

## Chemical Spill Response

Despite the best efforts to effectively manage risks of hazardous chemicals in the workplace, accidents resulting in the release of chemicals will occur. For this reason, it is essential that all persons onsite have a spill response plan that includes appropriate procedures and materials to adequately contain and clean up a chemical spill. The following procedure should be used as a guide to help you design an effective spill control plan for the worksite. These procedures tell you how to prepare your own spill kit and give you step-by-step instructions for spill clean-up. They also outline when and who to call for assistance.

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## Spill Response Procedures – Major Spill

In the event of a spill which:

- Involves the release of a type or quantity of a chemical that poses an immediate risk to health; or
- Involves an uncontrolled fire or explosion:
  - Evacuate the building by activating the nearest fire alarm
  - Call the operations manager and give details of the accident including exact location, type/s of hazardous material/s involved and whether there is a personal injury – operations manager to contact emergency services
  - If the accident involves personal injury or chemical contamination, follow the above steps as appropriate at the same time:
    - Move the victim from the immediate area of (or the potential of) fire, explosion, or spill (if this can be done without further injury to the victim or you)
    - Locate the nearest eyewash or safety shower. Remove any contaminated clothing from the victim and flush all areas of the body contacted by chemicals with copious amounts of water for 20 minutes
    - Administer first aid as appropriate and seek medical attention
  - Phone Health, Safety & Sales Manager and advise
  - Complete and Incident Report Form

## Spill Response Procedure – Minor Spill

In the event of a spill involving the release of a type or quantity of a chemical which does not pose an immediate risk to health and does not involve chemical contamination to the body:

- Notify operations and persons on site of the accident
- Isolate the area. Evacuate the area if necessary. If an evacuation was necessary, notify the neighbouring properties also
- Remove ignition sources and unplug nearby electrical equipment
- Establish exhaust ventilation (if in an unventilated area). Vent vapours to outside of building only
- Locate the spill kit
- Choose appropriate PPE (goggles, face shield, impervious gloves, lab coat, apron, etc.)
- Confine and contain spill
- Acid and base spills should be neutralised prior to cleanup. Cover with appropriate absorbent material
- Sweep solid material into a plastic dust pan and place in a sealed container
- Wet mop spill area. Be sure to decontaminate broom, dustpan, etc.

- Put all contaminated items (gloves, clothing, etc.) into a sealed container or plastic bag
- Return spill kit to storage location and arrange with First Aid Officer for used contents to be replaced
- Inform the Health, Safety & Sales Manager
- Fill in an Incident Report Form

### **Spill response procedure – greater than 2.5L, very toxic or fire hazard**

*Contact immediately:* Health, Safety & Sales Manager – 07 3299 2002 or 0438954616 and Managing Director – 07 3299 2002 or 0413826824 (Brisbane), 0438732399 (Gladstone)

### **Spills Requiring Special Procedures**

#### ***Bromine***

- Neutralize spill with a 5% solution of sodium thiosulphate
- Absorb with inert absorbent material

#### ***Acid and caustic spills (Do not use for Hydrofluoric Acid)***

- Ensure you are wearing appropriate protective clothing (goggles, gloves and shoes, respirator)
- Ensure area is well ventilated
- Neutralise and absorb spill e.g. sodium bicarbonate
- Scoop up waste in plastic waste bags
- Mop floors after cleanup

#### ***Alkali Metals (lithium, sodium, magnesium, potassium)***

- Smother with dry sand or cover with contents from a Class “D” fire extinguisher. Use of a Class “D” fire extinguisher is the preferred extinguishing method
- Avoid contact with water

#### ***Other Chemicals***

<b>Chemical</b>	<b>Neutraliser, Absorbent, or Spill Containment</b>
Acid Chlorides	Dry sand or other inert absorbent DO NOT use water or sodium bicarbonate
Bases	Sodium bisulphite
Flammables	Activated charcoal, sand or non-combustible absorbent pads
Hydrofluoric Acid	Neutralise with soda ash or lime (or absorb with special HF spill pillow – standard spill pads will NOT work)
Oil	Granular absorbent or oil-specific absorbent pads (especially important if a spill is on water; oil specific absorbents will only absorb the oil)
Oxidisers	Non-combustible absorbent pads

Solvents (organic)	Inert absorbent material
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### ***Small Fuel Spills***

Fire departments get many calls to vehicle accidents, spills at petrol stations, and other small petrol spills. These incidents, which can create fire, traffic and pollution threats, can be handled simply.

What are the basic steps in responding to a petroleum spill?

- *Stop the spill*  
The leak or spill should be stopped by properly qualified and equipped personnel — if this can be done safely. Turn off nozzles or valves from the leaking container, if it can be done safely. Use a wooden plug, bolt, band or putty on a puncture-type hole.
- *Contain and recover the spill*  
If the spill or leak cannot be stopped, catch the flowing liquid using a pan, bucket, hubcap, shovel or whatever is available. Spreading sorbent material, such as kitty litter, sand, straw, sawdust, wood chips, peat, synthetic sorbent pads, or dirt from the roadside can stop the flow and soak up the petrol on pavement. Sorbents do not make petroleum nonflammable.
- *Collect the contaminated sorbent*  
Brooms can be used to sweep up the sorbent material and put it into buckets, garbage cans or barrels or on top of plastic sheeting. Remember to control ignition sources. Fresh granular sorbent such as sand can then be re-spread on a roadway to control the residual slipperiness.
- *Secure the waste*  
If the spill is at a business or if the vehicle in an accident is a commercial vehicle, disposal of the contaminated sorbent is the business' responsibility.
- If the spill is a very small spill from a truck, car or a "mystery spill," sweeping used sorbent onto a road's shoulder is better than leaving it on the roadway or not using sorbent at all. Alternatively, a fire department may elect to take care of the contaminated sorbent. If so, collect and store the sorbent for later treatment or disposal.

### ***Large Fuel Spills***

- Contain as much of the spill as possible, forming a barricade between the petrol and the environment (e.g. water or soil). The Queensland Fire Service should protect the public's safety. Queensland Fire and Emergency Services (QFES) will contact the Scientific Branch for chemical investigations. The QFES Scientific Branch will direct the spiller on the cleanup or may send a contractor to do the cleanup if the spiller cannot or will not respond appropriately.

## Gas Leaks

- Evacuate the area directly affected by the gas leak
- if safe to do so, isolate the gas supply at the source and close the doors to isolate the area
- Call the Queensland Fire and Emergency Services by dialling Triple Zero (000) and notify the Operations Manager and Health, Safety & Sales Manager
- turn off air conditioning to prevent spreading any flammable and/or toxic gases
- if safe to do so, remove ignition sources
- isolate electrical supply from the affected area from a remote location
- report to the Health, Safety & Sales Manager about any action taken
- control the movement of occupants to the evacuation assembly area (if evacuation is required)
- remain at the evacuation assembly area until advised by the emergency service/s.

## Chemical spill kit contents

Every organisation that uses chemicals must have access to a spill kit. The keys to an effective spill kit are location and content. Spill kits should be strategically located around work areas in fixed locations so they will be easily accessible. Although most spill kit contents are common items which may be found throughout the site, they must be consolidated for emergency use.

Spill kits can be purchased through most supply vendors that sell chemicals and safety supplies.

The following is a list of recommended items that should be contained in a chemical spill kit. However, it is important that spill kits be tailored to meet the specific spill control needs of each site. Spill kits should be checked periodically, and restored after each use.

### Absorbents:

- Universal Spill Absorbent – 1:1:1 mixture of Flor-Dri (or unscented kitty litter), sodium bicarbonate, and sand. This all purpose absorbent is good for most chemical spills including solvents, acids (not good for hydrofluoric acid), and bases
- Acid Spill Neutraliser – sodium bicarbonate, sodium carbonate, or calcium carbonate
- Alkali (Base) Neutraliser – sodium bisulphate
- Solvents / Organic Liquid Absorbent – Inert absorbents such as vermiculite, clay, sand, Flor-Dri and Oil-Dri
- Bromine Neutraliser – 5% solution of sodium thiosulfate and inert absorbent
- Hydrofluoric Acid – HF compatible spill pillow or neutralise with lime and transfer to a polyethylene container

### ***Personal Protective Equipment (PPE)***

- Goggles and face shield
- Heavy Neoprene Gloves
- Disposable Lab Coat and Corrosive Apron
- Plastic Vinyl Booties
- Dust Mask / Respirator

### ***Clean-up Material***

- Plastic Dust pan and scoop – ensure the dustpan is a spark-free tool
- Plastic Bags (30 Gallon, 3 mil thickness) for contaminated PPE
- One Plastic Bucket (5 gallon polyethylene) with lid for spill and absorbent residues
- Broom
- For larger spills, a pump to empty leaking drums as well as plugs and patching materials for drums
- Forceps, tongs, or other tools to pick-up contaminated debris or broken glass
- Sealable thick plastic bags

### ***Other***

- Hydrofluoric Acid Antidote – Calcium Gluconate
- Mercury Spill Kit – Aspirator Bulb and Mercury Decontaminating Powder
- Alkali Metals – Dry sand or a Class “D” Fire Extinguisher
- Acid Chlorides – Oil Dri, Zorb-All, or dry sand

### **Packing the spill kit**

- Spill kits should be packaged in the order of when materials will be needed. Personal Protective Equipment (PPE) should be stored on the top so that it is easily accessible and reminds employees to don the PPE prior to commencing spill clean-up. Absorbent materials and other equipment needed to clean up the materials should be under the PPE. Finally, plastic bags and other materials to contain the spill debris, such as pan and broom, should be in the bottom of the kit.

### **First Aid for Serious Chemical Splashes (involving corrosive or toxic substances)**

#### ***For chemical splashes to the eye***

- FLOOD THE EYES WITH WATER
- Continue with running water for 20 minutes then seek medical attention from the closest medical facility (escorted by the First Aid Officer) or ambulance

***For chemical splashes to the skin***

- FLOOD THE SKIN WITH WATER – IF THERE IS AN EMERGENCY SHOWER, USE THIS
- Continue with running water for 20 minutes then seek medical attention from the closest medical facility (escorted by the First Aid Officer) or ambulance

***Delegation of responsibilities***

- Contact emergency services, Health, Safety & Sales Manager, and Operations Manager / Managing Director
- Arrange easily located point to meet the emergency team
- Delegate people to stay by the phone and meet emergency team
- Confirm site and meeting place with First Aid Officer
- Delegate people to obtain the SDS (Safety Data Sheet) for the chemical spilled
  - Follow the first aid instructions on the SDS
  - Give hard copy of SDS to medical facility or ambulance