



PROCEDURE



Title: **Management of Chemicals**

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1.0 PURPOSE

To provide for the safe management and control of hazardous chemicals, including their purchase, delivery, use, handling, storage and disposal as required under 4.1 using practices as recommended under 4.2.

2.0 SCOPE

All chemicals brought onto, prepared or generated on QAL property by QAL employees, contractors or their employees or visitors.

3.0 RESPONSIBILITIES

3.1 Section Superintendent or Contractor Principal

Each Superintendent is responsible for the safe handling of chemicals, including storage and disposal, in their area as documented in this procedure.

All sections handling placard quantities of hazardous chemicals, as defined in Schedule 11 of the regulations, shall appoint a Section Chemical Safety Coordinator to assist in the management of chemicals.

3.2 Superintendent - Laboratory

The Laboratory Superintendent shall administer specific requirements as documented in this procedure, and provide advice on management of chemicals to plant sections. This includes requirements of Critical Risk Management – Exposure to Hazardous Chemicals.

P784.002 contains further information on the responsibilities of Laboratory Superintendent.

3.3 Specialist – Occupational Health and Hygiene

The Specialist – Occupational Health and Hygiene shall administer specific requirements as documented below:

- Identify chemicals on site that are restricted as per Schedule 10 of WH&S Regulations.
- Develop Similar Exposure Group (SEG) monitoring, for personnel who will have the same general exposure profile for the agent (hazardous chemical) to which they are potentially exposed.
- Advise the Medical Centre of personnel who will require to undergo health surveillance.
- Complete occupational exposure monitoring as required.

3.4 Chemical Safety Coordinator (CSC)

A chemical safety coordinator assists the section superintendent in the management of chemicals.

3.5 All Employees

All employees are to contribute to the identification of risks associated with handling and storage of chemicals and use control measures as documented in risk assessments or as required by good occupational hygiene practices.

4.0 REFERENCES

- 4.1 Work Health and Safety Regulation 2011 - Chapter 7 – Hazardous Chemicals
- 4.2 P003.008 - Incident Management and Investigation
- 4.3 P315.000 - Business Resilience Management Plan
- 4.4 P712.101 – Materials Procurement
- 4.5 P746.215 – Emergency Response – Site wide
- 4.6 P716.207 – Fire / Emergency Management and Evacuation of Buildings
- 4.7 P315.102 – Personal Protective Equipment**
- 4.8 P315.104 – Respiratory Protection**
- 4.9 P315.205 – Health Monitoring
- 4.10 P314.307 - Hot Work Permit System
- 4.11 P703.044 – Minimum Compliance Training
- 4.12 P745.202 – Occupational Hygiene Exposure Monitoring
- 4.13 P783.104 - Drain and Bund Management
- 4.14 P784.002 – Laboratory Chemical Management Systems
- 4.15 Training Module SM67 – ChemAlert
- 4.16 Training Module SM80 – Hazardous Chemicals (including WBT)
- 4.17 PM316.001.54 - Safe Work - Chemical Handling
- 4.18 PM316.001.48 - Safe Work - Handling Gas Cylinders
- 4.19 W314.103.01 Completing a Chemical Request in ChemAlert
- 4.20 W314.103.02 Completing a Risk Assessment in ChemAlert

5.0 DEFINITIONS

5.1 Hazardous Chemical

Chemicals which are hazardous are identified as such within the SDS. They are substances, mixtures or articles that satisfy the criteria for a hazard class in the legislation.

Radioactive and explosives are not classed as Hazardous Chemicals for the purposes of this procedure, and are covered by other procedures.

Asbestos is classified as a hazardous chemical and is covered by specific procedures and as such is not included here.

5.2 Safety Data Sheet (SDS)

Safety data sheet – means a document (either electronic or hard copy) which contains information on the properties of a chemical and the resulting hazards. Specifically the SDS must satisfy at least the requirements of Schedule 7 of WH&S Regulations.

Manufacturer's SDS, **which** is the original source of information regarding chemical, **and** ChemAlert "Full Reports" **satisfy the requirements of an SDS, and may be used as such.**

ChemAlert "Extended Summary" reports may be used to assist in communication of information regarding chemical hazards, but do not contain sufficient information to be regarded as a SDS.

5.3 ChemAlert

Means a computer based program, available through portal, which provides access to SDS, register and stock holdings and forms the basis for management of hazardous chemicals at QAL.

5.4 Risk Assessment

Means an assessment of the risk to the health and safety of an employee and of damage to the environment from a hazardous chemical used at the workplace, and the controls which are in place to minimise this risk. Risk Assessments are saved in ChemAlert – see W314.103.02.

6.0 ACTIONS

6.1 Chemical Approval

6.1.1 Approval is required for new chemicals prior to purchase. This includes those chemicals identified through Engineering Specifications (Standards), through changes in formulations of existing chemicals, and for mixtures or dilutions of chemicals prepared on site.

6.1.2 The person identifying the need for approval of a new chemical is to consult with their section Chemical Safety Coordinator, and **submit a Chemical Request** as detailed in W314.103.01. **If chemical is classified as Hazardous or Dangerous, a Risk Assessment as detailed W314.103.02 must also be submitted**

6.1.3 Some chemicals are prohibited or restricted under legislation (Schedule 10 **of WH&S Regulations**). These chemicals will not be approved for new uses at QAL.

6.1.4 Once approval is obtained chemical may be purchased. (P712.101)

6.2 Chemical Register

6.2.1 QAL maintains a chemical register via ChemAlert. This register contains a list of chemicals on site, their likely maximum quantity and their SDS.

6.2.2 The register list of chemicals is maintained through the approval process as documented in 6.1.

6.2.3 The quantity of chemicals is maintained by the Chemical Safety coordinators by updating information on chemicals and quantities stored in their area within ChemAlert Storage module on at least an annual basis.

6.3 Chemical Manifest

6.3.1 QAL maintains a chemical manifest. This manifest contains a list of hazardous chemicals, which are stored on the premises in quantities above the amount prescribed in Schedule 11 **of WH&S Regulations**, and the location and quantity of those materials.

6.3.2 The manifest is maintained by the Laboratory Superintendent as documented in P784.002.

6.4 Emergency Plans

QAL maintains emergency plans for chemicals which exceed manifest quantities. This includes flammable gases, flammable liquids and corrosives. This is done through:

- P003.008 – Incident Management and Investigation
- P 315.000 - Business Resilience Management Plan
- P 746.215 – Emergency Response – Site wide
- P716.207 – Fire / Emergency Management and Evacuation of Buildings

6.5 Labelling - Containers

- 6.5.1 Containers used for chemical storage, including containers into which chemical is transferred, shall be labelled to clearly identify contents as detailed in **Schedule 9 of WH&S Regulations**. Labels which satisfy requirement are available from ChemAlert. The label must remain on the container until it is empty and clean of the contents
- 6.5.2 Where it is not practicable to label a container, the rack or box surrounding the container may be labeled.

6.6 Labelling - Tanks and Pipework

- 6.6.1 All process tankage and pipework is considered to contain caustic soda unless otherwise labelled.
- 6.6.2 All pipework which does not contain caustic soda shall be labelled to identify the contents, where reasonably practicable.

6.7 Storage / Signage

- 6.7.1 Hazardous chemicals must be stored in identified storage areas, which meet the requirements of Australian Standards appropriate for the type and quantity of chemical stored. (See Attachment 7.1)
- 6.7.2 Where storage quantity exceeds that listed in Schedule 11 **of WH&S Regulations**, a placard which satisfies the requirements of Schedule 13 **of WH&S Regulations** must be installed on the storage area. ***This requirement is considered during the chemical approval process with results communicated to person submitting request.***
- 6.7.3 Outer warning placards are installed on all major entry gates and are maintained by Laboratory Superintendent.
- 6.7.4 Where a chemical poses a significant risk to the health or safety of those who may not be trained in the use of the chemical, it should be secured against unauthorized access.

6.8 Preventing, Containing and Managing Spills

- 6.8.1 Containers of hazardous chemicals, including tanks, pipework and attachments, must be protected against damage caused by an impact or excessive loads.
- 6.8.2 If there is a risk of spillage of a hazardous chemical, a secondary containment system must be established that is sufficient to contain the spill and any resulting effluent.(P783.104) This spill containment system must ensure the continued separation of chemicals that are incompatible, and allow for the clean-up and disposal of the spill and effluent.

6.9 Bulk Delivery of Chemicals

Where chemicals are delivered in bulk, there must be a documented process for transfer of the chemical to fixed tanks. This includes a process for:

- Assessing the risk to people and equipment and implementing controls to minimise that risk.
- Verifying the contents of the delivery truck
- Ensuring correct identification of transfer piping and receiving tank
- Ensuring sufficient volume in fixed tank to accept volume of delivered chemical.

6.10 Tank Mechanical Integrity

All chemical storage tanks on site shall be subject to regular inspection as outlined in In-Service Inspection Standards series of documents.

6.11 Stopping use of Handling Systems

- 6.11.1 Where a handling system (tank or pipework) is no longer to be used to handle a particular chemical, it is to be cleaned of that chemical.
- 6.11.2 Where the tank of pipework is underground, the system must be removed or made safe.
- 6.11.3 For underground petrol and diesel storage tanks, the regulator must be notified if tank is to remain in the ground.

6.12 Fire protection

- 6.12.1 Where flammable or combustible chemicals are used or stored, there must be sufficient fire protection and firefighting equipment available to address reasonably expected fire risks taking into consideration quantity of chemicals stored and their use. AS 1940 provides guidance on requirements.
- 6.12.2 If firefighting equipment becomes unserviceable, alternative fire prevention and control measures must be put in place.
- 6.12.3 Sources of ignition are controlled around storage and use of flammable and combustible chemicals as detailed in **P314.307**.
- 6.12.4 Accumulation of combustible materials (timber, grass) around flammable and combustible chemicals must be controlled by good housekeeping practices.

6.13 Risk Assessment & Controlling Exposure

- 6.13.1 All chemicals which are hazardous shall be subject to risk assessment (W314.103.02) using the QAL risk score calculator (P003.008). The risk assessment process must include representatives of those people who use the chemical.
- 6.13.2 Controls shall be put in place to ensure that exposure is less than half the national exposure standard as detailed in SDS or in NOHSC documentation. Controls shall be documented in risk assessment, and communicated to staff using the chemical, **via** PPM, Training Modules or other documented means. Controls shall be maintained for the duration of chemical use.
- 6.13.3 **Where the risk assessment nominates PPE as a means** to reduce exposure, **it** must be appropriate for the task **as required by 315.102 and 315.104**
- 6.13.4 If the risk assessment indicates that there is high risk, then:
- Action must be taken to identify less hazardous alternatives and those actions recorded in risk assessment.
 - If risk is through inhalation, alarms shall be installed to alert those in the area to leaks
- 6.13.5 If the SDS identifies the chemical as a carcinogen or a reproductive toxicant, exposures must be as low as reasonably practicable and there must be documented annual review of exposures and impacts and controls for these substances (P745.202).
- 6.13.6 If the risk assessment shows a hazardous chemical used at the workplace causes a significant degree of risk to health, then QAL must keep the Risk Assessment for thirty (30) years from date that the particular document was made.

6.14 Health Monitoring

- 6.14.1 If the substance risk assessment shows that the level of exposure cannot be limited to below one half the national exposure limit, or if a worker is exposed to a chemical listed in WH&S Regulation, Schedule 14, health monitoring must be in place.
- 6.14.2 This monitoring is detailed in P315.205 and P745.202. .

6.15 Induction and Training - All Staff

- 6.15.1 All QAL employees shall be given training in this procedure and requirements of legislation via SM80 during plant induction.
- 6.15.2 All employees and contractors are required to undergo update training as part of Mandatory Site Training (see P703.044). This usually takes the form of SM80, and must include a review of the processes for safe handling of caustic soda or Bayer liquor.
- 6.15.3 All people who may be exposed to hazardous chemicals shall be given training on the handling of the chemicals to which they may be exposed. This is the responsibility of the section superintendent. PMs have been developed to provide guidance on the use of chemicals in general (PM316.001.54) and gases in cylinders (PM316.001.48).
- 6.15.4 All training is recorded within SAP.

6.16 Training - Chemical Safety Coordinators

- 6.16.1 Chemical Safety coordinators are to be given training such that they can complete their role.

This training is to include as a minimum:

- SM80 - Hazardous Chemicals
- SM67 - ChemAlert (including chemical requests and risk assessments)
- Mentoring from either Laboratory Superintendent, Specialist Occupational Health & **Hygiene** or experienced section Chemical Safety Coordinators.

6.17 Disposal

Chemicals no longer required on site can be disposed of in consultation with either Laboratory Superintendent or Environmental Superintendent.

6.18 Records

Records are kept for at least five (5) years except as specified otherwise.

7.0 ATTACHMENTS

- 7.1 Australian Standards on Storage of Hazardous Chemicals

7.1 AUSTRALIAN STANDARDS ON STORAGE OF HAZARDOUS CHEMICALS

(of relevance to QAL)

1. AS1940 – 2017 – The storage and handling of flammable and combustible liquids.
2. AS4332 – 2004 (**R2016**) – The storage and handling of gases in cylinders.
3. AS1596 – 2014 – The storage and handling of LP gas.
4. AS3780 – 2008 – The storage and handling of corrosive substances.
5. AS4289 – 1995 (**R2016**) – Oxygen and acetylene gas reticulation systems.
6. AS4326 – 2008 – The storage and handling of oxidizing agents.
7. AS/NZS 3833 – 2007 -The storage and handling of mixed classes of dangerous goods, in packages and intermediate bulk containers.
8. AS/NZS 4452 – 1997 – The storage and handling of toxic substances.
9. AS/NZS 4681 – 2000 – The storage and handling of Class 9 (miscellaneous) dangerous goods and articles.
10. AS/NZS 2243.10 – 2004 – Safety in laboratories - Storage of chemicals
11. AS3961 – **2017** – The storage and handling of liquefied natural gas
12. AS/NZS 60079-10-1:2009 - Explosive atmospheres – Classification of areas – Explosive gas atmospheres
13. AS1345 – 1995 – Identification of the content of pipes, conduits and ducts

8.0 REVISION HISTORY

Issue	Revision	Revision date	Change Reason
5	2	01/04/2018	<ul style="list-style-type: none"> • Updated references and role titles • Clarified information under 6.1 Chemical Approval, 6.7 Storage / Signage and 6.13 Risk Assessment and Controlling Exposure • Updated Australian Standards list (7.1)
5	1	01/12/2017	Scheduled review. Update to reflect: <ul style="list-style-type: none"> • Critical Risk Management requirements • Transfer of Chemical Approvals and Risk Assessment to within ChemAlert from paper based system.