WORKSAFE
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HSWA

QUICK GUIDE

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Cutting and welding drums and tanks

Drums and tanks that seem to be empty can contain residues of flammable substances or flammable vapours. These substances or vapours can explode or ignite on contact with a flame or spark, causing serious injuries.

This quick guide provides information on how to eliminate and minimise the risk of fire and explosion when cutting and repairing drums and tanks.

This quick guide is for persons conducting a business or undertaking (PCBUs) that:

- dispose of, sell, or donate drums and tanks, or
- cut, alter, or repair drums or tanks as part of their work.

PCBU duties

In this sheet, 'you' means the PCBU. A PCBU is an individual or a company, but it can also be other types of organisations. More information about PCBUs is available on the WorkSafe New Zealand website: worksafe.govt.nz

HEALTH AND SAFETY AT WORK ACT 2015 (HSWA)

HSWA is New Zealand's primary health and safety law. The primary duties of a PCBU under HSWA include:

- providing and maintaining a safe working environment, safe plant and structures, and safe systems of work
- providing any information, training, instruction, or supervision that is necessary to protect people from the health and safety risks at work.

PCBUs that purchase or receive empty drums or tanks have a duty to make sure they are safe before use. If you do not know whether a drum or tank is safe to use, you must take steps to make it safe before using it.

CONSOLIDATED HAZARDOUS SUBSTANCES (DISPOSAL) NOTICE 2017 (ENVIRONMENTAL PROTECTION AGENCY CONSOLIDATIONS APRIL 2021)

Environmental Protection Agency (EPA) notices contain many of the rules that PCBUs must follow to manage hazardous substances safely. PCBUs that dispose of drums and tanks that have contained hazardous substances must make sure they are cleaned before they are reused or recycled.

WorkSafe enforces the notice requirements in workplaces on behalf of the EPA. More information about EPA notices is available on the EPA website: www.epa.govt.nz

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Cutting and welding drums and tanks

Techniques that generate a source of ignition (for example, flames, heat, or sparks) are referred to as 'hot work'. Gas cutting, plasma cutting, welding, brazing, and soldering are all types of hot work.

If hot work is used to cut a drum or tank containing a flammable substance (like petrol, diesel, or solvents), the drum or tank may explode. Containers that have held substances like grease, soap, or combustible solids, are just as dangerous.

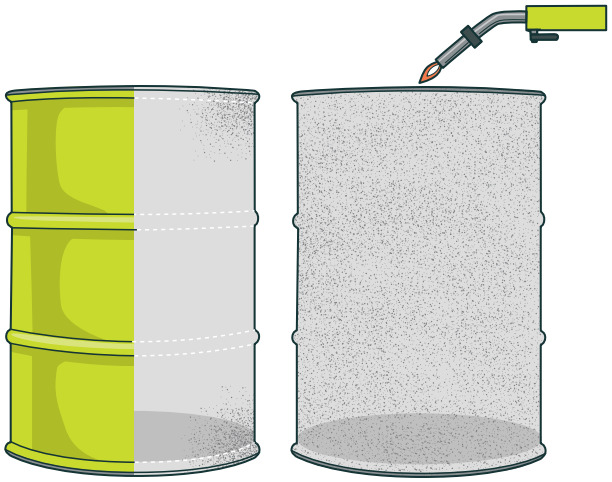

FIGURE 1: Hazardous substances in seams and crevices of drums and tanks can turn into vapour and explode when heat is applied

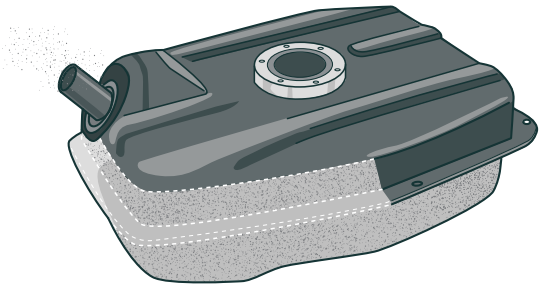

FIGURE 2: Vehicle fuel tanks can contain flammable vapours even at normal temperatures

- Hot work (for example, gas cutting) on tanks and drums is very hazardous and can cause serious injury and death.
- Only cut or repair a drum or tank if it is absolutely necessary, and only after it has been gas-freed using a suitable method (for example, steam cleaning).
- Never cut into a tank or drum unless you know it has been made safe.
- Use cold cutting or cold repair techniques where practicable.
- Only use hot cutting or repair techniques on drums and tanks when there is no safer option.

Managing the risk of hot work

Before cutting or repairing a drum or tank, identify and assess the risks with your workers. Consider what could harm the health or endanger the safety of your workers or other people in your workplace.

Risks must be eliminated so far as is reasonably practicable. If a risk cannot be eliminated, it must be minimised so far as is reasonably practicable.

Eliminate the risk

Where possible, eliminate the risk by avoiding the need for hot work. Consider safer options, such as:

- purchasing a purpose-built container instead of repurposing a drum
- using a cold cutting technique instead of gas cutting (for example, using hydraulic shears). Cold cutting is safer than hot work but can still generate heat, so is not without risk. You must manage the risks of any cutting technique you use, including cold cutting techniques.

Minimise the risk

If hot work cannot be avoided, risks must be minimised as far as is reasonably practicable. You will likely need to use more than one control measure to minimise the risks of hot work.

Control measures that can minimise the risk of fire or explosion from hot work include:

- using a specialist company to cut or repair the drum or tank
- using documentation that clearly states the control measures required to carry out the work safely (for example, a permit to work form)
- using a suitable cleaning, gas-freeing, or inerting process to make the drum or tank safe
- clearing away potential sources of ignition from the work area
- making sure the person doing the hot work is appropriately trained.

Personal protective equipment (PPE)

PPE should be used if there is still risk remaining after all other reasonably practicable control measures have been put in place. PPE is generally considered the last resort when protecting workers from harm.

All PPE must meet basic PPE requirements for fit, function, and performance. Workers must receive training on how to wear, use, and store their PPE correctly.

Cleaning empty drums and tanks

Even if a drum or tank has been empty for a long time it may still contain hazardous substances at the bottom, in seams, or in other crevices.

Cleaning is necessary to remove residual hazardous substances from a drum or tank.

You should consider using a specialist company to clean empty drums and tanks that have held hazardous substances.

If it is not reasonably practicable to use a specialist company, refer to the safety data sheet (SDS) for the hazardous substance. You must have a current SDS for each of the hazardous substances in your workplace. An SDS explains how a hazardous substance should be safely used, stored, transported, and disposed of. More information can be found on the WorkSafe website: worksafe.govt.nz

Cleaning flammable residues

Some flammable substances like petrol do not dissolve in water. This means that water alone is not always effective for cleaning.

You may need to use a cleaning process more than once to remove all flammable residue.

Prepare for cleaning	– Always refer to the SDS for information about cleaning and disposal – Wear suitable PPE when cleaning – Remove any bungs, caps, or lids from the container – Empty the container in line with environmental requirements
Use an appropriate cleaning method	– Steam cleaning is the preferred method to clean a drum or tank – Repeated filling and draining with water may be suitable for some residues – Use detergents and cleaning solvents (for example trichloroethylene) with care, and only when recommended
Test effectiveness	– Check the effectiveness of cleaning with a suitable flammable vapour detector
Dispose safely	– Dispose of residues and run off according to environmental requirements

TABLE 1: Recommendations for cleaning drums and tanks

More information

How to manage work risks

Health and safety in welding

Reasonably practicable