NEW JERSEY DEPARTMENT OF COMMUNITY AFFAIRS
DIVISION OF FIRE SAFETY
OFFICE OF THE STATE FIRE MARSHAL

SAFETY ALERT

PO Box 809, Trenton, NJ 08625-0809 (609) 633-6070 SAFETY ALERT 10-1

Response to Chemical (Hydrogen Sulfide) Suicides

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In the last few years Japan has been plagued by several hundred suicides involving the use of hydrogen sulfide (H2S) gas. Similar suicides have been reported recently in the United States, and in particular, two in New Jersey using the same methods. There are several internet sites that offer step-by-step directions for making H2S gas from common household products. Additionally, the directions provide instructions for carrying out the suicide including marking the vehicle with signs to warn others not to open the doors.

Typically, first responders are called to assist a person who appears to be unconscious in a vehicle. Upon arrival, responders encounter a vehicle posted with signs that read "Do not open doors – call Haz-Mat – Dangerous chemicals" or similar language with an unresponsive person inside. Responders may also notice a bucket or pail inside the vehicle. The bucket will contain the chemical mixture that produces the H2S gas.

Chemical Properties and Health Effects of H2S

Synonyms of H2S include dihydrogen sulfide, sulfur hydride, sulfurated hydrogen and hydrosulfuric acid. H2S is a colorless, flammable, highly toxic gas. It has a characteristic rotten-egg odor that is detectable at concentrations as low as 0.5 ppb. Inhalation is the major route of H2S exposure. The gas is rapidly absorbed by the lungs. Absorption through intact skin is minimal as H2S is a gas at room temperature. H2S is highly toxic and inhalation of high concentrations of hydrogen sulfide can produce extremely rapid unconsciousness and death. Inhalation of a single breath at a concentration of 1000 ppm (0.1%) may cause coma. Symptoms of acute exposure below 1000 ppm include nausea, headaches, delirium, disturbed equilibrium, tremors, convulsions, and skin and eye irritation. There is a rapid loss of sense of smell on exposure to gas concentrations above 150 ppm, and this means that the extent of exposure may be underestimated. Perception threshold ranges from 0.5 ppt to 0.1 ppm. The immediate danger to life and health level (IDLH) for this product is 100 ppm. There have been several instances of first responders overcome by H2S fumes at suicide incidents.

Response Procedures for First Responders

- Wear proper PPE including full turnout gear and SCBA;
- When approaching the vehicle, visually inspect the vehicle and incident scene before gaining access to any vehicle. Ensure there are no other hazards present such as downed electrical wires, vehicular traffic etc.;
- There may or may not be signs to warn responders. Remember, there is always the possibility that an incident scene may not be what it appears to be; look out for booby traps designed to injure or kill responders;
- If EMS or law enforcement personnel arrive first at the scene of a possible suicide, they should establish a hot zone and remain outside until fire personnel in full turnouts and SCBA open the vehicle and extract the patient/victim to a safe area;
- Once the vehicle has been accessed and the patient removed, allow sufficient time for the H2S gas to escape to the open air. If the vehicle is located in an enclosed area such as a garage, mechanical ventilation may be required. Determination of the necessity of a Haz-Mat team should be made by fire personnel;
- Upon patient/victim removal to the cold zone, EMS should assess the viability and the appropriateness of resuscitation attempts.

Warning signs taped to the window of the vehicle involved in a recent chemical suicide in New York State (Photo Courtesy of NYSOFP&C)

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