

	<b>Hydrogen Sulfide</b>	Effective	January 25, 2006
		Originator:	D. Taddeo
		Last Updated	January 25, 2006
		Updated By:	D. Taddeo

**1. POLICY**

1.1. This policy is to familiarize all persons of the product Hydrogen Sulfide.

**2. SCOPE:**

2.1 This policy applies to all faculty, staff and students at the Ross University School of Veterinary Medicine.

**3. PROCEDURE:**

**What Is It?**

Hydrogen sulfide (H<sub>2</sub>S) is a colorless and extremely poisonous gas with the very pungent and characteristic odor of rotten eggs. It occurs naturally in coal pits, sulfur springs, gas wells, and as a product of decaying organic matter. It is commonly generated as a byproduct of many research, industrial, and manufacturing processes. It is also a flammable gas, with an ignition temperature of 260°C.

**Hazards**

H<sub>2</sub>S is an extremely hazardous, poisonous gas. Classified as a chemical asphyxiant, similar to carbon monoxide and the cyanides, H<sub>2</sub>S interferes with cellular respiration and uptake of oxygen, causing biochemical suffocation. At levels above 200 ppm, collapse, coma and death from respiratory failure may occur within seconds after only one or two inhalations. Concentrations from 50 - 200 ppm can cause severe eye and respiratory tract irritation, acute conjunctivitis, lacrimation, difficulty breathing, and sudden loss of consciousness. At levels between 10 and 50 ppm, affected persons experience mild eye and respiratory tract irritation, headaches and dizziness. Low concentrations, (less than 10 ppm) cause mild irritation of the eyes, mucous membranes, and upper respiratory system. Prolonged exposures at the lower levels can lead to bronchitis, pneumonia, migraine headaches, pulmonary edema, and loss of motor coordination.

Despite a low odor threshold for the gas in air (less than 1 ppm can be easily detected), one cannot rely on one's nose as a warning device. H<sub>2</sub>S is considered an insidious poison, because the gas rapidly fatigues one's sense of smell. At high concentration levels, this fatigue can occur almost instantaneously. When this occurs, it is impossible to smell the gas at any concentration.

**Exposure Pathways**

The primary route of exposure is inhalation. The California Occupational Safety and Health Administration (Cal-OSHA) permissible exposure limit (PEL) for H<sub>2</sub>S is 10 ppm. This level is 10 times lower than the “immediately dangerous to life or health” level of 100 ppm set by the National Institute for Occupational Safety and Health (NIOSH).

**Recommended Protection**

The best protection from overexposure to H<sub>2</sub>S is regular monitoring to identify areas and operations likely to exceed Cal-OSHA’s PEL. The use of direct reading instrumentation can be used before entering confined spaces such as manholes, tanks, pits, and large reaction vessels that could contain or accumulate H<sub>2</sub>S gas. Areas that routinely pose overexposure hazards should be equipped with continuous monitoring instruments. Where concentration levels cannot be adequately reduced with engineering equipment and ventilation systems, it may necessary to use supplied air respirators.