

Technical Brief

Title: Managing small liquid spills

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METHODOLOGY IN MANAGING SMALL CHEMICAL LIQUID SPILLS



SPILL RESPONSE PROCEDURE

In many cases associated with chemical spills, the basic steps involved in cleaning up any small or large spills and leaks are similar in methodology. The main difference is the type & degree of hazard, location of the spill area, level of adequate training, and types of personal protective equipment necessary to clean up the spill in a safe manner.

In many case reviews, spills and leaks that are considered as expected normal operational non-emergencies, still require some degree of “in house experience and training” to allow personnel to undertake the clean-up operation in a safe and proper manner. The most common approach used at many workplaces, is by the development of safe work procedures that cover the steps to be taken in dealing with any chemical related spills as part of the workplace “Emergency Information Plan” development and in being able to comply with local council, state, and national regulatory requirements. The procedure below is a general approach which can be applied to essentially any type of liquid spill clean-up in any workplace environment.

In any liquid spill situation, having knowledge of what is the nature of the liquid spill, combined with on-site nominated personnel that have been suitably trained, with required spill kits on hand, and wearing appropriate personal protective equipment, will ensure that most non-emergency liquid spills can be dealt with “in-house” in a prompt and safe manner

First awareness of spill - ASSESS THE SITUATION

1. Do not enter spill area! - The first person to notice the spill or leak, should not enter the spill area, and keep a safe distance from the immediate area, until the spill situation has been assessed, without placing any person at risk of being exposed to the liquid spill. If the spill is determined to be of a liquid that is neither a dangerous goods and/or hazardous substance, then a more general clean-up procedure can be used. *(It is worth noting that even a liquid spill of water on a smooth floor can result in serious slips, falls and in some cases, electrical hazards, if the water spill is left unattended).*

2. Fully Identify the spill, if safe to do so without placing any person at risk.

> the nature of the liquid spilled.

> the size of the spill and whether the leak has stopped.

> whether the liquid is reacting with other materials, floor etc.

3. Does this spill trigger an emergency?

Most minor leaks can be cleaned up by trained on site personnel. Determination of what is an emergency spill situation is best defined in the operating premise "Emergency Response Plan" which would normally include the decision-making matrix, for what triggers an emergency and the need for providing adequate spill response training. *(In all spill situations, if no clear assessment of the type and nature of the spill can be made, or any person has been injured, the spill situation should be considered as an emergency.)*

4. For all spills, obtaining help and support being a key requirement.

When a spill is reported, it is critical that the spill area is not left unattended. Establish a safe restricted area, that will ensure non-emergency response personnel will not be able to enter the spill danger area. In emergency situations, the amount of training determines the degree of participation in the clean-up.

5. Identify if the spilled involves dangerous goods or hazardous substances.

The spill could be of a fire risk chemical such as flammable or combustible liquids, oxidizing agent and or can be liquid that is toxic or corrosive,

In many spill cases, the leakage is from a package or container that if the chemical is a dangerous goods or hazardous substance, workplace laws require that the containers of such chemicals must be adequately labelled in accordance with current dangerous goods and hazardous chemical/substances regulatory requirements that operate in all Australian States.

Once the spilt product is known, reference to the suppliers or manufacturers, Safety Data Sheet "SDS" for the product should give additional safety information on spill clean-up and other safety information specific to that product.

6. Determine the appropriate spill clean-up method.

The "Emergency Response Plan" should have documented procedures for common types of spills and leaks and level of personnel training requirements.

The plan should also list proper spill control materials. This would include spill control materials such as sorbents, containment socks, spark proof tools (for flammable liquids), booms and neutralising powders and fluids.

The spill clean-up operation is activated.

7. Use appropriate PPE. Personal Protective Equipment (PPE) can include respirators, gloves, goggles, etc., as needed.
8. Stop the source of the spill or leak. This can include turning off the drum valve, patching a leaky hose, emptying the container package, or up righting a knocked over container of liquid.
9. Stop the spill from spreading. This can include use of appropriate absorbent/containment materials such as socks, booms, or barriers, to retain liquid spill. Shutting down building ventilation systems to keep gases and vapours from spreading and plugging drains to prevent contamination of the water ways.
10. Use appropriate sorbents & equipment. Many, particulate sorbents are primarily suited for cleaning up small spills and the residues left over after a large spill. An adequate number of absorbent pads should be used, to first collect most of the liquid spillage, to ensure no pads become over-saturated with liquid product.
11. Dispose of contaminated materials properly. Contaminated spill control materials and disposable personal protective clothing may have to be disposed of as hazardous waste. Contaminated tools and non-disposable PPE should be safely decontaminated and stored in clean plastic bags for further disposal.

Post spill incident review and findings.

12. In any spill situation including non-emergency spills, an incident report should be lodged. The incident report should be completed with the person responsible for the management of the Health and Safety in the workplace.

The outcomes from any incident review should be evaluated and if required any identified gaps or system requirements should be acted on and if required additional risk controls being implemented, to minimise the risk of similar spill occurrence



Typical procedure for dealing with minor flammable liquids spillages

Minor spillages from packages

Step 1 – Stay away from the liquid spill

Until it has been adequately identified. Have a person remain near the spill area, if safe do so, to prevent other persons entering the spill area.

Step 2 – Identify spill.

Warn and evacuate all personnel to safe areas that are not required to be in the immediate spill area. Alert site or area manager. Identify the type of liquid spill (*Obtain spilt product SDS if possible, and or identify the product from the package container of the liquid spill*).

Step 3 – Determine if this is an emergency.

Remove all potential ignition sources and shut down all electrical equipment that is close to or near liquid spill area, if safe to do so. ELIMINATE all ignition sources (no smoking, flares, sparks, or flame) - Do not touch or walk-through spilled material - Slippery when spilt. Avoid breathing mist/vapours. Prevent contact with eyes and skin.

(If spill has occurred near the process mix and blend area, leave mechanical air extraction system in full operation, as this will assist in removal of flammable solvent vapours.)

Step 4 – Seek help and support.

As an interim, isolate spill area with bollards, witches' hats, or tape around spill area with safety sign saying "Danger keep out" spill clean-up procedure in place.

Step 5 – Identify the liquid spill

Once fully identified, prepare nominated spill clean-up personnel, suitable PPE such as gloves, safety glasses, respirator cartridge filter mask and safety shoes, should be worn during any spill clean-up procedure. Any person undertaking spill clean-up, must not be carrying any potential ignition sources, such as mobile phones or other portable electrical equipment.

Step 6 – Determine Clean-up method

Clean up personnel to obtain spill clean-up kits (wheelie bin). All equipment used when handling the spilt liquid must be suitable to use, such as metal shovel or pan and solvent resistant clean up equipment.

Contain spill, do not allow to enter any nearby drain systems. Collect spillage with the placement of non-combustible absorbent material, (e.g., sand, earth, diatomaceous earth, vermiculite), allow absorbent material to soak up all liquid spill and place in suitable oversized container for disposal according to local regulations.

Step 7 – Ensure all clean up personnel have adequate PPE

All clean up personnel must be wearing suitable PPE. Prior to any clean-up operation.

Step 8 – Stop the source of the leak if safe to do so

In many case spills, a package has dropped and develops a slow leak. This package should be resealed if possible, and the placed into a suitable spill oversized drum.

Step 9 - Stop the liquid spill spread if possible.

Use of appropriate absorbent/containment materials such as socks and booms, shutting down ventilation systems to keep gases and vapours from spreading, plug or cover any open drains with gel covers to prevent contamination entering waterways.

Step 10 – Use suitable clean up materials and equipment

The spill kit should have adequate supply of absorbent and containment materials with shovel, broom and required over drum.

Once spillage with absorbent materials has been placed into over drum with leaking container, the floor area should be cleaned, preferably with a suitable water based detergent cleaner, and allow the floor area to fully dry, before the spill area, is declared safe to return to normal operation.

Step 11 – Disposal

Any damaged package that is leaking should be placed into the oversized spill container along with all other spilt liquid and waste absorbance material. This oversized spill container can be collected by a suitable waste disposal contractor.

Step 12 – Post incident investigation

Undertake incident investigation to determine root cause if possible and implement any findings to ensure a similar spill incident is prevented from re-occurring.

Typical spill kits that can be obtained from many suppliers.

