# Hazardous Chemical Storage Handling and Disposal

| | | |
|---|---|---|
| Business Name: | ABN: | |
| Business Address: | | |
| Contact Person: | Phone: | Email: |

## THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE PROJECT

Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.

| | | |
|---|---|---|
| Full Name: | | |
| Signature: | Title: | Date: |

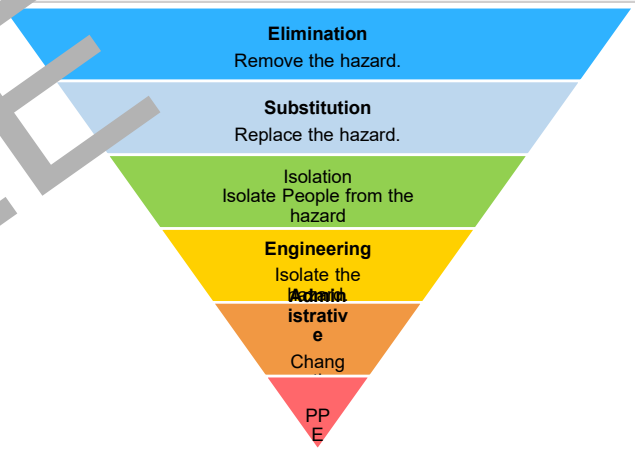
## CLIENT OR PRINCIPAL CONTRACTOR DETAILS

| | |
|---|---|
| Client: | SCOPE OF WORKS |
| Project Name: | |
| Project Address: | |
| Project Manager: | |
| Contact Phone: | |
| Date Risk Assessment supplied to Project Manager: | |

## RISK MATRIX

| LIKELIHOOD | INSIGNIFICANT | MINOR | MODERATE | MAJOR | CATASTROPHIC | SCORE | ACTION |
|---|---|---|---|---|---|---|---|
| ALMOST CERTAIN | 3 HIGH | 3 HIGH | 4 ACUTE | 4 ACUTE | 4 ACUTE | | |
| LIKELY | 2 MODERATE | 3 HIGH | 3 HIGH | 4 ACUTE | 4 ACUTE | 4A ACUTE | DO NOT PROCEED |
| POSSIBLE | 1 LOW | 2 MODERATE | 3 HIGH | 4 ACUTE | 4 ACUTE | 3H HIGH | Rev before work |
| UNLIKELY | 1 LOW | 1 LOW | 2 MODERATE | 3 HIGH | 4 ACU | 2M MO RATE | Ensure control measures in place. |
| RARE | 1 LOW | 1 LOW | 2 MODERATE | 3 HIGH | 3 H | 1L LOW | Monitor and keep records. |

HIERARCHY OF CONTROLS






### Risk Rating & Required Action:

| | |
|---|---|
| **4A** | Stop work. The risk is intolerable. E inate the hazar redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or hi er-level authorisati is required. |
| **3H** | Review and approve additional c rols b ask arts. Senior supervisor sign-off needed. |
| **2M** | Ensure all nominated controls are in ace and effe ive. Proceed with caution; monitor conditions. |
| **1L** | Proceed, following standard operating procedures Monitor and keep records. |

### Consequence Scale:

| Consequence | People (injury/illness) | Project / Assets | Compliance / Reputation |
|---|---|---|---|
| **Catastrophic** | Fatality or permanent total disability | project shutdown | Significant regulator intervention; criminal prosecution |
| **Major** | Serious injury/illness (hospital > 5 days) | critical delay | Improvement notice; major media coverage |
| **Moderate** | Medical-treatment injury; lost-time > 1 day | moderate delay | Minor breach; adverse client comment |
| **Minor** | First-aid only, no lost time | negligible delay | Isolated non-conformance |
| **Insignificant** | No injury | no schedule impact | Deviation caught and corrected on site |

**Notes on Hierarchy of Controls:**
Remember to apply controls in the preferred order shown by the coloured pyramid:

1. **Eliminate**
2. Substitute
3. Isolate
4. Engineering
5. Administrative
6. PPE

Always document **why** a lower-order control is accepted if elimination or substitution is not reasonably practicable.

*aligned with Safe Work Australia's* Managing the risk of fatigue at work *(2023) and ISO 45001:2018 clauses 6–8.*

| JOB STEP | POTENTIAL HAZARDS | IR | CONTROL MEASURES | RR |
|---|---|---|---|---|
| SPECIFIC WORK STEPS | HAZARDS THAT MAY ARISE | INITIAL RISK | SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS | RESIDUAL RISK |
| 1. WHS Governance, Policy and Legal Compliance | • Lack of a documented hazardous chemicals policy aligned with WHS Act 2011 and WHS Regulations<br>• Failure to identify and classify all hazardous chemicals and dangerous goods held on site<br>• Inadequate awareness of Australian Standards and relevant Codes of Practice for hazardous chemical storage and handling<br>• No system to review legislative changes or updated exposure standards for harmful substances, including nano-materials and heavy metals<br>• COSHH-style controls not adapted correctly to Australian WHS framework and classification systems<br>• Poor integration of chemical safety into broader WHS management system and risk registers | 4A | • Develop and endorse a formal Hazardous Chemicals and Dangerous Goods Policy approved by senior management, referencing WHS Act 2011, WHS Regulations and relevant Safe Work Australia Codes of Practice<br>• Establish and maintain a hazardous chemicals legal and standards register (Acts, Regulations, Australian Standards, Codes of Practice, environmental legislation)<br>• Implement a documented chemical risk management procedure covering identification, risk assessment, control, monitoring and review<br>• Assign a competent person (e.g. HSE Manager or Chemical Safety Officer) with clear responsibilities for hazardous substance management<br>• Integrate hazardous chemical risks into the corporate WHS risk register and management review processes<br>• Schedule annual governance reviews and internal audits to verify compliance with WHS legislation and chemical management standards | 3H |
| 2. Hazardous Chemicals Inventory and Lifecycle Management | • Incomplete or inaccurate hazardous chemicals inventory across all areas and properties<br>• Unrecorded storage of chemicals, heavy metals, nano-materials or contaminated materials on remote or seldom-used sites<br>• Inability to track chemical quantities, locations, expiry dates and container status<br>• Uncontrolled introduction of new chemical products (including lab reagents, cleaning products and industrial chemicals) without prior assessment<br>• Failure to identify chemicals that become more hazardous with age (e.g. peroxides, degraded containers, unstable compounds) | 4A | • Implement a centralised hazardous chemicals inventory system covering all sites, buildings, picking lines and remote storage locations<br>• Require procurement approval and pre-use assessment before any new chemical, nano-material or hazardous substance is brought onto site<br>• Include fields in the inventory for hazardous classification, quantity, maximum allowable holding, SDS reference, storage location and expiry date<br>• Conduct scheduled physical stocktakes and electronic reconciliation of all hazardous chemicals and hazardous waste streams<br>• Define maximum inventory limits for high-risk substances (e.g. mercury, corrosives, flammables, toxic gases, liquid nitrogen, dry ice) based on risk assessment<br>• Include waste chemicals and contaminated materials in the same inventory framework until final disposal is confirmed with documentation | 2M |

| JOB STEP | POTENTIAL HAZARDS | IR | CONTROL MEASURES | RR |
|---|---|---|---|---|
| SPECIFIC WORK STEPS | HAZARDS THAT MAY ARISE | INITIAL RISK | SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS | RESIDUAL RISK |
| | • Poor visibility of waste chemicals, oil disposal streams, and decommissioned containers awaiting disposal | | | |
| 3. Hazard Identification, SDS and Material Safety Data Management | • Absence of current Safety Data Sheets (SDS) / Material Safety Data Sheets for hazardous chemicals on site<br>• Out-of-date SDS not reflecting current health hazard information or revised exposure standards<br>• Inadequate review of SDS information prior to use, mixing or storage of chemicals and toxins<br>• Failure to consider acute risks (e.g. accidental ingestion, inhalation, skin contact with irritants, corrosive burns) and chronic exposures (e.g. heavy metals, nano-materials)<br>• No documented process to assess hazardous substances detection equipment selection and calibration requirements<br>• Inadequate translation of SDS information into local pr os, signage, and emerg y response plans | 4A | • Implement a corporate SDS anagement proce e requi g current SDS (less than 5 years old) for all hazardous chemicals and harm substances<br>• Use an electroni DS nagem t system with search functionality accessible to all workers and emergency res nders<br>• Mandate a p se SDS k review fo new or changed substances, including assessment of inhala skin osu ingestion, and environmental hazards<br>• Tran at DS in mation into site-specific risk assessments, storage standards, PPE requirements and engine ing ontrol s cifications<br>• Ensure azar us sub tance detection and monitoring equipment is selected and maintained in line with S rec nmen ions and exposure standards<br>• Audi currency and accessibility at least annually, with corrective actions for identified gaps | 2M |
| 4. Labelling, Signage and Hazard Communication | • Unlabelled or inc ectly labell d chemical containe inclu g deca d substances and interim storage vess s<br>• Illegible or damaged labels on dr s, IBCs or laboratory conta s<br>• Inconsistent labelling standards between suppliers, leading to confusion over hazard classes<br>• Lack of clear signage for chemical stores, hazardous areas and waste chemical accumulation points<br>• Failure to provide warning information for hazardous area certified works and maintenance of hazardous area instrumentation<br>• Workers unable to quickly identify hazards associated with liquid nitrogen, | 3H | [redacted] | 1L |

| JOB STEP | POTENTIAL HAZARDS | IR | CONTROL MEASURES | RR |
|---|---|---|---|---|
| SPECIFIC WORK STEPS | HAZARDS THAT MAY ARISE | INITIAL RISK | SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS | RESIDUAL RISK |
| | dry ice, mercury, nano-materials and other specialised substances | | | |
| 5. Storage System Design, Segregation and Dangerous Goods Management | • Improper storage of dangerous goods onsite leading to fire, explosion or toxic release<br>• Inadequate segregation of incompatible substances (e.g. oxidisers with flammables, acids with alkalis, reactive metals with water)<br>• Inappropriate storage conditions for liquid chemical storage, storing harmful liquids and liquid nitrogen (ventilation, temperature, containment)<br>• Insufficient design of bunding and spill containment for bulk liquid storage and oil disposal handling<br>• Overcrowded storage areas making it difficult to keep hazardous substances secure and access emergency equipment<br>• Uncontrolled storage of hazardous substances on picking lines or within production equipment wit[redacted]isk-base[redacted] layout | 4A | [redacted] | 2M |
| 6. Chemical Handling Systems, Transfer and Mixing Controls | • Uncontrolled tra[redacted]erring of ha[redacted]dous substances from o[redacted] another without appropriate enginee[redacted]g controls<br>• Manual handling of har[redacted]us and powders resulting in splashes, spills or inhalation exposures<br>• Unsafe mixing of chemical compounds due to inadequate procedures, leading to heat, gas generation or violent reactions<br>• Improper handling of dry ice, liquid nitrogen and other cryogens causing cold burns or asphyxiation<br>• Working with mercury, other heavy metals and nano-materials without appropriate containment and ventilation | 4A | [redacted] | 2M |

| JOB STEP | POTENTIAL HAZARDS | IR | CONTROL MEASURES | RR |
|---|---|---|---|---|
| SPECIFIC WORK STEPS | HAZARDS THAT MAY ARISE | INITIAL RISK | SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS | RESIDUAL RISK |
| | • Use of non-hazardous area rated equipment in hazardous areas when handling volatile chemicals | | | |
| 7. Health Risk Management, Exposure Controls and Monitoring | • Exposure to harmful substances via inhalation, ingestion, skin contact or eye contact<br>• Workers handling potentially hazardous materials without appropriate protection or controls<br>• Underestimation of chronic health risks from long-term low-level exposures (e.g. solvents, heavy metals, nano-materials)<br>• Inadequate consideration of vulnerable workers or those with pre-existing health conditions<br>• Absence of health monitoring programs where required (e.g. lead, isocyanates, certain organic solvents)<br>• Failure to recognise or report early symptoms of chemical exposures | 4A | [redacted] | 2M |
| 8. Training, Competency and Supervision for Chemical Management | • Lack of competency in dealing with hazardous substances at a property or across multiple sites<br>• Inadequate traini in recognising chemical hazards, OS inte and COSHH-style ri trols adap to Australian context<br>• Supervisors unable to identify safe practices in handling chem and toxins or hazardous material removal<br>• Specialist tasks (e.g. inertisation process, hazardous area certified works, maintenance of hazardous area instrumentation, working with nano-materials) performed by unqualified personnel<br>• Contractors and labour hire workers not inducted in site-specific chemical risks and emergency arrangements<br>• Insufficient refresher training leading to drift from established control measures | 3H | [redacted] | 1L |

| JOB STEP | POTENTIAL HAZARDS | IR | CONTROL MEASURES | RR |
|---|---|---|---|---|
| SPECIFIC WORK STEPS | HAZARDS THAT MAY ARISE | INITIAL RISK | SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS | RESIDUAL RISK |
| 9. Waste Chemicals, Hazardous Material Removal and Disposal Systems | • Improper disposal of chemicals or other hazardous wastes leading to environmental contamination and regulatory breaches<br>• Uncontrolled accumulation of waste chemicals, contaminated material and oil disposal containers<br>• Inappropriate processing of contaminated material without prior risk assessment for unexpected contaminants<br>• Removal of hazardous materials (including asbestos by others, mercury, heavy metals, nano-materials) without competent contractors and controls<br>• Lack of traceability for hazardous waste consignments and disposal manifests<br>• Failure to segregate incompatible waste streams, increasing risk of reaction in waste storage areas | 4A | [redacted] | 2M |
| 10. Emergency Planning, Spill Response and Decontamination | • Delayed or ineffective response to spills, leaks or chemical [redacted]<br>• Lack of coordinate[redacted] response to skin contact with irritan[redacted] accidental ingestion or inhala[redacted]<br>• Insufficient planning for dealing wit[redacted] unexpected contaminants during maintenance or processi[redacted] contaminated material<br>• Inadequate decontamination facilities and procedures for personnel, tools, vehicles and affected work areas<br>• Emergency plans not accounting for specific hazards such as cryogens, nano-materials, heavy metals and reactive chemicals<br>• Poor communication with emergency services and neighbours in the event of a significant chemical incident | 4A | [redacted] | 2M |

| JOB STEP | POTENTIAL HAZARDS | IR | CONTROL MEASURES | RR |
|---|---|---|---|---|
| SPECIFIC WORK STEPS | HAZARDS THAT MAY ARISE | INITIAL RISK | SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS | RESIDUAL RISK |
| 11. Inspection, Maintenance and Hazardous Area Integrity | • Degraded containment systems (bunds, tanks, pipework, valves) increasing likelihood of leaks and spills<br>• Failure of hazardous area certified equipment leading to ignition of flammable atmospheres<br>• Inadequate maintenance of hazardous area instrumentation affecting detection and control of hazardous atmospheres<br>• Bypassing or disabling of safety interlocks, level controls and gas detection systems<br>• Lack of periodic inspection of emergency systems (detection, alarms, ventilation, inertisation systems)<br>• Corrosion, UV damage or wear of chemical storage infrastructure not detected in time | 3H | [redacted] | 1L |
| 12. Contractor, Visitor and Third-Party Management | • Contractors conducting hazardous chemicals work without adequate understanding of site-specific risks and controls<br>• Insufficient oversight of third parties who bring hazardous substances onto site or remove hazardous materials<br>• Visitors inadvertently entering hazardous areas or chemical storage zones without awareness of risks<br>• Inadequate coordination between site and contractor emergency plans for chemical incidents<br>• Lack of clarity regarding legal duties and interfaces between PCBUs in shared workplaces<br>• Contractor work methods conflicting with site procedures for storage, handling and disposal of chemicals | 3H | [redacted] | 1L |
| 13. Change Management and Process Safety for Chemical Systems | • Uncontrolled changes to chemical types, concentrations or suppliers leading to unforeseen incompatibilities or exposures | 4A | [redacted] | 2M |

| JOB STEP | POTENTIAL HAZARDS | IR | CONTROL MEASURES | RR |
|---|---|---|---|---|
| SPECIFIC WORK STEPS | HAZARDS THAT MAY ARISE | INITIAL RISK | SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS | RESIDUAL RISK |
| | • Modifications to plant, piping or storage configurations without reassessment of hazardous area classification or containment capacity<br>• Introduction of new technologies (e.g. nano-materials, new reagents) without structured risk assessment<br>• Operational changes affecting inertisation processes or ventilation performance not formally reviewed<br>• Failure to revalidate risk controls following significant incidents or near misses related to chemical exposures<br>• Inadequate stakeholder consultation when changing waste management, chemical removal or decontamination methods | | [redacted] | |
| 14. Monitoring, Reporting, Audit and Continuous Improvement | • Chemical incidents, near misses and exposures not reported or analysed, leading to repeat events<br>• Lack of performance indicators for hazardous chemicals management (e.g spills, non-compliant sto SDS gaps<br>• Infrequent or sup cial inspections failing to detect sy emic weakn s in chemical controls<br>• Complacency over time resulting in drift from procedures, especially in routine tasks on picking li laboratories<br>• No structured review of chemical risk assessments following organisational or regulatory changes<br>• Missed opportunities to adopt safer substitutes or improved engineering controls | 3H | [redacted] | 1L |
| | | | | |
| | | | | |

## EMERGENCY RESPONSE – CALL 000 FOR EMERGENCIES

Ensure to have an Emergency Management Plan in place as well as adequate numbers of trained first aid staff with easy access to fully stocked first aid kits, rescue equipment, material safety data sheets, adequate access to emergency communication equipment and fire-fighting equipment suitable for all classes of fire and ignition sources.

## LEGISLATIVE REFERENCES

RELEVANT LEGISLATION AND CODES OF PRACTICE. DELETE THE LEGISLATIVE REFERENCES FOR ANY STATE THAT ARE NOT APPLICABLE

**Queensland & Australian Capital Territory**
Work Health and Safety Act 2011
Work Health and Safety Regulations 2011
Legislation QLD: https://www.worksafe.qld.gov.au/laws-and-compliance/work-health-and-safety-laws
Codes of Practice QLD: https://www.worksafe.qld.gov.au/laws-and-compliance/codes-of-practice
Legislation ACT: https://www.worksafe.act.gov.au/laws-and-compliance/acts-and-regulations
Codes of Practice ACT: https://www.worksafe.act.gov.au/laws-and-compliance/codes-of-practice

**New South Wales**
Work Health and Safety Act 2011
Work Health and Safety Regulations 2025
Legislation NSW: https://www.safework.nsw.gov.au/legal-obligations/legislation
Codes of Practice NSW: https://www.safework.nsw.gov.au/resource-library/list-of-codes-of-practice

**Northern Territory**
Work Health and Safety (National Uniform Legislation) Act 2011
Work Health and Safety (National Uniform Legislation) Regulations 2011
Legislation NT: https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws
Codes of Practice NT: https://worksafe.nt.gov.au/forms-and-resources/codes-of-practice

**South Australia**
Work Health and Safety Act 2012 (SA)
Work Health and Safety Regulations 2012 (SA)
Legislation for SA: https://www.safework.sa.gov.au/resources/legislation
Codes of Practice for SA: https://www.safework.sa.gov.au/workplaces/codes-of-practice#COPs

**Tasmania**
Work Health and Safety Act 2012
Work Health and Safety (Transitional and Consequential Provisions) Act 2012
Work Health and Safety Regulations 2012
Work Health and Safety (Transitional) Regulations 2012
Legislation for TAS: https://worksafe.tas.gov.au/topics/laws-and-compliance/acts-and-regulations
Codes of Practice for TAS: https://worksafe.tas.gov.au/topics/laws-and-compliance/codes-of-practice

Details of permits, licenses or access required by regulatory bodies (add or delete as required):

- Permits from local council
- Authorisation to commence work
- Any required documents.

**Victoria**
Occupational Health and Safety Act 2004
Occupational Health and Safety Regulations 2017
Legislation VIC: https://www.worksafe.vic.gov.au/occupational-health-and-safety-act-and-regulations
Codes of Practice VIC: https://www.worksafe.vic.gov.au/compliance-codes-and-codes-practice

**Western Australia**
Work Health and Safety Act 2020
Work Health and Safety Regulations 2022
Legislation Western Australia: https://www.commerce.wa.gov.au/worksafe/legislation
Codes of Practice WA: https://www.commerce.wa.gov.au/worksafe/codes-practice

**Safe Work Australia Links**
Law and Regulation (All States): https://www.safeworkaustralia.gov.au/law-and-regulation
Model Codes of Practice: https://www.safeworkaustralia.gov.au/resources-publications/model-codes-of-practice

**Model Codes of Practice**

- Managing noise and preventing hearing loss at work
- Confined spaces
- Labelling of workplace hazardous chemicals
- Managing risks of hazardous chemicals in the workplace
- Welding processes
- First aid in the workplace
- Managing the risk of falls at workplaces
- Hazardous manual tasks
- Managing the risk of falls in housing construction
- Managing electrical risks in the workplace
- Demolition work
- Excavation work
- Work health and safety consultation, cooperation and coordination
- Managing the work environment and facilities
- How to manage work health and safety risks
- Managing risks of plant in the workplace
- Construction work