

# Chemical Risk Assessment

## Worksheet

### INTRODUCTION

The questions in this *Worksheet* are designed to prompt you to think about the risks you face when using chemicals and whether you believe the current controls will adequately protect you. You should not proceed with the use of a product if you believe it is unsafe.

There are two elements to the *Risk Assessment*. You will need a *Safety Data Sheet (SDS)* for the product (obtained from [Chem Alert](#) or from the supplier); and you will need to consider circumstances of use in your area. Complete the *Risk Assessment* in consultation with your supervisor.

### SECTION 1: SUMMARY (from SDS)

Chemical / Product Name	Storage Location
	Building: Room:
Manufacturer / Supplier	Lab for Intended Use
	Building: Room:
Safety Data Sheet	Hazardous and Dangerous Goods
Is a current SDS Available? ( <i>You must obtain it</i> ) <input type="checkbox"/> Yes <input type="checkbox"/> No	Is the chemical classified as Hazardous? <input type="checkbox"/> Yes <input type="checkbox"/> No
Assessment Date:	Is the chemical classified as Dangerous Goods? <input type="checkbox"/> Yes <input type="checkbox"/> No ( <i>if applicable</i> ) Class: Sub Class:
Assessor	Supervisor

### SECTION 2: USE

Task Description: (Including any storage or disposal requirements)							
Concentration: (%)		Quantity: (including units)		Duration of Use:		Frequency of Use:	

**Note:** Substances that are not classified as a **Hazardous Substance** or **Dangerous Good** require **no further assessment** (i.e. you do not need to complete the remaining sections).

### SECTION 3: HOW CAN EXPOSURE OCCUR?

<input type="checkbox"/> Dermal (Skin): Solid Aerosol Liquid	<input type="checkbox"/> Eyes: Dust Aerosol Liquid	<input type="checkbox"/> Inhalation: Vapour Aerosols Gas Dust	<input type="checkbox"/> Ingestion: Dust Aerosols Liquid Hygiene	<input type="checkbox"/> Injection: Pressure Sharp objects Open wounds
Who is potentially exposed? : (e.g. Students, Lab Staff, Researchers, Others)				

### SECTION 4: POTENTIAL HEALTH EFFECTS

Acute (Immediate) Effects	Chronic (Delayed) Effects
<input type="checkbox"/> Eye and skin Irritant / Corrosion	<input type="checkbox"/> Sensitising Agent (Skin/Inhalation)
<input type="checkbox"/> Central Nervous System	<input type="checkbox"/> Carcinogenic
<input type="checkbox"/> Asphyxiant (Inhalation)	<input type="checkbox"/> Liver/Kidney Disease
<input type="checkbox"/> Respiratory Tract Irritant	<input type="checkbox"/> Brain/Nerve Disease
<input type="checkbox"/> Toxic by Skin Exposure	<input type="checkbox"/> Respiratory Disease
<input type="checkbox"/> Toxic by Ingestion	<input type="checkbox"/> Reproductive System Disease
<input type="checkbox"/> Other (Specify):	<input type="checkbox"/> Other (Specify):

## SECTION 5: RISK RANKING WITH EXISTING CONTROLS IN PLACE

### Risk Matrix

#### Determine the Risk Rating (Level of Risk)

For each Consequence Category selected, determine the Risk Rating (Level of Risk) from the relevant Consequence and Likelihood Levels.

#### Risk Rating (Level of Risk) = Consequence x Likelihood.

**Select the Likelihood.** Select the appropriate Likelihood or Frequency rating of the Risk Event occurring for the selected Consequence level, given the controls are in place. **Select the Consequence.** For the given Risk Event select the relevant Consequence categories and apply a rating. The ratings are determined with the existing controls in place. Where there are multiple ratings for a risk, the highest combination of Consequence/Likelihood is taken as the final risk rating (do not average out the ratings).

Note: There are 3 types of risk ratings:

**Inherent** - no controls in place or total control failure; **Current** - with existing controls in place; **Residual** - with proposed treatment action plans (TAPs) in place. Curtin requires the **Current** risk rating (as a minimum).

		LIKELIHOOD DESCRIPTION					
		LIKELIHOOD	The event may occur only in exceptional circumstances.	Not expected but the event may occur at some time.	The event could occur at some time.	The event will probably occur in most circumstances.	The event is expected to occur or has occurred and is continuing to impact.
		FREQUENCY	Less than once in 10 years.	At least once between 5 and 10 years.	At least once between 1 and 5 years.	Once per year.	More than once per year.
		PROBABILITY	<10%	10% - <35%	35% - <65%	65% - <90%	>90%

  

IMPACTS		Likelihood Level					
Environment	Health and Safety	Consequence Level	Rare	Unlikely	Possible	Likely	Almost Certain
Permanent environmental damage to an extensive area outside of campus; Sole contributor responsible for direct GHG emissions AND majority of current practice does not meet good practice standards.	Fatality Permanent Total Disability		Critical			Extreme	
Long term environmental damage extending to a large area requiring high level of intervention; Significant contributor responsible for direct GHG emissions AND majority of current practice does not meet good practice standards.	Significant/extensive injury or illness. Permanent Partial Disability		Major		High		
Short term environmental damage requiring some intervention; Partial contributor responsible for direct GHG emissions AND majority of current practice does not meet good practice standards.	Serious injury or illness. Lost time injury >10 days		Moderate	Medium			
Short term environmental damage affecting a small area, easily remediated; Partial contributor responsible for indirect GHG emissions AND majority of current practice does not meet good practice standards.	Injury or illness requiring medical treatment Lost time injury <10 days		Minor	Low			
Minimal environmental damage affecting a very small area, immediately remediated.	Injury or illness requiring First Aid treatment No lost time injury days		Insignificant				

## Risk Acceptance Criteria Table

**Make an acceptance decision.** Based on the current risk rating, use the Risk Acceptance Criteria Table to determine an appropriate decision and response.

Risk Rating	Criteria for Acceptance of Risk and Risk Review	Criteria for Risk Ownership	Criteria for Risk Reporting
<b>Extreme</b>	<p>Risk is Out of Appetite. Requires a control rating of Excellent. Control rating of Inadequate is unacceptable.</p> <p>Immediate management attention required to reduce exposure. Treatment Action Plans (TAPs) to be developed, implemented and monitored by a designated TAP owner(s) to reduce the risk to as low as reasonably practical. To be reviewed at least every 1 month.</p>	Owned by the DVC / Executive Manager.	To be reported immediately to the relevant Executive and SET. If a broader organisational response is required, risk is to be reported as part of strategic risk themes that are submitted to the Planning & Management Committee / Executive Committee and Council (or to the University Health & Safety Committee for risks with a Health & Safety impact).
<b>High</b>	<p>Risk may be Out of Appetite (for risks with an Objectives &amp; Performance and/or Health &amp; Safety impact rating of '3. Moderate' and above AND likelihood rating of '4. Likely' and above) or Tolerable. Requires a control rating of Excellent (or Adequate but with justification). Control rating of Inadequate is unacceptable.</p> <p>Management attention required (immediately for risks with an Objectives &amp; Performance and/or Health &amp; Safety impact rating of '3. Moderate' and above AND likelihood rating of '4. Likely' and above). Treatment Action Plans (TAPs), where necessary, to be developed, implemented and monitored by a designated TAP owner(s) (subject to preliminary assessment and cost-benefit justification) to reduce the risk to as low as reasonably practical. To be reviewed at least every 3 months (or 1 month for risks with a Health &amp; Safety impact).</p>	Owned by the PVC, Head of School or Head of Area (i.e. Director).	To be reported to the relevant Executive. If a broader organisational response is required, risk is to be reported as part of strategic risk themes that are submitted to the Planning & Management Committee / Executive Committee and Council (or to the University Health & Safety Committee for risks with a Health & Safety impact).
<b>Medium</b>	<p>Risk is Acceptable. Requires a control rating of Adequate. Control rating of Inadequate is unacceptable.</p> <p>Monitor risk for any change in the operating environment. Treatment Action Plans (TAPs), where necessary, to be developed, implemented and monitored by a designated TAP owner(s) (subject to preliminary assessment and cost-benefit justification). To be reviewed every 12 months (or 3 months for risks with a Health &amp; Safety impact).</p>	Owned by the PVC, Head of School, Head of Area (Director) or Head of Section (Manager/Supervisor).	Reported to the DVC / Senior Executive (only for risks with an Inadequate controls rating), or to the local area Health & Safety Committee for risks with a Health & Safety impact.
<b>Low</b>	<p>Risk is Acceptable. Requires a control rating of Adequate. Control rating of Inadequate is unacceptable and will require a Treatment Action Plans (TAPs) to be developed, implemented and monitored by a designated TAP owner(s)</p> <p>Monitor risk for any change in the operating environment. To be reviewed every 12 months (or 6 months for risks with a Health &amp; Safety impact).</p>	Owned by the PVC, Head of School, Head of Area (Director) or Head of Section (Manager/Supervisor).	Reported to the DVC / Senior Executive (only for risks with an Inadequate controls rating), or to the local area Health & Safety Committee for risks with a Health & Safety impact.

**Note: The Risk Acceptance Criteria Table serves as a guide for risk acceptance and should be relevant in most situations. However, there may be situations where an exception could apply (because of factors outside the control of the organisation or due to the nature of the business). As with any decision, a justification for this exception needs to be demonstrated and documented.**

## Controls Rating Table

### Select the Overall Controls Rating (for ALL controls as a whole)

**Controls** - A control is any measure or action currently in existence that modifies or manages the risk. Examples of controls could include a policy, procedure, practice, process, technology, technique, method, or device. A control should be demonstrable, i.e. auditable.

**Treatment Action Plans (TAPs)** - TAPs are additional controls, where required. It could be an improvement of an existing control and/or a new initiative altogether. TAPs become controls, or modify existing controls, once they have been implemented.

The adequacy of the controls is assessed on a common sense, qualitative basis. This can be viewed as a reasonableness test, i.e. are you doing what is reasonable under the circumstances to prevent or minimise the impacts of the risk?

Level	Descriptor	Foreseeable	Detail
E	Excellent	More than what a reasonable person would be expected to do in the circumstances.	Controls fully in place and require only ongoing maintenance and monitoring. Protection systems are being continuously reviewed and procedures are regularly tested.
A	Adequate	Only what a reasonable person would be expected to do in the circumstances.	Being addressed reasonably. Protection systems are in place and procedures exist for common or typical circumstances. Periodic review.
I	Inadequate	Less than what a reasonable person would be expected to do in the circumstances.	Little to no action being taken. No protection systems exist or they have not been reviewed for some time. No formalised procedures.

Once the **Overall Controls Rating** (above) has been conducted on **ALL** controls as a whole, a **Controls Assurance** should be conducted on EACH control to determine if the controls are in place and effective.

### Controls Assurance Questions:

- |                               |   |   |
|-------------------------------|---|---|
| 1. Is the control in use?     | } | <p><i>If you answered 'Yes' to all 4 questions, the control is effective (the control text should be Green).</i></p> <p><i>If you answered 'Yes' to 2 or 3 questions, the control may require some improvements (the control text should be Blue).</i></p> <p><i>If you answered 'Yes' to 1 or less questions, the control may require significant improvements (the control text should be Red).</i></p> |
| 2. Is the control documented? |   |   |
| 3. Is the control up to date? |   |   |
| 4. Is the control effective?  |   |   |

**So the questions are: based on the above matrix:**

What could be the consequences?	
What is the likelihood of that happening?	
What is the risk rating?	
<b>Note:</b> If the rating is above <b>LOW</b> , Risk Management action is required.	

## SECTION 6: REQUIRED CONTROL MEASURES TO REDUCE RISK

Control	Example	Intention to apply
1. Elimination	Eliminate materials or elements of the process that carry significant risk.	<input type="checkbox"/>
2. Substitution	Substitute a safer chemical or safer process.	<input type="checkbox"/>
3. Isolation	Barriers, enclosures, remote operation.	<input type="checkbox"/>
4. Engineering	Local exhaust ventilation, dilution ventilation.	<input type="checkbox"/>
5. Administrative	Supervision, use of safe work procedures, housekeeping, organisation of work to limit contact, standards, training, signage.	<input type="checkbox"/>
6. PPE	Face shields, safety glasses, goggles, gloves, aprons.	<input type="checkbox"/>

## SECTION 7: SPECIFIC ACTIONS TO REDUCE RISK

List specific actions that will be carried out for each of the controls you nominated in Section 6.

Control	Action
1. Elimination	
2. Substitution	
3. Isolation	
4. Engineering	
5. Administrative	
6. PPE	

**Note:** If after the implementation of all of the controls above, the risks of using the assessed chemical remain MODERATE or higher (based on the *Risk Matrix* in Section 5); expert advice must be obtained so as to reduce risk before proceeding.

The *Occupational Health and Safety Regulations (1996)* require that *Risk Assessments* are retained. *Risk Assessments* must be revised if procedures change and are to be reviewed every 5 years. Save a copy of this *Risk Assessment*, to be retained in your area.