



ARSINE

Agent Information:

Used in semiconductor production and as a chemical warfare agent; AsH_3 . Synonyms include arsenic hydride, arsenic trihydride, arseniuretted hydrogen, arsenious hydride, and hydrogen arsenide. Arsine is a flammable and highly toxic gas with a garlic-like or fishy odor that does not provide adequate warning of hazardous levels. Even if arsine's odor was not detected at the scene, those present could have been seriously exposed. All exposure victims should be evaluated and observed. Arsine is a simple **asphyxiant** and a severe systemic toxicant.

Signs and Symptoms:

Arsine is a highly toxic gas and may be fatal if inhaled in sufficient quantities. Its primary toxic effect is due to hemolysis resulting in renal failure. Initially some patients may look relatively well. Common initial symptoms of exposure include malaise, headache, thirst, shivering, abdominal pain and dyspnea. These symptoms usually occur within 30 to 60 minutes with heavy exposure, but can be delayed for 2 to 24 hours. Hemoglobinuria usually occurs within hours, jaundice within 1 or 2 days. Arsine poisoning causes acute intravascular hemolysis, which may lead to renal failure. Arsine gas does not produce arsenic intoxication.

Route of Exposure:

Inhalation is the major route of arsine exposure. There is little information about absorption through the skin or toxic effects on the skin or eyes. However, contact with liquid arsine may result in frostbite injury.

Protective Measures:

Utilize appropriate Level PPE as identified by the Environmental Protection Agency and Hazmat protocols.

Persons exposed to arsine pose no serious risks of secondary contamination to personnel outside the Hot Zone; small amounts of arsine gas can be trapped in the victim's clothing or hair after a large exposure, but are not likely to create a hazard for personnel outside the Hot Zone.

Prophylaxis:

N/A

Treatment:

There is no specific antidote for arsine. Treatment is symptomatic and consists of measures to support respiratory, vascular, and renal function. Do not administer arsenic chelating drugs. Although BAL (British Anti-Lewisite, dimercaprol) and other chelating agents are acceptable for arsenic poisoning, they are not effective antidotes for arsine poisoning and are not recommended.

Reporting:

Suspect cases should be reported immediately to the Division of Public Health, Epidemiology Branch: 1-888-295-5156 (24/7 coverage). For additional information, view the CDC website for Emergency Preparedness and Response at: www.bt.cdc.gov.