

## Protecting the Australian Community from Chemicals - 2



### HOW do we Get Qualified & Competent Chemical Management Specialists & Managers?

**Businesses & Authorities must fully understand chemical issues to avoid Chemical Management Problems from Industrial, Agricultural, & Domestic Chemicals (Non Haz; Haz; D.Goods; Poison, etc)**



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For Acronyms: see last slide

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## Roadmap - Protecting the Australian Community from Chemicals -2



### ISSUE

- Australian chemical management systems fail to ensure industry is equipped to handle, store and distribute chemicals in a way which Protects Workers, the Community and the Environment.

### PATH

- A co-ordinated Federal approach to align existing programs / new objectives with Bodies of Knowledge.
- Regulation requiring demonstration of Competence.
- Suitably qualified staff in controlling bodies to regulate industry and support worksites.
- Nationally recognised education / training which focuses specifically on chemical management & risks.

### OUTCOME

- Safer workplaces and safer homes.
- Reduction in Environmental Impact.
- Reduction in overall cost to the community & business.

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### **Recommendation made to the UN Special Rapporteur on Toxics and Human Rights regards Chemical Management (6 Sept 2023)**

“That the Australian Parliaments and the relevant Authorities be tasked to work with businesses, associations, knowledge sources, and the community; to develop the requisite tertiary level chemical management knowledge and competence requirements. This needs to be initially known, demonstrated, and then regularly maintained on a suggested tri-annual basis.

Competence needs to be maintained for all Australian chemical management regulations covering industrial, agricultural and domestic use chemicals, from their source, through use, then recovery & reuse, to appropriate disposal.”

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### **From the email sent to Politicians, Authorities, Associations, etc on 31 July 2023:**

A requirement under legislation is for all of us to protect the Australian Community, Workers and the Environment from Chemicals. To achieve this, Australia needs Qualified and Competent Chemical Management Specialists and Managers. However, a major issue that we are facing in Industry and within our Authorities, is an extreme shortage of people with the appropriate technical knowledge in respect to chemical management under existing legislation to meet these requirements.

One of the consequences of this shortfall of experienced persons are incidents due to poor Chemical Management practices. It is not until we become involved in an incident that we realise what the consequences can be when “things go wrong”. Sometimes, these can have a drastic impact on the individual, the Company, the Authorities, the community, and the environment.

One of the reasons for this shortfall, is that there are now very few experienced tertiary education specialists with the scope and depth of Chemical Management knowledge that is needed in Australia! Simplistically, we are now expected to self-train, or learn on the job, in the specialist area of Chemical Management.

We need to change the relevant Regulations so that Chemical Management knowledge for Senior Managers and Specialists is required to be maintained and updated on a regular basis (similar to what is required over 3 years for other Specialists like Chartered Accountants, & Tax Agents).

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### **Chemical Management Regulations in Australia for Industrial, Agricultural & Domestic Use Chemicals – Federal, State & International**

#### **Australian Federal Regulations cover (for example):**

Industrial (& Cosmetic) Chemicals (AICIS)  
Agricultural Chemicals & Pesticides (APVMA)  
Domestic Use Chemicals (TGA) Food Chemicals (FSANZ)  
GHS Hazardous Chemicals & MHFs (by Safe Work Australia)  
Dangerous Goods (Transport) (by National Transport Comm.)  
Environmental Management Standards (by DCCEEW)

#### **State & Territory Regulations cover:**

Implementation of Australian Regs with local Variations  
e.g. State EPA's legislate on chemical wastes & categorisation

#### **International Regulations cover (for example):**

Dangerous Goods Transport by Sea & Air  
Chemical Emissions / Chemical Waste Disposal

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### **We need Tertiary Education Courses available for educating Chemical Management Specialists & Managers in Australia responsible for Industrial, Agricultural and Domestic Chemicals**

We need additional Chemical Management knowledge  
to science and engineering degrees and diplomas, that  
is specifically designed to provide this.

Existing courses need detailed Chemical Management  
subjects added (significantly more than just an SDS  
understanding / writing topic, or a Chemistry  
Laboratory Safety training subject).

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### What Chemical Management Knowledge is needed in Australia to adequately manage Industrial, Agricultural & Domestic Chemicals?

**Bodies of Chemical Management Knowledge** need to be **created** and **maintained by** each Technical, Professional and Industry **Association**; and also **created, maintained, & co-ordinated** through each Federal, State & Territory **Authority** with responsibility for Regulations and Guidance, that includes Chemical Management requirements & knowledge.

**When Education / Training requirements are to be offered**, these Bodies of Chemical Management Knowledge can be **drawn on** and **updated from**.

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### Bodies of Chemical Management Knowledge

1. From each Industry, Technical & Professional Association with their **specific** Chemical Management issues, that their members & the public need to know about. With recognition that this knowledge is allowed to be shared as needed.
2. Federal, State, Territory Authorities, (such as Safe Work, EPAs, Health & Agriculture) for their **specific** Chemical Management issues their inspectors, specialists & managers need; and also inform Associations, Businesses, Media and Others as needed.
3. Emergency Response Organisations for their Chemical Management handling & concerns (e.g. Batteries, PFAS).
4. Universities, & TAFEs, & Industry Training Providers to then combine & expand this knowledge into tertiary level courses.
5. The Media then alerting the AU population that Chemical Management knowledge in Australia is being improved.

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To maintain Chemical Management competence, following successful completion of an accepted tertiary level course, these professionals in the field would require access to ongoing training, seminars, networking groups to cover changes in the knowledge required:

e.g. In Australia: AIOH (for Occupational Hygienists)  
 ACTRA (for Toxicologists) RACI (for Chemists)  
 ACLCA (Aust. Contaminated Land Consultants Association)  
 ALGA (Australasian Land & Groundwater Association)  
 AIHS (has an existing Body of Chemical Management Knowledge)  
 Engineers Australia (with some seminars). DGAG / CHCN.  
 AIDGC Dangerous Goods Conferences in AU.  
 e.g. From Overseas: ECHA (in the EU) holds Chemical Conferences & has Podcasts

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### Limited existing Chemical Management Assessment / Training is available for relevant Specialists & Managers

- **AIDGC:** Assessment for each Class of Dangerous Goods for Specialists who provide consulting advice.
- **WA DMIRS:** Assessment of Dangerous Goods Consultants
- **IMDG Code Mandatory Training** now includes SDS writers who classify chemicals as Dangerous Goods (but the courses don't actually train in classification! Just how to understand the IMDG Code.)
- **Writing SDSs & Labels for Chemicals** courses.
- **Workshops on Hazardous Area Locations and Explosive Hazardous Areas Training** by: [www.epotech.com.au/](http://www.epotech.com.au/)
- **ICHEME Training:** [icheme.org/career/training/online-courses/](http://icheme.org/career/training/online-courses/)
- **UNITAR Online Courses (for Chemicals)** <https://unitar.org/>

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### The Dangerous Goods Safety Advisor is a key Chemical Management role required in the EU

Australia *could* introduce a role similar to the EU D.Goods Safety Advisor role & knowledge, *and add-on the Additional Chemical Management knowledge needed.*

In the EU this role is required by all DG Consignors & Carriers.

#### ADR Vol. 1: 1.8.3 Safety Adviser

1.8.3.1 Each undertaking, the activities of which included the consigning or the carriage of Dangerous Goods by road, or the related packing, loading, filling or unloading shall appoint one or more safety advisers for the carriage of Dangerous Goods, responsible for helping to prevent the risks inherent in such activities with regard to persons, property and the environment.

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### We need to re-setup Tertiary Education Courses to include key Chemical Management subjects for Specialists & Managers in Australia

We may need to re-activate retired experienced tertiary education specialists, with the scope & depth of Chemical Management knowledge that is needed in Australia, for re-setup Tertiary Courses to draw on / take lectures/classes.

Recover archived Degree courses in Chemical Management at Deakin University and Victoria University of Technology, and the Masters course at the University of NSW.

Our existing abilities to train employees is limited by our experience in the chemical management knowledge our Businesses / Authorities need us to be competent in, which may lead us to overlook potential chemical hazards.

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### Other ways to be reasonably aware of Chemical Management information that Specialists & Managers in Australia need to know.

Hazmat & Environment Notes (5 issues / year for AU & NZ)  
(prepared by Jeff Simpson, Haztech Environmental)

[www.haztech.com.au/hazmat-environment-notes-newsletter/overview/](http://www.haztech.com.au/hazmat-environment-notes-newsletter/overview/)

Or subscribe to website information updates for **every** Govt / Authority / Association / Standards relevant to your activity.

Or become a member of an Industry / Technical / Professional Association which provide regular newsletters with chemical management information: e.g. Chemistry Australia; Accord; AIDGC; AIHS; AIOH; ACTRA; RACI; ACLCA; ALGA.

e.g. AIDGC (focusses on Dangerous Goods Management)

& Chemical Management Networking Groups: e.g. DGAG, CHCN

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- **It is increasingly Difficult to get Chemical Management Specialist input into Acts, Regs, Stds, etc**

It has become difficult to identify Chemical Management Specialists with the necessary knowledge & expertise to provide input into updating Acts, Regulations, Standards, Procedures, etc.

e.g. on Dangerous Goods (Storage & Handling)

e.g. on the ADG Code (which in future is expected to be based on the UN ADR with agreed AU variations )  
(ADR - Agreement concerning the International Carriage of Dangerous Goods by Road)

In the decades preceding 2010, Chemical Management Specialists were few in number, but sufficient for Australia's needs. But NOT sufficient in 2023 & 2024!

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### Typical Chemical Situations/Incidents resulting from poor Chemical Management knowledge

**What can Happen  
where General / Technical Managers  
& Specialists / Consultants,  
*in Business and  
in Authorities,***

**have NOT had adequate  
Chemical Management knowledge  
(see the following 5 slides)**

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### • Hazardous Chemical Situations - 1

- Please send further Chemical Management Situations to [Jeff.Simpson@haztech.com.au](mailto:Jeff.Simpson@haztech.com.au), to be added to his webpage.

**1/** Charging Lithium Batteries which fail by electrical discharging (causing fire by the very high temperatures), but the electrical reaction continues until fully discharged.

**2/** Which common chemicals in Domestic Use and Business Use must not be mixed.

- Hypochlorite bleach and Hydrochloric Acid can release toxic Chlorine gas.

- Cleaning up an Unsaturated Oil with a High surface area absorbent (in a pile) can lead to a spontaneous combustion fire (like a compost heap).

**3/** 2-Butanone Oxime (a cancer inhalation hazard) is released from most Silicone sealants, which building contractors commonly use without respiratory protection.

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### • Hazardous Chemical Situations - 2

- 4/ Working with **Engineered Stone** in building kitchens where the sole trader contractor has been responsible for training, and appropriate procedures to avoid Silicosis.
- 5/ Cleaning with solvents in poor ventilation, such as tanks, refrigerators or rooms, that are really confined spaces.
- 6/ Flammable aerosol sprays near ignition sources.
- 7/ Cutting & welding drums / tanks, with flammable residues. Slow release of flammable vapours in part empty drums & tanks that have only a flash hazard.
- 8/ Aluminium Phosphide fumigant tablets that react with moisture to release toxic Phosphine fumigation gas.
- 9/ Electrical equipment in hazardous areas with flammable vapours/gases or combustible dusts have an explosion risk.
- 10/ Hazardous atmospheres inside Shipping Containers.

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### Some Chemical Management Incident Examples - 1

#### From "WorkSafe Victoria Prosecution Result Summaries"

[www.worksafe.vic.gov.au/prosecution-result-summaries-enforceable-undertakings](http://www.worksafe.vic.gov.au/prosecution-result-summaries-enforceable-undertakings) (then filter for "Dangerous Goods" & "Exposure to Chemicals")

e.g. Drums pierced by forklift tynes and releasing flammable and/or toxic and/or corrosive liquids), & then the situation causes exposures to employees.

e.g. Deficiencies in the storage included IBCs stacked high without purpose built racking, IBCs that were leaking, inadequate spill containment, ignition sources, & inadequate or no fire protection. An employee was aware of the risk of fire when handling Dangerous Goods but was not aware that static could cause fire, and was never taught to earth containers before filling them.

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### Some Chemical Management Incident Examples - 2

#### From "WorkSafe Victoria Prosecution Result Summaries"

[www.worksafe.vic.gov.au/prosecution-result-summaries-enforceable-undertakings](http://www.worksafe.vic.gov.au/prosecution-result-summaries-enforceable-undertakings) (then filter for "Dangerous Goods" & "Exposure to Chemicals")

e.g. A risk to the health and safety of persons collecting gas cylinder bottles, and to persons in the vicinity of the vehicle, in that they could be seriously injured or killed by an explosion if the gas cylinder bottles were loaded onto and transported in a vehicle that was not suitable.

e.g. The offender instructed his apprentices to drill holes into the fuel tank of a vehicle in order to drain it in preparation for removal of the tank ('task'). He then left the apprentices unsupervised at the workplace. The apprentices performed the task. Whilst drilling into the tank, there was an ignition which caused a fire. The two apprentices suffered burn injuries.

e.g. A Reactor produces Calcium Dodecyl Benzene Sulphonate (CaDDBS), a hazardous, non-dangerous (goods) substance. CaDDBS is a combustible liquid that causes skin irritation and serious eye damage, is harmful if inhaled and may cause respiratory irritation.

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### Waste Chemicals "disposal" in Victoria

- Chemical Wastes taken for "disposal" were allowed by chemical industry General Managers, who did not ensure the EPA Vic Regulations for Chemical Waste reporting were complied with.
- **Suggested Change:** All General Managers managing chemicals, not only need a Financial subject in their education, but also need key Regulatory Management Issues subjects (such as for Chemical Management & Disposal) for their business areas.

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### Why aren't there any Tertiary Education Courses?

- **We had two undergraduate courses with a Chemical Management focus in Melbourne from the mid 1990s to 2005.**  
Deakin University & Victoria University of Technology both offered Degrees in Hazardous Materials Management
- The University of NSW School of Risk and Safety Sciences **offered Australia's only Post Graduate course through until 2010**
- **BUT since 2005 we need 30 students per topic per year, and these numbers sustained each year, to enable a course to be re-set up.** (Historically we've only seen enrolments of 10-20 each year.)
- **There are now very few tertiary Lecturers in Chemical Management!**  
There are very few persons who have the necessary industry background, or have a Diploma, Degree, Masters or a PhD in Hazardous Chemicals Management, from any University or TAFE in AU.

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### We need recognised tertiary education courses. The community ASSUMES we have such courses.

- Would you be happy to use a Chartered Accountant, Certified Practising Accountant, or Tax Agent who did not need a qualification in their particular area of financial regulation and did not need to keep their qualification current on a regular basis?
- In the same way, the general community just ASSUMES managers and specialists where chemical management knowledge is required, to have similar competency qualifications, and have knowledge maintenance in the complex and detailed area of Chemical Management, to keep their chemical management qualifications current.

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### The Benefits of recognised tertiary courses & subjects (at Universities and TAFEs):

- If the Specialist & General Manager in relevant Industries and Authorities are required to be tertiary qualified in chemical management **and** to regularly maintain their competence, then all staff they work with, will be likely to get chemical management right.
- Businesses & community will be better protected.
- For existing tertiary courses, which already focus on chemical knowledge would be reviewed, and strengthened by the **addition of key chemical management** course **subjects**.

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### It is critical that Chemical Issues are Alerted to All Staff, so it is not just the Specialist & Manager who know.

For **all** chemicals, processes, their issues and possible scenarios that might occur in your company.

1. A Chemical Safety Assessment needs to be done and a simple (1 or 2 page) document regularly maintained.
2. Then there needs to be a clear link for each Assessment, to relevant staff and related staff, to ensure Chemical & Process Information is distributed.
3. A Quality System tracking that Process, Documentation and Alerts that have happened, are distributed.

**We shouldn't wait for incidents to discover that Chemical & Process Alerts did Not get through to staff!**

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### ALERT THE ISSUE

- **Communicate** the Issue: “The AU Community needs competent Chemical Management Specialists & Managers in Industry & in Authorities”, **to your:**
  1. Federal, State & Territory Politicians
  2. Federal, State & Territory Authorities
  3. Emergency Response Organisations
  4. Industry, Technical & Professional Associations.
  5. Universities & TAFEs
  6. Industry Training Providers for Managers
  7. The Media (such as News & Current Affairs)

Please also copy to: [Jeff.Simpson@haztech.com.au](mailto:Jeff.Simpson@haztech.com.au)

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### The Key Actions required:

1. Details of Chemical Management problems occurring.
2. Bodies of Chemical Management Knowledge to be created & maintained by Assoc'ns & Govt Authorities.
3. Emergency Response Organisations need to share their Chemical Management concerns (e.g. Batteries)
4. The Media: Need to alert the AU population that Chemical Management knowledge in Australia is needed.
5. Federal, State, Territory Authorities (e.g. Safe Work, EPAs, Health) to update their Regulations to require chemical management knowledge & maintenance of competence.
6. Federal & State Politicians need to liaise with relevant Ministers & Government Depts managing chemicals.
7. Universities, & TAFEs & Industry Training Providers: Create tertiary specialist Chemical Management courses.

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### Competent Chemical Management Specialists & Managers

- Protect the Community and Environment
- Improve your organisation's safety & sustainability with effective Chemical Management

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Picture at left: Pineapple Sage – a garden herb

**20 Nov 2023**

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### Acronyms

Non Haz – Non Hazardous Chemical (to current Regs)

Haz – Hazardous Chemical (to current Regs)

DG – Dangerous Goods

MHF – Major Hazard Facility

SDS – Safety Data Sheets (for chemicals & chemical products)

AICIS – Australian Industrial Chemicals Introduction Scheme

APVMA – Australian Pesticides & Veterinary Medicines Authority

AIDGC – Australasian Institute of Dangerous Goods Consultants

AIHS – Australian Institute of Health & Safety

CHCN – Chemical Hazard Communication Network

DCCEEW - Dept of Climate Change, Energy, Environment & Water

DGAG – Dangerous Goods Advisory Group

DMIRS – WA Dept of Mines, Industry Regulation and Safety

ECHA – European Chemicals Agency

EPA – Environment Protection Authority

FSANZ – Foods Standards Australia & New Zealand

IMDG – International Maritime Dangerous Goods

TGA – Therapeutic Goods Administration

UNITAR – UN Institute for Training & Research

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