



National  
Operational  
Guidance

## Control measure

**Containment: Toxic materials**



**NFCC**  
National Fire  
Chiefs Council

Developed and maintained by the NFCC

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### Control measure knowledge

Managing a release of a substance with toxic health hazards will be primarily determined by their physical form. The overall objective is to disrupt the spread and prevent access to areas where the concentration is high enough to cause harm. The physical form as well as quantity are key factors that determine where harmful concentrations will spread. The physical form will then dictate vulnerable routes of entry, for example, inhalation risk from gases and vapours. In circumstances where it is not possible to prevent spread, dispersal to low concentrations should be considered. This option must be weighed against the wider impact on public health and the environment.

Where there is a continuous release, a key priority will be to prevent further material from escaping, minimising the size of the release and therefore the size and duration of any hazard zone.

#### Solids

Key properties that will affect the way solids behave, and therefore their spread, include

- Size of particles
- Melting point
- Water reactivity and miscibility

#### Liquids

Key properties that affect the way liquids behave, and therefore spread, include:

- Vapour pressure (vapours may be given off in dangerous quantities)
- Water reactivity and miscibility
- Relative density
- Vapours

Key properties that affect the way vapours behave, and therefore spread, include:

- Vapour density
- Level of toxicity
- Solubility in water

To make a full assessment of substances and their properties, suitable equipment and advice may be required. For crews who operate in this area, key control measures are to prevent toxic

substances from getting into the body, therefore appropriate personal protective equipment (PPE), respiratory protective equipment (RPE) and decontamination should be assessed.

See National Operational Guidance: [Hazardous materials](#)

## Strategic actions

Fire and rescue services should:

- Consider their local risks and provide procedures and support arrangements for gas and vapour monitoring including equipment purchase, mobilising, use and maintenance
- Provide suitable containment equipment to prevent the spread of hazardous materials

## Tactical actions

Incident commanders should:

- Attempt to contain the spill or release of any toxic substances as close to the source as possible
- Determine the potential spread of toxic substances
- Protect emergency responders' routes of entry based on the physical form of the toxic substance
- Consider options to contain or disperse the spread of toxic materials in consultation with HMA
- Consider options to contain or disperse the spread of toxic materials in consultation with a hazardous materials adviser (HMA)
- Consider reducing vaporisation or gassing-off by covering or reducing the surface area of spills
- Consider reducing vaporisation or gassing-off by absorbing spills with inert materials



- Consider reducing vapourisation or gassing-off by reducing the temperature of bulk containers
- Consider the potential reaction between the toxic material and containment material / water
- Consider the potential reaction between the toxic material and containment material/water, in some cases producing heat and/or flammable/toxic gas
- Prevent accidental mixing of different toxic materials as this can lead to reactions which may give off large amounts of heat and or gas
- Consider using water spray or curtains to contain and control toxic vapours and gases