

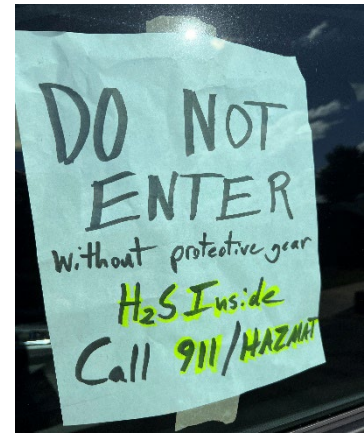


Personal Protective Equipment Recommendations for Response to Chemical Suicide Incidents

RECOMMENDATIONS

To minimize the likelihood of responder exposures, injuries, and fatalities during chemical suicide incidents, the National Institute for Occupational Safety and Health (NIOSH) recommends that first responder agencies ensure that responders:

- ❑ Recognize the potential incident health and safety hazards associated with response to chemical suicides
- ❑ Understand what the potentially immediately dangerous to life or health (IDLH) environment is and who should be permitted to enter it
- ❑ Assume an IDLH environment until a hazard assessment is performed to determine the specific personal protective equipment (PPE) and PPE support tools, such as air monitoring equipment, needed to protect responders during each phase of response including decontamination
- ❑ Understand where to find additional resources to plan for, respond to, recover from, and mitigate the effects of incidents involving chemical suicides
- ❑ Coordinate response exercises and training with other relevant agencies



Example of a posted sign warning of a chemical suicide. Photo by NIOSH.

EXPOSURE, INJURY, & FATALITY PREVENTION FOR CHEMICAL SUICIDE INCIDENTS

Chemical suicides involve the use of lethal toxic gases generated by intentionally mixing common household chemicals in a confined space such as a car, bathroom, or closet. Indicators of a chemical suicide in these confined spaces may include signs posted warning of toxic gas, empty cleaning supply containers, and a victim showing no signs of trauma. Information about this method of suicide is publicly available online. The most common toxic gases produced in chemical suicide incidents are hydrogen sulfide, hydrogen cyanide, and carbon monoxide. Published research and media reporting have documented both inhalation and transdermal absorption injuries to first responders resulting from responses to chemical suicide incidents. These injuries involved inconsistent use of PPE. First responders need to understand the potential incident health and safety hazards associated with response to chemical suicide as well as the relevant PPE and PPE-support tools such as air monitoring equipment recommended for response.



Personal Protective Equipment Recommendations for Response to Chemical Suicide Incidents

QUESTIONS & ANSWERS

What are the potential incident health and safety hazards associated with response to chemical suicides?

Chemical suicides should be treated as hazardous materials (HAZMAT) incidents. The vapors from the toxic gases trapped in an enclosed space potentially exist in hazardous concentrations. Direct exposure risks to responders include both inhalation and transdermal absorption (through the skin). Off-gassing from the victims, bodily fluids, solids and/or liquids from the enclosed space (whether mixed or unmixed household chemicals), or decontamination/clean-up operations may also present potential exposure and inhalation risks.

What is the IDLH environment at a chemical suicide incident and who should be permitted to enter it?

The IDLH environment presents the greatest threat to emergency responders. This environment may include the enclosed space (e.g., car, bathroom, closet) and the area surrounding it. PPE must be sufficient for the expected hazards. All chemical suicide incidents should be treated as an emergency or planned entry into unknown concentrations or IDLH conditions. Only those with appropriate PPE, PPE-support tools such as air monitoring equipment, and HAZMAT training are permitted to enter the IDLH environment.

What PPE is recommended for response to chemical suicide incidents?

The [Emergency Response Guidebook](#) and the [NIOSH Pocket Guide to Chemical Hazards](#) recommend a NIOSH Approved® self-contained breathing apparatus (SCBA) or a combination SCBA and type C supplied-air respirator with a full facepiece for emergency or planned entry into unknown concentrations or IDLH conditions. Structural turnout gear and PPE-support tools such as air monitoring equipment are recommended for working outside of and prior to opening (ventilating) the enclosed space during initial incident response and reconnaissance operations while hazards are being identified. Chemical protective clothing (selected according to NFPA 1891) is recommended when there is no risk of fire as well as continued use of air monitoring equipment for tasks involving entry into or opening (ventilating) the enclosed space. This includes tasks such as stabilizing the problem, rescue, spill control, recovery, and decontaminating responders, victims, equipment, clean-up operations, etc.

What are some other considerations for response to chemical suicide incidents?

To ensure the safety of both responders and the public, decontamination and clean-up operations are required to reduce the level of contamination at the scene and minimize the potential for secondary contamination beyond the incident. When conducting these operations, responders should:

- Treat victims as chemically contaminated (e.g., assume that off-gassing is possible).
- Decontaminate victims at the scene prior to transportation to prevent further contamination and notify emergency medical services (EMS), hospitals, medical examiners/coroners, and their facilities of potential contamination.

NIOSH also recommends that first responder agencies train their personnel for these types of incidents. Coordinated response exercises with relevant agencies such as law enforcement, EMS, and fire services can enhance decision-making and ensure that recommended PPE, PPE-support tools such as air monitoring equipment, and appropriate responder tactics are employed.

Are there additional resources?

- [Emergency Response Safety and Health Database](#)
- [NIOSH Certified Equipment List](#)
- [CHEMM website](#)
- [Chemical, Biological, Radiological, and Nuclear Respiratory Protection Handbook](#)

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