**TRANSCRIPT: Managing chemical hazards using the Hierarchy of Controls**

*A few months ago here at our Council Leisure Centre, we had an explosion. The explosion was due to the fact that a contractor, who supplies us with our mixing buckets, didn’t wash the bucket out prior to giving it to us. So when we mixed chemicals in the bucket, a reaction occurred causing the explosion.*

*Luckily there were no injuries, but by making a few small changes after applying the Hierarchy of Controls to our chemical handling process, we’ve been able to make sure that that never happens again*.[[00:00:29.03]](file:///\\AGENCIES\51000176\National%20Strat%20Comms\Australian%20Strategy%20VSS\2017%20VSS\2017%20VSS%20-%20Implementation\2016-009%20SWA%20Chemicals%20&%20HoC\00:00:29.03)

Chemicals are essential in many of our everyday work and manufacturing processes.

If they are not managed effectively, chemicals can impact on the health and safety of workers, the general public and the environment.

Businesses are required to minimise risks to health and safety by applying the hierarchy of controls.

This is a ranking of control measures used to protect workers from risks to health and safety. We need to choose controls based on this ranking, and whether they are practical for the job or task.

In practice, using a combination of controls often brings the best results.

We also need to manage any hazardous products and by-products of our processes.

Workers must be provided with appropriate training in

* the risks of the chemicals they are using
* how these risks are managed, and
* how to use controls.

Level 1 – Eliminate

The best way to eliminate the risks of a hazardous chemical is to avoid using it altogether.

A council in Victoria found that using a scraper to remove graffiti off glass was just as effective as using a chemical, and safer for their employees.[[00:01:37.00]](file:///\\AGENCIES\51000176\National%20Strat%20Comms\Australian%20Strategy%20VSS\2017%20VSS\2017%20VSS%20-%20Implementation\2016-009%20SWA%20Chemicals%20&%20HoC\00:01:37.00)

However, we use chemicals for specific reasons so this often isn’t possible.

But what we could do is eliminate a worker handling activity, for example, buying pre-mixed chemicals instead of hand mixing them.

Level 2 - Substitute, Isolate or Engineer

Where we can’t eliminate a chemical from a work process, there are other approaches that we can use to minimise the risks.

Substitution

*With advances in paint technology, I now find I can use water based paints for so much more than I could before, and I feel so much better for it.*[[00:02:11.06]](file:///\\AGENCIES\51000176\National%20Strat%20Comms\Australian%20Strategy%20VSS\2017%20VSS\2017%20VSS%20-%20Implementation\2016-009%20SWA%20Chemicals%20&%20HoC\00:02:11.06)

We can substitute a chemical with a less hazardous one, or use a chemical in a form that reduces the chance of exposure, like using a paste instead of a powder.

Using hot water instead of cold water to help remove graffiti can reduce the amount of chemicals required.

We need to remember that substitutions can introduce new risks which need to be managed.

Isolate

Secondly, we can isolate processes from workers. For example, by fully enclosing or automating a process to avoid operator exposure.

We can also separate incompatible chemicals. Chemicals can be separated by using barriers or distance. Information about a chemical’s incompatibilities can be found in its safety data sheet.

Engineering

Thirdly, we can use engineering controls. For example, bunding and ventilation systems.

To make sure the controls are effective, we need to provide proper training and supervision for workers, and maintain our equipment.

The approaches we have just described are known as higher level controls and should always be considered first and used if possible.

We will often need to supplement these with lower level controls. These are administrative actions and personal protective equipment.

Examples of administrative actions that can be used are:

* limiting access to areas containing hazardous chemicals, and
* safety signs

*It is important to develop Safe Work Procedures or Standard Operating Procedures for your workers, and provide training that is specific for the chemicals being used. Procedures should talk through the controls to be used and developed using Safety Data Sheets and other relevant information.*

Personal protective equipment

There are many different types of PPE but we should only use what is appropriate for the job.

Remember to review the safety data sheet when choosing PPE and not rely solely on it to protect workers.

PPE is intended to be used to supplement other control measures and when there are no other practical alternatives, like in emergencies or managing spills

It is important to provide training in how to correctly use and wear PPE.

So, in summary, we need to manage all health and safety risks of workplace chemicals using the hierarchy of controls.

We should use higher level controls where possible and consider using a combination of controls for the greatest protection.

To make sure our controls are effective, we need to ensure our engineering controls are maintained and provide appropriate training and supervision for workers.

By remembering the different levels of hierarchy of controls, applying them and monitoring their effectiveness, we can minimise chemical health and safety risks in the workplace.