



STIBINE

I. Protocol Overview

Stibine is a colorless, flammable gas with an offensive smell like rotten eggs. It is a heavy antimony analogue of ammonia and is highly toxic. SbH₃ is so unstable that it is rarely encountered outside of laboratories. Stibine is used in the semiconductor industry to dope silicon with small quantities of antimony via the process of chemical vapor deposition. It has been used as a silicon dopant in epitaxial layers. Stibine was used infrequently as a fumigant. The toxicity of stibine is dissimilar to other antimony compounds, but similar to arsine.

The most likely route of exposure to stibine is inhalation. Stibine binds to the hemoglobin of red blood cells. Initial signs of exposure may not appear for several hours, but may include: headaches, vertigo, and nausea, followed by the symptoms of hemolytic anemia (high levels of unconjugated bilirubin), hemoglobinuria, and nephropathy. Additional signs and symptoms may include lassitude, abdominal and lumbar pain, hematuria, jaundice, pulmonary irritation, cough, sore throat, wheezing, pulmonary edema (may be delayed), and weak and irregular pulse.

For all suspected chemical exposures, consult the Poison Control Center (800-222-1222) located at Children's Hospital of Philadelphia. Information and treatment advice is available to the public and healthcare professionals at no charge.

There is currently no known biological marker is available for stibine exposure. However, stibine exposure may be indicated by detection of elevated antimony levels in urine by inductively coupled plasma mass spectrometry (ICP/MS). The most common method available to detect stibine in environmental samples uses graphite furnace atomic adsorption spectroscopy (GFAAS) or mercury chloride coated silica tubes for air sample collection.

The Delaware Public Health Laboratory does not perform this testing. Contact the CDC or the Poison Control Center.

II. Contact Information

24/7 CDC Emergency Contact Number: 1-888-295-5156

Poison Control Center: 215-386-2100

III. CDC Website

<http://emergency.cdc.gov/agent/arsine/casedef.asp>