

Caribbean Poison Information Network (CARPIN)

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The Toxic Effects of Hydrogen Sulphate

'Stink Bomb'

A 560 word feature

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CARPIN

The Poisonous Effects of Hydrogen Sulphide

“Stink Bomb”

Oftentimes substances that have the potential to cause harm or death are associated with products that are ingested. However any substance can be a potential poison. Hydrogen sulphide (H_2S), also known as stink bomb, rotten eggs smell, sewer gas, stink gas, is a colourless gas with a strong odour of rotten eggs and can be very toxic. Hydrogen sulphide is highly flammable and may readily form an explosive mixture with air. Being denser than air, it tends to accumulate at the bottom of poorly ventilated spaces.

Sources of Hydrogen Sulphide

Hydrogen sulphide can occur anywhere where elemental sulphur reacts with organic material. It is also produced in low oxygen environment such as swamps and sewers due to bacterial breakdown of organic matter. It also occurs in volcanic gases, natural gas and some well water. The odour of flatulence is largely a trace amount of this gas, formed by hydrogen sulphide producing bacteria in the colon; thus giving rise to names of such toys as **‘Fart Bomb’**. There are however enzymes in the body that are capable of detoxifying naturally occurring hydrogen sulphide.

Toxicity of Hydrogen Sulphide

Hydrogen sulphide is said to be a wide-spectrum poison, implicating various systems in the body. The respiratory tract and nervous system are the most sensitive targets. It is considered to be as toxic as hydrogen cyanide. Hydrogen sulphide forms a complex bond with haemoglobin

(iron) in red blood cells and blocks the binding of oxygen thereby interfering with cellular respiration. On exposure to a certain concentration, rapid loss of smell occurs; the extent of exposure can thus be underestimated overcoming the victim and can eventually cause death. In low concentrations, hydrogen sulphide is an irritant to mucus membranes including the eyes and respiratory tract, causing sore throat, nausea, cough, shortness of breath, and accumulation of fluid in the lungs. Chronic exposure at low concentrations can result in headaches, dizziness, fatigue, loss of appetite, poor memory as well as reproductive problems.

Emergency Measures and Treatment

The primary route of exposure is by inhalation, oral and skin exposures contribute to only a small amount of body burden.

For inhalation exposure: remove from the source of exposure and call for medical help. A single inhalation of 0.1% of the gas can cause coma.

Eye Contact: Flush eyes with plenty water and call for medical help

Skin Contact: Wash area with soap and water, remove any contaminated clothing and get medical aid.

Depending on the physician's assessment, treatment may involve: inhalation of amyl nitrite, injection of sodium nitrite, administration of oxygen, corticosteroids and the use bronchodilators for bronchospasm.

Occurrences of Toxicity

Japan has had several recent suicide attempts by hydrogen sulphide gas caused by combining common detergent and bath salts. In 2004, Hong Kong prohibited retailers from selling the stink bomb toy as it was considered unsafe. The toy is said to contain a water soluble sulphur compound in an inner plastic bag, which when comes in contact with a dilute acid causes the package to inflate and burst releasing 20 mg of hydrogen sulphide. In Jamaica, there was a recent explosion of a 'Fart Bomb' toy which affected several children. As in the 'Fart Bomb' incident, The Caribbean Poison Information Network, located at the University of Technology, Jamaica gives information on poisons and engages the public in activities to reduce poisonings in Jamaica and the Caribbean.

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