

**Problem:** There is no longer a routine call. Recognize that every response is unique and treat as such. Always wear proper PPE and SCBA.

- First responders “unexpected” chemical exposure concern
  - Ensure that dispatch information is shared between all disciplines to enhance responder safety
  - Be alert for information indicating the potential for occupants in any enclosed space
  - First responders must utilize the proper protective equipment
- Mixing household chemicals to create toxic vapors
  - Look for and recognize containers that may indicate presence of common household chemicals
- In most cases, two (or more) chemicals will be mixed to produce vapors

### Analyze the Problem

- Recognition/ID and Warning Signs
  - Open containers or a ‘mixing container’. Chemicals may not be properly marked/labeled
  - Do NOT rely on suicide notes or placards near the entry pathway for first responders which warn of danger
  - Open containers or household chemicals where they would not normally be found (vehicles, bedrooms, etc.)
  - Taping of doors, windows, dash vents, openings or other attempts to seal the enclosure
- Locations: Vehicles and Structures
  - If this is a chemical suicide remember it is a crime scene and once life safety considerations are met to treat as such
  - Look for indicators in the surrounding area and question occupants. After analysis, vehicles and structures can be ventilated. Do NOT rely on presence or lack of chemical/unusual odors. Be aware of contact with liquids or powders and provide decontamination for occupants and responders

### Implement the Plan

- Handline (vapor disbursement or extinguishment)
  - Vapor Disbursement - Use water spray to reduce vapors or divert vapor cloud drift. Attempt to control and isolate runoff
  - Extinguishment - May form explosive mixtures with air. May be ignited by heat, sparks or flames
- Ventilation/Change the Environment – Properly trained and equipped first responders should ventilate after a thorough analysis of potential hazards
- Air monitoring - Should be conducted throughout the incident and until evidence has been collected and the scene rendered safe
- Victim transport – Decon prior to leaving the scene; methods will be based on occupant’s status
- Decontamination – All entry team members should undergo a technical decon according to local protocols. Beware of potential for occupants and clothing to ‘off-gas’ trapped vapors. EMS and the hospital must be notified in advance in order to avoid contamination of personnel/equipment
- Crime scene considerations – Minimize responder exposure while preserving evidence and supporting law enforcement

### Evaluate

- Maintain Situational Awareness – Don’t count on warning signs. Be aware of secondary contamination

### Plan the Response

- Two seconds to look into the vehicle for signs of a suicide (mixing vessels, residue, containers), ten seconds for law enforcement
- Response Options
  - Rescue/Recovery
  - Evacuation/Isolation
  - Protective handline
  - Decontamination
  - Preserve evidence
- Selection of PPE
  - Follow department policy and procedure for proper PPE and respiratory protection selection
- Obtain control of air monitoring equipment
- Selection of Decontamination
  - Occupants need to be decontaminated using a simple water shower of 3-5 minutes, following clothing removal
  - Technical decontamination should be established for entry teams conducting control tasks
- Plan of Action
  - Implement agency Hazardous Materials Response Protocols
  - Develop a site safety plan
  - Use a **Risk Based Response** control plan that is based on possible options listed above
  - Vehicle vs. Structure
    - Compartment size will/can play a role in the levels of concentration, resulting in varying levels of evacuation/shelter in place options
    - The smaller the compartment the higher the concentration -> higher toxic levels and potential to reach LEL levels
    - Ventilate all occupancies to change the concentration levels of the environment
    - Open the doors to vent and remove any occupant(s)
      - Check for signs of life prior to removal (chest movement, body movement)
      - If vehicle/structure is locked and there are no signs of life, isolate and warn others
- Evacuation vs. Shelter in place – a determination must be made of which method will be more effective in life safety

## CHEMICAL PROPERTIES

### Hydrogen Sulfide

<b>Description</b>	Colorless gas	<b>Odor threshold</b>	0.77 ppm
<b>Molecular formula</b>	H <sub>2</sub> S	<b>Odor description</b>	Rotten egg
<b>Molecular weight</b>	34.08	<b>Exposure route</b>	Inhalation
<b>Density</b>	1.19 (≈ 20% heavier than air)	<b>Signs &amp; symptoms</b>	Irritation of respiratory system & eyes, apnea, coma
<b>Auto ignition temperature</b>	260°C (500°F)	<b>LEL/UEL</b>	4%, 44%
<b>Vapor pressure</b>	15, 600 mm Hg @ 25°C (77°F)	<b>IDLH</b>	100 ppm
<b>Solubility</b>	Soluble in water, hydrocarbon solvents, ether and ethanol	<b>Detection</b>	PID with 10.6 eV lamp
<b>Notes</b>	Death by inhalation can occur quickly at low levels		

### Hydrogen Cyanide

<b>Description</b>	Bluish-white liquid/colorless gas	<b>Odor threshold</b>	0.58 ppm
<b>Molecular formula</b>	HCN	<b>Odor description</b>	Bitter almond (odor may not be detected by smell)
<b>Molecular weight</b>	27.03	<b>Exposure route</b>	Inhalation, absorption
<b>Density</b>	0.94 (lighter than air)	<b>Signs &amp; symptoms</b>	Respiration/depth change, confusion, asphyxia
<b>Auto ignition temperature</b>	538°C (1000°F)	<b>LEL/UEL</b>	5.6%, 40%
<b>Vapor pressure</b>	630 mm Hg @ 20°C (68°F)	<b>IDLH</b>	50 ppm
<b>Solubility</b>	Miscible in water, alcohol, slightly soluble in ether	<b>Detection</b>	PID with 13.6 eV lamp
<b>Notes</b>	Death by inhalation can occur quickly at low levels		

For more information on chemical assisted suicide response visit [www.hazmatfc.com](http://www.hazmatfc.com)