

Working With Sulphuric Acid Risk Assessment

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

THIS RISK ASSESSMENT IS APPROVED BY THE PCBU ON 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 | HIERARCHY OF CONTROLS | |
| ALMOST CERTAIN | 3 HIGH | 3 HIGH | 4 ACUTE | 4 ACUTE | 4 ACUTE | | | Elimination Remove the hazard. | |
| LIKELY | 2 MODERATE | 3 HIGH | 3 HIGH | 4 ACUTE | 4 ACUTE | 4A ACUTE | DO NOT PROCEED | Substitution Replace the hazard. | |
| POSSIBLE | 1 LOW | 2 MODERATE | 3 HIGH | 4 ACUTE | 4 ACUTE | 3H HIGH | Review before work starts. | Isolation Isolate People from the hazard | |
| UNLIKELY | 1 LOW | 1 LOW | 2 MODERATE | 3 HIGH | 4 ACUTE | 2M MODERATE | Ensure control measures in place. | Engineering Isolate the hazard | |
| RARE | 1 LOW | 1 LOW | 2 MODERATE | 3 HIGH | 3 HIGH | 1L LOW | Monitor and keep records. | Administrative Change | |
| | | | | | | | | PPE | |
| Risk Rating & Required Action: | | | | | | | | Notes on Hierarchy of Controls: | |
| 4A Stop work. The risk is intolerable. Eliminate the hazard or redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or higher-level authorisation is required. | | | | | | | | Remember to apply controls in the preferred order shown by the coloured pyramid: | |
| 3H Review and approve additional controls before the task starts. Senior supervisor sign-off needed. | | | | | | | | 1. Eliminate | |
| 2M Ensure all nominated controls are in place and effective. Proceed with caution; monitor conditions. | | | | | | | | 2. Substitute | |
| 1L Proceed, following standard operating procedures. Monitor and keep records. | | | | | | | | 3. Isolate | |
| | | | | | | | | 4. Engineering | |
| | | | | | | | | 5. Administrative | |
| | | | | | | | | 6. PPE | |
| Consequence Scale: | | | | | | | | Always document why a lower-order control is accepted if elimination or substitution is not reasonably practicable. | |
| 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 | | | | |
| | | | | | | | | <i>aligned with Safe Work Australia's Managing the risk of fatigue at work (2023) and ISO 45001:2018 clauses 6–8.</i> | |

| 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. Preparation | Spill of sulphuric acid, Inhalation of fumes | 3H | <ul style="list-style-type: none"> - Ensure PPE is available: safety goggles, acid-resistant gloves, apron, and respirator - Use chemical spill kits at hand - Adequate ventilation in preparation area - Workers trained on handling procedures - Emergency shower and eye wash stations accessible - MSDS accessible for quick reference - Inspect containers for leaks before use - Use secondary containment for storage of chemicals - Plan for safe transfer of chemicals - Ensure communication of potential hazards with all staff | 2M |
| 2. Transport of Containers | Container rupture, Exposure to acid due to improper handling | 4H | <ul style="list-style-type: none"> - Use secured and labeled containers made for transporting corrosive substances - Employ proper lifting techniques to avoid drops - Utilise trolleys with containment capabilities - Conduct routine inspections of transport equipment - Train workers in safe manual handling techniques - Implement buddy system for lifting - Restrict transport area to authorised personnel only - Maintain clear paths free of obstructions - Brief team on emergency procedure if spill occurs - Utilise signage to denote hazard zones | 2M |
| 3. Storage | Chemical reaction due to improper storage, Leaks in storage area | 4A | <ul style="list-style-type: none"> - Store acids in a cool, ventilated, and secure place - Label stored materials clearly with hazard warnings - Implement segregation by chemical type - Regularly inspect containers for integrity - Ensure storage area is equipped with appropriate spill containment and ventilation systems - Implement automated monitoring for leaks - Keep storage area access limited to qualified personnel - Follow first-in first-out inventory system | 2M |

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| | | | <ul style="list-style-type: none"> - Arrange regular training on chemical compatibility - Identify and maintain an updated storage map | |
| 4. Pouring of Acid | Splashes causing skin burns, Fumes causing respiratory distress | 4A | <ul style="list-style-type: none"> - Wear appropriate PPE (goggles, gloves, apron) - Use a fume hood or local exhaust ventilation - Label all containers clearly - Store acids in a cool, dry, well-ventilated area - Use secondary containment for all acid transfers - Have spill kits available and trained personnel - Avoid contact with skin and eyes - Use proper lifting techniques - Keep work area clean and free of clutter - Use appropriate tools and equipment - Follow manufacturer's instructions - Keep fire extinguishers nearby - Post warning signs - Restrict access to the area - Use a buddy system - Keep first aid kits accessible - Have a clear escape route - Use proper storage practices - Regularly inspect equipment - Keep emergency contact numbers - Use proper disposal methods - Keep records of all activities - Conduct regular safety audits - Provide ongoing training - Encourage a safety culture - Report incidents immediately - Investigate the root cause of incidents - Implement corrective actions - Review and update procedures - Communicate changes effectively - Keep all safety equipment in good condition - Use proper housekeeping practices - Avoid unnecessary movement of materials - Use proper tie-off techniques - Keep all safety barriers in place - Use proper fall protection - Avoid working alone - Use proper lockout/tagout procedures - Keep all safety equipment in good condition - Use proper housekeeping practices - Avoid unnecessary movement of materials - Use proper tie-off techniques - Keep all safety barriers in place - Use proper fall protection - Avoid working alone - Use proper lockout/tagout procedures | 2M |
| 5. Mixing Dilutions | Heat generation causing burns, Explosive reaction if improperly mixed | 4A | <ul style="list-style-type: none"> - Add acid to water, not water to acid - Use a cooling system for exothermic reactions - Monitor temperature during mixing - Use appropriate PPE (goggles, gloves, apron) - Use a fume hood or local exhaust ventilation - Label all containers clearly - Store acids in a cool, dry, well-ventilated area - Use secondary containment for all acid transfers - Have spill kits available and trained personnel - Avoid contact with skin and eyes - Use proper lifting techniques - Keep work area clean and free of clutter - Use appropriate tools and equipment - Follow manufacturer's instructions - Keep fire extinguishers nearby - Post warning signs - Restrict access to the area - Use a buddy system - Keep first aid kits accessible - Have a clear escape route - Use proper storage practices - Regularly inspect equipment - Keep emergency contact numbers - Use proper disposal methods - Keep records of all activities - Conduct regular safety audits - Provide ongoing training - Encourage a safety culture - Report incidents immediately - Investigate the root cause of incidents - Implement corrective actions - Review and update procedures - Communicate changes effectively - Keep all safety equipment in good condition - Use proper housekeeping practices - Avoid unnecessary movement of materials - Use proper tie-off techniques - Keep all safety barriers in place - Use proper fall protection - Avoid working alone - Use proper lockout/tagout procedures - Keep all safety equipment in good condition - Use proper housekeeping practices - Avoid unnecessary movement of materials - Use proper tie-off techniques - Keep all safety barriers in place - Use proper fall protection - Avoid working alone - Use proper lockout/tagout procedures | 2M |
| 6. Transferring Acid to Processes | Contact with skin, Inhalation of acid vapours | 4A | <ul style="list-style-type: none"> - Use appropriate PPE (goggles, gloves, apron) - Use a fume hood or local exhaust ventilation - Label all containers clearly - Store acids in a cool, dry, well-ventilated area - Use secondary containment for all acid transfers - Have spill kits available and trained personnel - Avoid contact with skin and eyes - Use proper lifting techniques - Keep work area clean and free of clutter - Use appropriate tools and equipment - Follow manufacturer's instructions - Keep fire extinguishers nearby - Post warning signs - Restrict access to the area - Use a buddy system - Keep first aid kits accessible - Have a clear escape route - Use proper storage practices - Regularly inspect equipment - Keep emergency contact numbers - Use proper disposal methods - Keep records of all activities - Conduct regular safety audits - Provide ongoing training - Encourage a safety culture - Report incidents immediately - Investigate the root cause of incidents - Implement corrective actions - Review and update procedures - Communicate changes effectively - Keep all safety equipment in good condition - Use proper housekeeping practices - Avoid unnecessary movement of materials - Use proper tie-off techniques - Keep all safety barriers in place - Use proper fall protection - Avoid working alone - Use proper lockout/tagout procedures - Keep all safety equipment in good condition - Use proper housekeeping practices - Avoid unnecessary movement of materials - Use proper tie-off techniques - Keep all safety barriers in place - Use proper fall protection - Avoid working alone - Use proper lockout/tagout procedures | 2M |

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| | | | | |
| 7. Equipment Cleaning | Residual acid on equipment, Improper waste disposal | 3H | | 1L |
| 8. Maintenance of Equipment | Chemical leaks during maintenance, Exposure to hazardous components | 3H | | 1L |
| 9. Emergency Preparedness | Inadequate response to acid spills, Poor communication during emergencies | 4A | | 2M |

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| | | | | |
| 10. Disposal of Waste | Improper disposal causing environmental harm, Exposure to hazardous waste | 4A | | 2M |
| 11. Training and Induction | Unawareness of procedures causing accidents, Inadequate skillset increasing risk | 3H | | 2M |
| 12. Supervision and Monitoring | Non-compliance with safety measures, Missed identification of hazards | 3H | | 1L |

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| | | | | |
| 13. Incident Reporting and Investigation | Failure to report incidents, Incomplete investigation leading to recurrence | 3H | | 1L |
| 14. Review and Reassessment | Failure to update risk management plan, Unchecked adaptations leading to emerging risks | 2M | | 1L |
| 15. Decommissioning Equipment | Residual acid causing exposure, Incorrect decommissioning procedures | 3H | | 1L |

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SAMPLE

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 IF 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>

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>

New South Wales

Work Health and Safety Act 2011

Work Health and Safety Regulations 2017

Legislation NSW: <https://www.safework.nsw.gov.au/legal-obligations/legislation>

Codes of Practice NSW: <https://www.safework.nsw.gov.au/resource-library/list-codes-of-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>

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/laws-and-compliance/codes-of-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

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.