

Linde Gas (216) 642-6600  
P.O. Box 94737  
Cleveland, OH 44101-4737  
www.us.lindegas.com

**MATERIAL  
SAFETY  
DATA SHEET**  
No. 7

## SECTION 1. PRODUCT INFORMATION

NAME : Arsine

TRADE NAME AND SYNONYMS: Hydrogen Arsenide; Arsenic Trihydride; Arsenic Hydride

APPEARANCE AND ODOR : Colorless gas with a garlic-like odor

CHEMICAL NAME AND SYNONYMS : Arsine

CAS # : 7784-42-1

DOT I.D. No : UN 2188

DOT HAZARD CLASS : Division 2.3, Inhalation Hazard Zone A

CHEMICAL FORMULA : AsH<sub>3</sub>

CHEMICAL FAMILY : Nonmetal Hydride

ISSUE DATE AND REVISIONS : Revised July 2006

## SECTION 2. HEALTH HAZARD DATA

EMERGENCY OVERVIEW : Arsine is the most toxic of the commonly used "dopants". It is colorless but is recognizable by its garlic-like odor. It is almost 3 times heavier than air.

Inhalation: Symptoms may be delayed for several hours, particularly if very low concentrations have been inhaled. They include general malaise, headache, nausea, vomiting, tightness in the chest and pain in the abdomen and loins. The urine will usually become red or darkened in color and the skin will take on a bronze or jaundice coloration. Tingling of the face and extremities may also occur and respiration and pulse may become more rapid even though the blood pressure remains normal.

TIME WEIGHTED AVERAGE EXPOSURE LIMIT : TWA = 0.05 Molar PPM with a proposal to change this to 0.005 Molar PPM with an A4 (Not classified as a human carcinogen) carcinogen rating (ACGIH 2005). OSHA 2005 lists a PEL (8 hr. TWA) of 0.05 Molar PPM.

TOXICOLOGICAL PROPERTIES : Arsine destroys the red blood cells and can cause widespread organ injury. It is a powerful reducing agent and has a strong affinity for the hemoglobin in the blood. The hemolysis of the red blood cells causes renal failure. The destruction of the red blood cells causes the appearance of hemoglobin and its degradation products in the blood plasma and in the urine. Jaundice is also a primary manifestation of hemolysis. Renal function and possible complete shutdown are the most serious manifestations of Arsine poisoning. Permanent injury, especially to the central nervous system, or fatal consequences are also recognized.

Arsine is not listed in the IARC, NTP or by OSHA as a carcinogen or potential carcinogen..

Persons in ill health where such illness would be aggravated by exposure to Arsine should not be allowed to work with or handle this product.

RECOMMENDED FIRST AID TREATMENT : PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO ARSINE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF CONTAINED BREATHING APPARATUS AND BE COGNIZANT OF EXTREME FIRE AND EXPLOSION HAZARD.