



Homeland Security

Chemical Attacks

Security Awareness for Soft Targets and Crowded Places

A chemical attack may be executed by individuals or groups — terrorists, terrorist affiliates, or state-sponsored, and/or organized crime — through the deliberate release of a toxic substance, such as a gas, liquid, or solid, in an attempt to cause public harm, injury, or loss of life. A wide variety of common household and professional grade toxic chemicals can be made, stolen, or acquired for use in an attack, including nerve agents, blister agents, blood agents, choking agents, and irritants.

Potential Exposure Scenarios

Possible delivery methods for toxic substances that could expose people in enclosed or crowded spaces and compromise public health and safety may include:

- Ventilation systems (HVAC) of a building.
- Misting, aerosolizing devices, or sprayers.
- Passive release, such as an open container.
- Improvised explosive devices that combine readily available chemicals.
- Sabotage of facilities or vehicles containing chemicals.
- Introduction of toxins in the food and water supply.

Indicators of a Chemical Attack

Potential signs of chemical exposure may include symptoms such as eye and skin irritation, twitching, choking, difficulty breathing, dizziness, muscle weakness, and loss of consciousness. In addition, the presence of unusual liquid, sprays or vapors, droplets of oily film on surfaces, unexplained odors, unusual dead or dying animals in the area, and/or low-lying clouds or fog unrelated to weather may also indicate the release of a chemical agent.

Acutely toxic chemicals can cause serious injury or death if inhaled or absorbed through the skin. The table on the following page outlines ways to detect several highly toxic chemicals and/or chemical weapons.

FACTS & EVENTS

- In 2018 and 2017, the Syrian government released a toxic substance, possibly a nerve agent, on its citizens.
- In mid-2017, the Australian government disrupted a plot allegedly hatched by ISIS supporters who intended to build and set off a device to release toxic gas in a public enclosed space.
- In 1995, thousands were injured and 12 people killed in Tokyo, Japan when members of the Aum Shinrikyo cult released sarin gas during morning rush hour in one of the world's most crowded subway systems.
- In March 1988, after some Kurdish guerrillas joined an Iranian offensive, Iraqi aircraft bombed the Kurdish town of Halabja, Iraq near the Iranian border with choking and nerve agents, killing nearly 5,000 people, mostly civilians.

AGENT NAME	CATEGORY OF AGENT		ODOR	EFFECTIVE RATE
	Nerve Agent	Chemical Agent		
Sarin	●		Odorless	Rapid for vapors; liquid effect may be delayed
Chlorine		●	Bleach	Rapid in high concentrations; delayed in lower concentrations
Hydrogen Sulfide		●	Rotten Eggs	Highly toxic, rapid negative effects in low/high concentrations
Phosgene		●	Mown Hay	Rapid in high concentrations; delayed in lower concentrations
Phosphine	●	●	Decaying Fish or Garlic	Rapid in high concentrations; delayed in lower concentrations
Arsine		●	Slight-fish or Garlic	Exposure to arsine concentrations of 250 ppm is rapidly fatal: concentrations of 25–30 ppm are fatal for 30 min exposure

What Should People Do in Case of a Chemical Attack?

Indoors

- Do whatever it takes to find clean air quickly; protect respiratory functions by covering nose and mouth.
- Open or break a window to access clean air.
- Quickly exit the facility without passing through contaminated areas.
- Evacuate to street or roof, if safe to do so.
- Seek medical attention.
- Call 9-1-1, follow directions from emergency personnel when they arrive on scene.

Outdoors

- Avoid any obvious plume or vapor cloud; protect respiratory functions by covering nose and mouth.
- Walk away from site and into a building to shelter-in-place.
- Enter an indoor facility, immediately lock doors, close windows, and air vents to block external airflow as quickly as possible.
- Go to a room with few windows and seal the room to create a temporary barrier between people and contaminated air outside.
- If necessary, seek higher ground to avoid chemical contact that often remains at surface level.
- Call 9-1-1, follow directions from emergency personnel when they arrive on scene.

Protective Measures to Reduce Impacts of a Chemical Attack



Physical Security

- Review procedures for evacuation and shelter-in-place.
- Post signage relating to emergency entry and exit points, first-aid stations, shelter locations, and prohibited items from being carried into the venue.
- Define the perimeter and areas that require access control for pedestrians and vehicles, and identify especially sensitive or critical areas that require special access controls (e.g., control rooms, communications centers, computer server rooms, fuel or chemical storage tanks, mechanical equipment).
- Evaluate vehicle traffic patterns near the venue and implement strategies to reduce vehicle speeds and improve pedestrian safety.
- To the extent possible, keep vehicles distant from areas where large numbers of people congregate and evaluate the need for fixed or temporary vehicle barriers.
- Monitor work being done adjacent to the facility or venue (e.g., road construction, utility equipment servicing) for signs of unusual activities (e.g., planting packages near assets or gathering places).
- Work with the local emergency medical services for recommendations on how to handle medical emergencies, considering first aid stations, triage, and transport sites, as well as emergency routes in and out of the facility.



Access, Planning, and Personnel

- Design a monitoring, surveillance, and inspection program that is consistent with venue operations and associated security requirements. If surveillance cameras are used, train personnel to interpret video and identify potential security-related events.
- Inspect packages, briefcases, backpacks, parcels, and luggage being carried by people, where practical (e.g., employees, contractors, vendors, visitors, and patrons). Post signage identifying prohibited items.
- Accept deliveries and shipments only from known shippers, vendors, or customers.
- Train receiving personnel to recognize suspicious mail, packages, or deliveries, and instruct them on notification procedures.
- Conduct background checks on all staff assigned to critical or sensitive areas.
- Review personnel files of recently terminated employees to determine whether they pose a security risk.
- Devise credential systems that indicate areas of access and purpose of activity on the premises.

Additional Resources

- Hometown Security Initiative: <https://www.dhs.gov/hometown-security>
- Active Shooter Preparedness Program: <https://www.dhs.gov/active-shooter-preparedness>
- "If You See Something, Say Something®": <https://www.dhs.gov/see-something-say-something>
- Nationwide Suspicious Activity Reporting Initiative: <https://nsi.ncirc.gov/>
- For additional resources related to chemical attack safety and prevention, please visit <https://emergency.cdc.gov/chemical/prep.asp>.

Protective Security Advisors (PSAs) proactively engage with government partners and the private sector to protect critical infrastructure. For more information or to contact your local PSA, e-mail NICC@hq.dhs.gov.