

# Chemical Suicide

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This drill requires hazmat technicians to evaluate meter readings, assess the hazards present and communicate information to non-hazmat personnel.

Cost of Drill: \$0.00

Time required: 30 minutes

## Teaching Points

1. Identify meters that would be appropriate to use in this scenario.
2. State the limitations and capabilities of meters used.
3. Demonstrate the ability to interpret meter readings.
4. Demonstrate the ability to assess hazards based on ambiguous meter readings.
5. Demonstrate the ability to identify the substance involved based on information available.
6. Demonstrate the ability to effectively communicate meter results to higher authorities and interested parties.

## Note

1. There is no “school solution” and there are no right answers (but there may be a few wrong ones).
2. If you want more information, ask for it (you may not get it but you can still ask!).

## Materials List

1. HazSim Pro3® (optional)
2. Projector, screen and laptop to display simulated incident scene (optional)
3. Standard classroom and furniture (tables, chairs, etc.)

## Setup Directions

Arrange room as desired.

## Initiating the Drill

Give the drill participants the initial narrative (see below):

## **Initial Narrative**

A hotel guest at a local upscale hotel found another guest in distress in a public hallway. She notified hotel employees who called 911.

EMS personnel arrived and found the patient unconscious. They saw several gray tablets on the floor next to the patient. The tablets were about ½ inch in diameter. There was a small metal bottle on the floor. The bottle had the word “Fumitoxin” on the label. The EMS personnel placed the tablets and bottle in an appropriate container. They transported the patient to the local hospital.

A doctor in the emergency department (ED), familiar with suicide techniques using poisonous chemicals in his native country of India, thought this may be a similar type of case. The emergency room called 911 and asked that the hazardous materials team be sent to the hospital. The doctor suspected the patient had ingested a fumigant that was commonly used for suicide in India. The hospital caller also stated that the “patient is giving off gas” and that they “also have a container in the room that is giving off gas.”

The hazmat team arrived and analyzed a sample of the substance involved and identified it as aluminum phosphide. Shortly after this the patient went into cardiac arrest, and despite resuscitation efforts by ED staff, was pronounced dead. During resuscitation efforts, the patient vomited a charcoal solution that was accompanied by a fishy odor. One hospital staff member complained of dizziness.

A hazmat entry team entered the ED to perform air monitoring using a four-gas meter and a photo ionization detector (PID). Their instruments gave no indication of any hazardous vapors or gases.

Hospital management asks you if the deceased is safe to move. The victim’s remains are in the hospital morgue. The hospital wants to return to normal operations. The coroner’s assistant who was picking up the body would not accept the body without proof that it was safe to do so. The hazmat team enters the ED and the hospital morgue to perform air monitoring using a four-gas meter, PID and a gamma radiation monitor.

## **Drill Participant Actions**

Direct drill participants to discuss the scenario and answer the following questions.

## **Drill Inject**

The initial entry team had the following results from their air monitoring:

Oxygen concentration of 21.3 percent.

PID reading of 0.2 parts per million (ppm).

Hydrogen Sulfide meter reading of zero ppm.

Carbon Monoxide (CO) meter reading of zero ppm.

Lower Explosive Limit (LEL) reading of zero percent.

Optional: use a Hazsim to convey these readings to the drill participants.

## Questions to Answer

Based on these readings would you advise the incident commander that the area is safe to enter?

What may explain the high level of oxygen found? Will the PID detect aluminum phosphide? If not, then why use it?

The hazmat team proposes to enter the ED and the hospital morgue to perform air monitoring using a four-gas PID, gamma radiation monitor and a Draeger CMS™ with a phosphine chip. Why is the hazmat team going to use a phosphine detector? Will these instruments give you an accurate picture of the atmospheric hazards in the ED?

# Suggested Findings

Based on these readings would you advise the incident commander that the area is safe to enter?

The high O<sub>2</sub> level is a concern (see below). The other readings show there is no atmospheric hazard. Is the area safe for entry? Most likely it is but you should still exercise caution.

What may explain the high level of oxygen found? Will the PID detect aluminum phosphide? If not, then why use it?

There are a variety of naturally occurring conditions that can decrease the oxygen concentration. This is not true for high oxygen concentrations. Something has caused this high level and responders should find out what caused it. In this case the high oxygen level is most likely from the widespread use of pure oxygen in the ED.

The PID won't detect aluminum phosphide. It's a solid. It's always a good idea to use a PID since you may have multiple products involved.

The hazmat team proposes to enter the ED and the hospital morgue to perform air monitoring using a four-gas PID, gamma radiation monitor and a Draeger CMS™ with a phosphine chip. Why is the hazmat team going to use a phosphine detector? Will these instruments give you an accurate picture of the atmospheric hazards in the ED?

Aluminum phosphide will react with water and acids and give off phosphine gas. (Note: the "fishy" odor reported in the ED was most likely phosphine.) The Draeger CMS™ phosphine chip can detect concentrations as low as 0.1 ppm. This would be an appropriate instrument to use.