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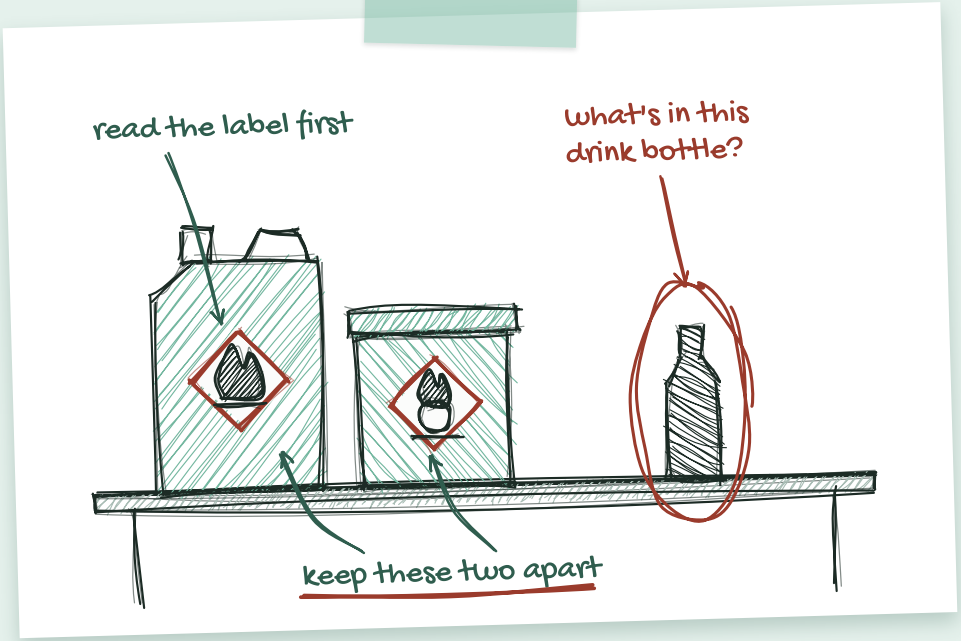
Field guide 11



Hazardous substances

Knowing what chemicals you have, storing and handling them safely, and being ready if something goes wrong.

For middle managers and senior leaders in Aotearoa New Zealand

Health and safety field guide 11
Edition 2.3
Published 27 October 2026

A routine top-up

In January 2017, a worker at a Tauranga mussel processing plant was pouring a corrosive cleaning product from one container to another.

A piece of tubing flicked into his eye. The chemical and the blow together damaged the eye so badly that it had to be removed. The scarring meant he could not be fitted with an artificial eye.

WorkSafe found that the product could have been plumbed in, so nobody had to handle it at all. It said: "Protective equipment should not be the go to safety solution for using hazardous substances."

What the story shows

The task was ordinary. It happened often, so it felt safe. The fix was ordinary too: a pump and a pipe. A lot of chemical harm starts with a job like this, done by hand because it has always been done that way.

Why this guide starts here

Fuels, cleaners, solvents, gases and pool chemicals are in many workplaces. They are hazardous substances: products that can burn, explode, poison, corrode or harm the environment. Each time someone pours, mixes or stores one, there is a chance to remove the risk, or to leave it in place.

This guide is about those everyday moments. Page 14 tells what the court decided.

A pump costs less than an eye.

Sources WorkSafe media release, Complacency over chemical use leaves worker without an eye (21 September 2018); Working safely with hazardous substances: practical guide (August 2025).

About this guide

Who it is for

Senior leaders who decide what products the business buys, and how much it stores.

Middle managers who run stores, workshops and cleaning, and who train and supervise the people using chemicals.

How to use it

Read pages 2 to 8 at your own pace. Then take the spotting pages (9 and 10) into your store, and try the data sheet test on page 16. Write what you find on page 19. Key words are explained on page 21.

Field guide 1 explains the ideas behind the series. Field guide 10 covers dust, silica and noise, and long-term health.

Finding your way

Before you start	2
The duty	5
Spotting the hazards	9
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Questions and notes	18
Key words and sources	21

Reading these pages

A taped card with footprints: something to try at work



A small compass: the sentence or point after it is this guide's view



A dark box: this guide's lessons from a court case



Priority dots (this guide's rating): one means watch, three means act today



A hatched edge with a compass: this guide's own view



A pink box with a red edge: what changes from 1 April 2027



The foot strip: sources. Untinted tables, sketches and checklists are this guide's own

In this guide, "the Act" means the Health and Safety at Work Act 2015, "s" means section and "ss" means sections. "The Regulations" means the Health and Safety at Work (Hazardous Substances) Regulations 2017, and "reg" means regulation. This guide gives general information. It is not legal advice. Written to the plain language standard in the Plain Language Act 2022 (s 5).

Reading a label

The label tells you what a product can do to you. The pictograms are the fastest part to read.



flammable
catches fire easily



oxidiser
makes fires worse



corrosive
burns skin and eyes



gas under pressure
may explode if heated



acutely toxic
can kill quickly



less severe
irritation, dizziness



long-term harm
cancer, asthma



harms the environment

- **Look for the signal word.** "WARNING is used for less dangerous substances while DANGER is used for the most dangerous ones."
- **Read the hazard statements.** They say what harm the product can cause.
- **Follow the precautionary statements.** They say how to prevent harm.
- **Find the supplier's emergency number.**

New Zealand adopted a new classification system on 30 April 2021. Suppliers had four years to update labels and safety data sheets (the supplier's sheets on how to use and store a product safely), so older stock may still carry older labels.

Sources WorkSafe, hazardoussubstances.govt.nz, Labels; Working safely with hazardous substances: practical guide (August 2025), section 4; media release, New Zealand has adopted a new classification system for hazardous substances (28 April 2021).

What the Regulations ask

The EPA sets the rules for labels and data sheets. WorkSafe covers how workplaces use, store and handle substances. Most of your duties sit under the Act and the Regulations.

Rule	What it asks of you
Inventory reg 3.1	Keep an up-to-date list of every hazardous substance at the workplace, with the most you are likely to hold.
Safety data sheets reg 2.11	Get the current data sheet when a substance first arrives. Make it, or a summary, readily available to workers and emergency services.
Labels reg 2.1	Label every container that holds a hazardous substance.
Training regs 4.5, 4.6	Train every worker who uses, handles, makes or stores a hazardous substance before they start. Keep a record. Provide the supervision needed to protect them.
Certified handlers reg 4.1	Where the Regulations require one, only a certified handler, a person certified to use particular very hazardous substances, may do the work.

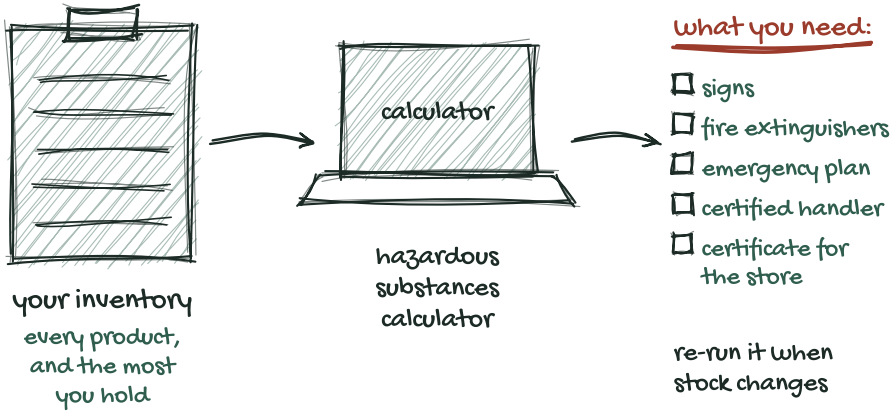
Above certain quantities

- **Put up signs** that show hazardous substances are present (regs 2.5, 2.6).
- **Provide fire extinguishers** in the numbers set out in Schedule 4 of the Regulations (regs 5.2 to 5.5).
- **Write an emergency response plan** that covers "all reasonably foreseeable emergencies" (regs 5.6 to 5.10).
- **Get a location compliance certificate** for larger amounts of some substances.

Sources WorkSafe, Role of EPA and WorkSafe (May 2019); the Regulations (version as at 20 October 2025).

How much you hold matters

Many rules apply only above set quantities. You don't need to learn the tables. A free tool does the sums.



WorkSafe's Hazardous Substances Calculator "works out the key controls you need to safely manage your hazardous substances" once you enter your inventory. It is at hazardoussubstances.govt.nz.

Try it with a real shelf

Take one store or workshop. List each product and the most you ever hold, including stock waiting in the delivery bay. Enter it, and print what the calculator says you need. Keep the printout with the inventory.

Watch the bulk buy

A cheaper pallet of product can push you over a threshold overnight. Re-run the calculator whenever stock goes up, a new product arrives or a store moves.

Sources WorkSafe, Working safely with hazardous substances: practical guide (August 2025); hazardoussubstances.govt.nz.

Law changes from 1 April 2027

Chemicals join the short list of critical risks. The Amendment Act became law on 9 July 2026.

Hazardous substances become critical risks

New Schedule 1A lists the storage and handling, use, manufacture, transport and disposal of hazardous substances covered by the Regulations. "Substances that are hazardous to health" are listed too (field guide 10).

If you have fewer than 20 workers

You are a small PCBU (a "person conducting a business or undertaking", usually an organisation). If numbers vary, you are small if you reasonably expect fewer than 20 in at least 9 months of the financial year (new s 17(3) to (5)). The main duties in ss 36 to 43 then apply only to critical risks (new s 25A). Hazardous substances are critical risks, so those duties still cover them. The Regulations, welfare facilities, notifying events and consulting workers still apply. That reaches the garage with a fuel store and the cafe with its cleaning cupboard.

The Regulations stay. Schedule 1A points to the Regulations.

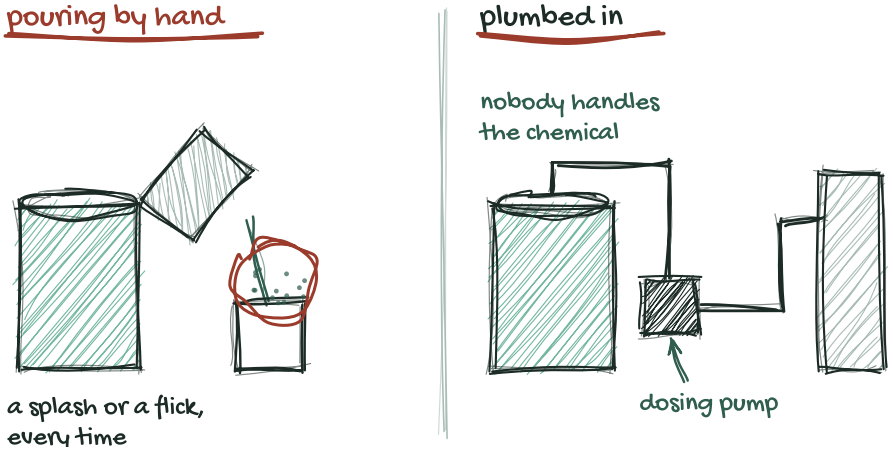
Getting ready

- [ ] Walk every store and cupboard, and bring the inventory up to date.
- [ ] For each product, write down what keeps it from hurting someone: the container, the store, the pump, the plan.
- [ ] Pick three products you could remove or swap this year.

Sources Health and Safety at Work Amendment Act 2026 (became law on 9 July 2026): new ss 17(3) to (5), 22A, 25A and Schedule 1A; WorkSafe, Understanding the changes to health and safety law (July 2026).

Choosing the right controls

WorkSafe's first question is: "Can the hazardous substance be removed from the workplace?"



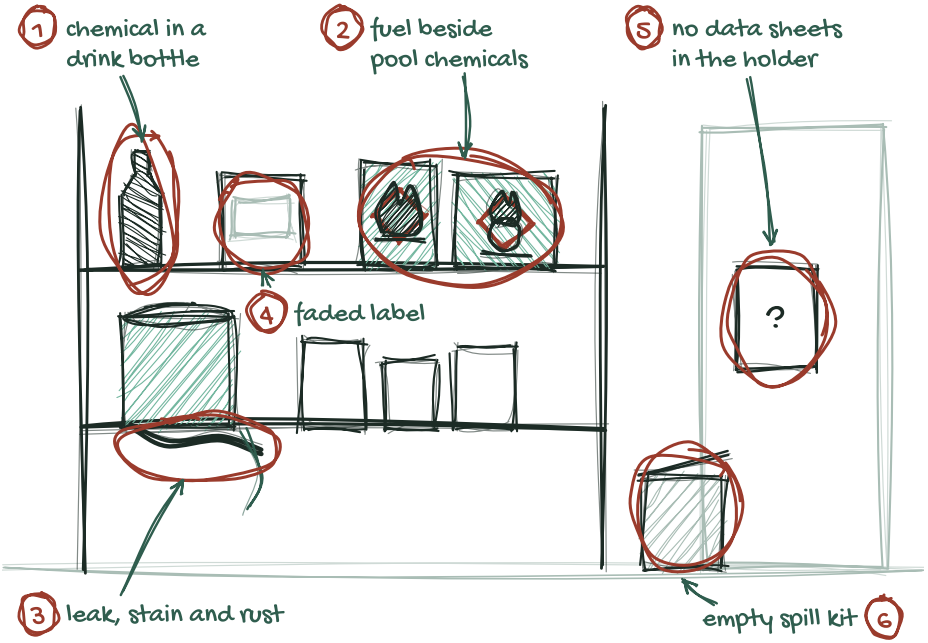
- **Remove it:** stop using products you don't need, and clear out old stock.
- **Swap it for something safer:** choose "one posing less risk", such as a water-based product.
- **Keep it away from people:** use closed systems, and store it away from people and ignition sources.
- **Engineer the risk out:** fit dosing pumps, ventilation, spill bunds and fixed connections.
- **Set safe ways of working:** procedures, training, permits and supervision.
- **Protect people last:** gloves, eye protection and respirators.

WorkSafe recommends keeping a substance "in the supplier's original container". If it is decanted (poured into another container), "the containers must be labelled".

Sources WorkSafe, Risk management (hazardous substances); Labelling; Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, reg 6.

What to look for

Many chemical stores are a shelf, a cupboard or a corner of the workshop. The same six signs show up in all of them.



The numbers match the table on the next page. Look high and low: drums on the floor, bottles on top shelves, and whatever is under the sink.

Sources WorkSafe, Working safely with hazardous substances: practical guide (August 2025).

Six things to spot

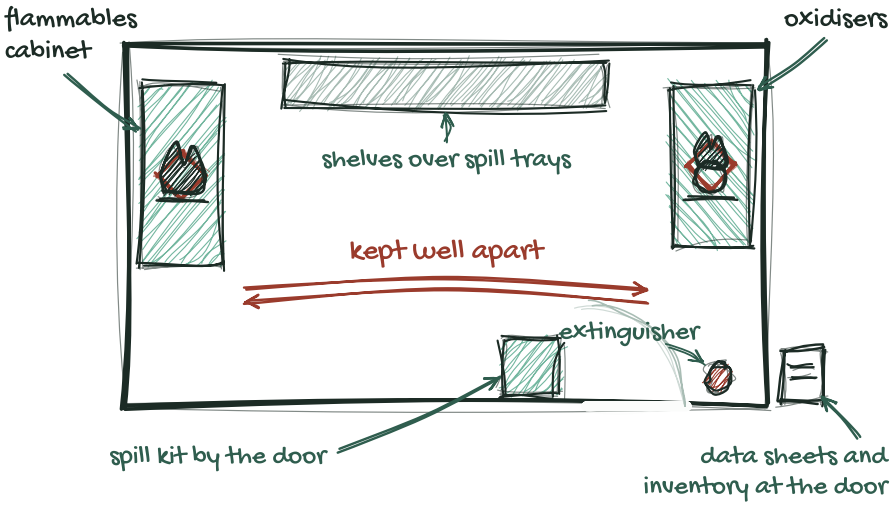
	What it looks like	Why it matters, and what to do	Priority
1	A chemical in a drink bottle, cup or food container.	Someone could drink it. WorkSafe says never put hazardous substances in food or drink containers. Remove it today.	●●●
2	Fuels or solvents stored next to pool chemicals or peroxide.	Oxidisers make fires worse. WorkSafe says keep flammables away from oxidisers. Move one of them.	●●●
3	Stains, smells, rust or a puddle under a drum.	Something is leaking. Find it, clean it up safely, and add a spill tray.	●●○
4	A faded, torn or missing label.	Nobody can tell what it is or how to treat a splash. Relabel it from the data sheet, or dispose of it.	●●○
5	No data sheets, or ones that are years old.	Workers and emergency services need them. Get current sheets and keep them where people can find them.	●●○
6	An empty spill kit, or none.	A small spill becomes a bigger one. Restock it to match what you hold.	●○○

Try it this week

Take this page to one store. Find all six. Then ask the person who uses the store which one bothers them most. They often know a seventh.

A store that works

A good store is boring to look at. Everything is labelled, apart from what it reacts with, and easy to find in a hurry.



- **Keep incompatible products apart.** WorkSafe says "not all hazardous substances can be stored together safely". The Regulations require segregation for some classes (regs 9.17, 10.5, 13.29).
- **Catch leaks.** "If you store large amounts of hazardous substances you will need secondary containment." That is a bund or tray that holds a leak or spill so it can't spread.
- **Keep data sheets where people can find them.** WorkSafe says store them "where workers and emergency services can easily locate them".
- **Hold only what you need.** Smaller amounts can keep you under the thresholds for extra controls.

Sources WorkSafe, Working safely with hazardous substances: practical guide (August 2025); the Regulations, regs 9.17, 10.5, 13.29.

Ready for a spill or fire

Many chemical emergencies are small. Being ready keeps them that way.

The emergency plan

Above set quantities you need a written emergency response plan. It must cover "all reasonably foreseeable emergencies that may arise from a breach or failure of the controls", and you must put it into practice in an emergency (regs 5.7, 5.8). WorkSafe says "you must practise it with your workers".

Help the fire service help you

- Data sheets must be accessible to "any emergency service worker" likely to be exposed (reg 2.11).
- WorkSafe says "make sure your inventory is accessible to any emergency service worker".
- "Emergency services use signs to plan their response and select appropriate PPE."

Spill kits

WorkSafe says that "for small spills, a spill kit might be sufficient". A large spill needs secondary containment.

If something spills or leaks

- [ ] Get people away from it, upwind if it gives off fumes.
- [ ] Call 111 for a fire, a big leak or anyone hurt.
- [ ] Use the data sheet for first aid and clean-up.
- [ ] Use the spill kit only for a small spill, and only if you are trained.
- [ ] Then report it and learn from it (field guide 5).

Sources the Regulations, regs 2.11, 5.7, 5.8; WorkSafe, Working safely with hazardous substances: practical guide (August 2025).

The fumigators: warned, and still exposed

Flick Anticimex Limited ran pest control fumigations using methyl bromide, hydrogen cyanide and formaldehyde. Its workers suffered acute methyl bromide poisoning.



2019
A consultant warns that respirators must fit.

Then
Some respirators don't fit, or aren't in use.

Then
The company tells bearded workers to use Vaseline.

7 December 2021
The court fines the company $250,000.

The 2019 warning came from an occupational health consultant: respirators had to be provided and properly fitted, because of how lethal the fumigants were. Nobody was trained to clean and maintain the respirators. There was "no coherent system in place that monitored employee exposure".

The Vaseline was meant to help masks seal on workers with facial hair. WorkSafe called this a myth. A tight-fitting mask needs a clean-shaven face to seal. The fine was in the Auckland District Court. The charge was under ss 36(1)(a) and 48.

> *"Businesses shouldn't rely on RPE as the main way to look after the health of their workers."*
>
> **Api Poutasi, WorkSafe. RPE means respiratory protective equipment.**

The lesson for leaders

The company had been told, in writing, by an expert. The warning only mattered once someone acted on it. When advice comes in, give it an owner and a date.

Sources WorkSafe media release, Business fined for failing to protect workers from methyl bromide exposure (9 December 2021); the Act, ss 36, 48.

The mussel plant, and a gas you can't see

North Island Mussels: the court's decision

Page 2 told what happened in January 2017. WorkSafe found the company failed to identify the risks and put suitable controls in place. Suitable protective equipment was not available, and nobody checked its use.

On 21 September 2018 the Tauranga District Court fined North Island Mussels Limited $219,375 and ordered $60,000 reparation. The charge was under ss 36(1)(a) and 48.

Taylorville: hydrogen sulphide in a pit

In August 2023, two workers were digging out a pit at a contaminated waste site near Greymouth. The smell came from hydrogen sulphide, a colourless toxic gas. High levels had been measured weeks earlier, but the workers were not told. There were no gas monitors on site.

The excavator operator collapsed in the pit. His supervisor lost consciousness twice trying to rescue him. Both survived, with lasting harm. In July 2025 the Greymouth District Court fined the two companies $302,500 and $272,250, and ordered $81,256 reparation.

The lesson for leaders

In both cases, the information existed. One company knew the product could be plumbed in. The other had measured the gas. What was missing was getting that knowledge to the people doing the work.

Sources WorkSafe media releases, Complacency over chemical use leaves worker without an eye (21 September 2018); Survivors recount toxic gas ordeal at landfill pit (4 July 2025); the Act, ss 36, 48.

When the work changes

The same product needs a different approach depending on what is happening around it. Field guide 1 explains why.

What is happening	How to manage it	Priority
A known product, used the same way every day Clear	Use the agreed method. Check labels, data sheets and stock levels.	●○○
Large stores, gases, fuels, or work that needs a certified handler Complicated	Use the calculator and expert advice. Get the certificates you need.	●●○
Contractors bringing their own products Complex	Ask what is coming on site, and where it will be kept. Watch for mixing. Learn from near misses.	●●○
A spill, leak or fire, or someone overcome by fumes Chaotic	Get people out. Call 111. Use the plan. Don't let rescuers walk into fumes unprotected.	Act now
An unlabelled container, and nobody knows what it is Confusion	Don't use it. Set it aside safely. Find out what it is, or have it disposed of.	●●○

Clear to Confusion: the quick decant

A product ends up in a smaller, unlabelled container because the labelled one is a trip away. The next person doesn't know what it is.

Clear to Complicated: the stock creeps up

Bulk buying pushes you over a threshold. Now you need signs, extinguishers or an emergency plan, and nobody noticed.

Sources The situation names in colour come from the Cynefin framework (Snowden and Boone, 2007, who called Clear "Simple" and Confusion "Disorder"; current names from Snowden and Friends, 2021).

Signs worth a closer look

Chemical risk changes quietly. A new product, a new contractor or a busy week can undo a tidy store. Each of these signs is worth a question.

What you might see or hear	What to do	Priority
Someone filling a spray bottle or bucket by hand, every day.	Ask whether the product could be plumbed in or bought ready to use.	●●●
Headaches, dizziness or sore eyes after a task.	Stop the task. Check ventilation and the data sheet. Ask an expert to measure exposure.	●●●
New pallets in the store, or a new product nobody mentioned.	Update the inventory. Re-run the calculator.	●●○
Contractors' products in your store.	Get their data sheets. Agree where they keep them.	●●○
Gloves or goggles that are worn out, or kept far from the task.	Replace them. Ask why the task still needs them.	●●○
"We've always used this one."	Look for a safer product. Ask the supplier.	●○○

The data sheet test

Pick a product from the back of a shelf. Ask the nearest worker to find its data sheet and tell you the first aid for a splash in the eye. Count the minutes. That is how long someone would wait in an emergency.

Running the shift

It is 6 am at a food plant. The cleaning crew is one person short, and the sanitiser has run out at the spray unit. Someone has found an empty drink bottle to carry more across. What you say next sets the rule.

Before work starts

- [ ] Check new products have a data sheet and are on the inventory.
- [ ] Train people before they use a new product.
- [ ] Check certified handlers hold current certificates where needed.

While work is happening

- [ ] Remove unlabelled containers.
- [ ] Check incompatible products stay apart.
- [ ] Check protective equipment fits and is used.

Afterwards

- [ ] Clear out products you no longer use.
- [ ] Report spills, splashes and near misses.
- [ ] Pass up ideas for safer products or plumbed-in systems.

What to say at the spray unit

"Not in a drink bottle. Use the labelled one, and tell me why we keep running out." The second half fixes tomorrow.

Before you buy a new product: five checks

The five checks are this guide's; each points to the rule behind it.

1. Do we need it, or is there a safer one? (page 8)
2. Do we have the current data sheet? (reg 2.11)
3. Is it on the inventory? Re-run the calculator (reg 3.1, page 6).
4. Does it need a certified handler? (reg 4.1)
5. Who trains the people using it? (regs 4.5, 4.6)

Take these to your next meeting

Senior leaders and officers

- [ ] Do we have a complete, current inventory?
- [ ] Which substances could we remove or replace?
- [ ] Are we over any threshold for signs, extinguishers or plans?
- [ ] When did we last practise our emergency plan?
- [ ] Where do we rely on protective equipment when we could design the risk out?
- [ ] Who checks contractors' chemicals?
- [ ] Are hazardous substances on our critical risk list?
- [ ] As an officer, how do I check for myself that labels, segregation and spill controls are provided and used? (s **44**)

Two measures a board can track: stores checked against the inventory this quarter; unlabelled or decanted containers found.

Middle managers

- [ ] Is every container labelled?
- [ ] Can workers find each data sheet quickly?
- [ ] Has everyone using chemicals been trained?
- [ ] Is anyone decanting by hand?
- [ ] Do the spill kits match what we hold?
- [ ] Are incompatible products kept apart?
- [ ] What old stock can we get rid of?

Notes

When did someone here last pour a chemical by hand, and why did they have to?

Field notes

This box prints on the back of the card.

Back of your pocket card

My critical risks here:	Who to call:

ideas for this page:

- the data sheet test: how long it took
- products you could remove or swap
- what the fire service would need to know
- containers with no label
- what a contractor brought in

↘ write it down here

Pocket card

Cut out and fold in half.

New product: five checks

1. Do we need it, or is there a safer one?
2. Do we have the current data sheet?
3. Is it on the inventory? Re-run the calculator.
4. Does it need a certified handler?
5. Who trains the people using it?

Never in a food or drink container.

Reading a label

1. Signal word: DANGER or WARNING.
2. Pictograms: what it can do.
3. Hazard statements: the harm.
4. Precautions: how to stay safe.
5. Supplier's emergency number.

No label? Don't use it. Find out what it is.

Card text from pages **4**, **10** and **17**, drawing on WorkSafe's practical guide and the Regulations. Field guide **11**, Vimes Consulting.

Key words

The words on labels, in the Regulations and in the store, in plain English.

Word	What it means
PCBU	A "person conducting a business or undertaking". Usually an organisation.
Hazardous substance	A product that can burn, explode, poison, corrode or harm the environment. Fuels, solvents, many cleaners, gases and pesticides.
Safety data sheet	The supplier's sheet on how to use and store a product safely, with first aid and what to do in an emergency.
Inventory	A list of every hazardous substance at your workplace, and the most of each you are likely to hold.
Decanting	Pouring a product from its container into another one.
Segregation	Keeping products that react with each other apart, such as fuels and oxidisers.
Secondary containment	A bund or tray that holds a leak or spill so it can't spread.
Thresholds	Set quantities in the Regulations. Above them, extra rules apply, such as signs or an emergency plan.
Certified handler	A person certified to use particular very hazardous substances. They get a certificate from a compliance certifier.
Compliance certifier	An independent provider authorised by WorkSafe to issue compliance certificates.
Location compliance certificate	A certificate that the place where larger amounts of some substances are stored or used is safely managed.
Emergency response plan	A written plan of what will be done, and by whom, in a chemical emergency.

Sources WorkSafe, Working safely with hazardous substances: practical guide (August 2025), glossary; the Regulations, regs 3.1, 9.17, 10.5, 13.29.

Check it yourself

How this guide was checked

Every statement of law or fact in this guide was checked against a primary source before printing: the Act, the regulations, the Amendment Act 2026 as passed, WorkSafe guidance, or WorkSafe's case reports. Each check is recorded in a claims register, with the source and date checked. Statements that could not be checked were removed. Facts checked on 12, 22, 23 and 24 October 2026.

Law

1. Health and Safety at Work Act 2015, ss 36, 44, 48. legislation.govt.nz
2. Health and Safety at Work (Hazardous Substances) Regulations 2017, regs 2.1, 2.5, 2.6, 2.11, 3.1, 4.1, 4.5, 4.6, 5.2 to 5.10, 9.17, 10.5, 13.29, Schedule 4.
3. Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, reg 6.
4. Health and Safety at Work Amendment Act 2026 (became law on 9 July 2026): new ss 17(3) to (5), 22A, 25A and Schedule 1A.
5. Plain Language Act 2022, s 5.

WorkSafe guidance

6. Working safely with hazardous substances: practical guide (August 2025). hazardoussubstances.govt.nz, including Labels and the Hazardous Substances Calculator.
7. Role of EPA and WorkSafe; Risk management; Labelling.
8. Media releases: Complacency over chemical use leaves worker without an eye (21 September 2018); New Zealand has adopted a new classification system for hazardous substances (28 April 2021); Business fined for failing to protect workers from methyl bromide exposure (9 December 2021); Survivors recount toxic gas ordeal at landfill pit (4 July 2025).
9. Understanding the changes to health and safety law (July 2026). worksafe.govt.nz

Research

10. Snowden, D. J., and Boone, M. E. (2007). A leader's framework for decision making. Harvard Business Review, 85(11), 68 to 76. It called Clear 'Simple' and Confusion 'Disorder'.
11. Snowden, D., and Friends (2021). *Cynefin: Weaving sense-making into the fabric of our world*. Cognitive Edge, The Cynefin Co. The current situation names on page 15.

Where next

Other guides that help

Chemicals touch most of the series.

Guide	Read it for
1	Leading health and safety, and why the same task needs a different approach in different situations.
3	Shared duties, when contractors bring chemicals onto your site.
5	When things go wrong. What to do after a spill, a splash or a gassing.
6	Critical risks and critical controls, in full.
10	Work-related health: dust, silica, noise, exposure standards and monitoring.
12	Asbestos, which has its own rules.

The whole series

1 Leading health and safety · 2 Trust and verify · 3 Shared duties · 4 Worker voice · 5 When things go wrong · 6 Critical risks and critical controls · 7 Vehicles, mobile plant and traffic · 8 Working at height · 9 Psychosocial risk and mental health · 10 Work-related health · **11 Hazardous substances** · 12 Asbestos · 13 Machinery, plant and energy isolation · 14 Remote, isolated and lone work

Sources

Hazardous substances in one minute

- Know what you have. Keep the inventory and data sheets current.
- Remove or swap first. Every product you get rid of is one less to control.
- Design out handling. A pump beats a jug and a pair of gloves.
- Label every container. Never use a food or drink container.
- Keep incompatible products apart, and catch leaks.
- Be ready: a practised plan, a stocked spill kit, and data sheets the fire service can find.

The field guides

1 Leading health and safety
2 Trust and verify
3 Shared duties
4 Worker voice
5 When things go wrong
6 Critical risks and critical controls
7 Vehicles, mobile plant and traffic
8 Working at height
9 Psychosocial risk and mental health
10 Work-related health
11 **Hazardous substances**
12 Asbestos
13 Machinery, plant and energy isolation
14 Remote, isolated and lone work

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