation, fume cupboard, safety screen
SOP = Safe Operating Procedure

This document can be used to identify the level of risk and help to prioritize any control measures.
Consider the **consequences** and **likelihood** for each of the identified hazards and use the table to obtain the risk level.

To determine the level of RISK consider:

LIKELIHOOD (likelihood of harm caused given the circumstances)
CONSEQUENCE (death/disable, several days off work, first aid)
RISK (assessment using the risk management framework matrix)

Hierarchy of Control **Controls identified may be a mixture of the hierarchy in order to provide minimum operator exposure.**

Elimination	Eliminate the hazard.
Substitution	Provide an alternative that is capable of performing the same task and is safer to use.
Engineering Controls	Provide or construct a physical barrier or guard.
Administrative Controls	Develop policies, procedures practices and guidelines, in consultation with employees, to mitigate the risk. Provide training, instruction and supervision about the hazard.
Personal Protective Equipment	Personal equipment designed to protect the individual from the hazard.

			Consequences				
			1 – Insignificant Dealt with by in-house first aid, etc	**2 – Minor** Medical help needed. Treatment by medical professional/hospital outpatient, etc	**3 – Moderate** Significant non-permanent injury. Overnight hospitalisation (inpatient)	**4 – Major** Extensive permanent injury (eg loss of finger/s) Extended hospitalisation	**5 – Catastrophic** Death. Permanent disabling injury (eg blindness, loss of hand/s, quadriplegia)
Likelihood	**A -**	Almost certain to occur in most circumstances	High (H)	High (H)	Extreme (X)	Extreme (X)	Extreme (X)
	B -	Likely to occur frequently	Moderate (M)	High (H)	High (H)	Extreme (X)	Extreme (X)
	C -	Possible and likely to occur at some time	Low (L)	Moderate(M)	High (H)	Extreme (X)	Extreme (X)
	D -	Unlikely to occur but could happen	Low (L)	Low (L)	Moderate(M)	High (H)	Extreme (X)
	E -	May occur but only in rare and exceptional circumstances	Low (L)	Low (L)	Moderate (M)	High (H)	High (H)

Once the level of risk has been determined the following table may be of use in determining when to act to institute the control measures.

Extreme	Act immediately to mitigate the risk.Either eliminate, substitute or implement engineering control measures.	Remove the hazard at the source. An identified extreme risk does not allow scope for the use of administrative controls or PPE , even in the short term.
High	Act immediately to mitigate the risk. Either eliminate, substitute or implement engineering control measures. If these controls are not immediately accessible, set a timeframe for their implementation and establish interim risk reduction strategies for the period of the set timeframe.	An achievable timeframe must be established to ensure that elimination, substitution or engineering controls are implemented. **NOTE:** Risk (and not cost) must be the primary consideration in determining the timeframe. A timeframe of greater than 6 months would generally not be acceptable for any hazard identified as high risk.
Medium	Take reasonable steps to mitigate the risk. Until elimination, substitution or engineering controls can be implemented, institute administrative or personal protective equipment controls. These "lower level" controls must not be considered permanent solutions. The time for which they are established must be based on risk. At the end of the time, if the risk has not been	**Interim measures until permanent solutions can be implemented:** • Develop administrative controls to limit the use or access. • Provide supervision and specific training related to the issue of concern. (See Administrative Controls below)
Low	Take reasonable steps to mitigate and monitor the risk. Institute permanent controls in the long term. Permanent controls may be administrative in nature if the hazard has low frequency, rare likelihood and insignificant consequence.	

Record your risk assessment by ticking the appropriate risk rating box

☐ **X = Extreme Risk** ☐ **H = High Risk** ☐ **M = Medium Risk** ☐ **L = Low Risk**

Note: Documented Control options for all practical activities. Emergency procedures must be established.

☐ **I have received training/instruction/supervision necessary to prepare the materials required for this practical/task, and have implemented the control measures identified above.**

☐ **Instructions for this practical activity include safety information.**

Science teacher ..... Date ..... Signature .....

Date Reviewed					
Initials					

Reflection