

Dimethyl Disulfide Health Alert

Report suspected pesticide-related illness and injury to the Florida Department of Health in Hillsborough County at (813) 307-8010.

In August and September 2013 and 2014, the Florida Department of Health (DOH) received complaints of health effects following a strong chemical odor in Hillsborough County. Based on reported use of pesticides in the area, the Florida Department of Agriculture and Consumer Services (DACCS) informed DOH that the odor was likely due to a newly approved soil fumigant, Paladin, which contains dimethyl disulfide (DMDS) as the active ingredient. DMDS has a sulfurous odor similar to sulfur compounds added to gas and propane products to warn people of a leak. The odor threshold for DMDS is much lower than levels potentially affecting human health. As a result unpleasant odors will likely occur in and around areas of application.

DMDS Toxicity

DMDS has an odor threshold of approximately 7 ppb, which is much less than the health-based level considered by the EPA to be safe (55 ppb). DMDS products generally have a **low to moderate toxicity**; however, because they are used to control a wide range of pests, **large quantities are applied to agricultural fields, making them potentially hazardous.**

Symptoms

DMDS may cause irritation of the upper respiratory tract, eyes, and skin. Upper respiratory tract irritation may result in sneezing, coughing, sore throat, dyspnea, chest tightness, and a feeling of suffocation. DMDS has not been shown to cause allergic sensitization, birth defects, reproductive toxicity, or mutagenicity.

In some individuals, the odor of DMDS alone may cause nausea, headache, and dizziness. Often, these symptoms will fade when the odor goes away.

Inhalation of chloropicrin, a chemical used along with Paladin, may result in sore throat, coughing, labored breathing, dizziness, nausea, vomiting, bluish skin, and faintness. Chloropicrin is a powerful lachrymator (increases tear production).

Medical Treatment

The following actions can be taken if a patient presents with symptoms/signs following exposure to DMDS:

1. First Aid Treatment

- If exposure to the eyes, immediately flush with plenty of water or saline for at least 15 minutes. Specialized medical treatment should be provided promptly after flushing.
- If exposure to the skin, immediately wash with soap and plenty of water. Remove contaminated clothing and shoes (see #2 below on handling contaminated clothing).

- If ingested, do NOT induce vomiting. Give water to drink. Within an hour of ingestion, consider gastric emptying followed by activated charcoal.
 - If inhaled, move to fresh air. Even though initial symptoms and signs are mild, keep the patient quiet and in a semi-reclined position. If breathing is difficult, give oxygen.
2. Wear rubber gloves when decontaminating the patient or handling clothing that may be contaminated. Save clothing in a clean plastic bag.
 3. Manage patients with signs and symptoms of severe poisoning, including pulmonary edema, respiratory failure, shock, renal failure, and seizure in an intensive care unit.
 4. Call the Florida Poison Information Center Network (FPICN) at 1-800-222-1222 for poison information and treatment recommendations.
 5. There is no laboratory test available to determine DMDS levels in biological samples (blood, urine, etc.). Poisonings are treated symptomatically and with supportive care.

Paladin Background

Paladin was first commercially used in Florida in 2012, but the product was not applied to a significant amount of acreage until 2013. Paladin is used in controlling weeds, soil-borne plant pathogens, and nematodes in soils used to grow vine bearing vegetables and fruits, strawberries, blueberries, field-grown ornamentals, and forest nursery stock.

Hillsborough Paladin Investigation, 2014

In 2014, Paladin application began in Hillsborough County during the second week of August and continued until September 6th. The first complaint of an illness was reported to DOH on August 28th. A DOH investigation classified 43 individuals of 66 interviewed as suspect cases. The majority of cases were classified with a low severity of illness. *For additional information about this investigation, including definitions of case classifications (e.g., suspect), community meetings, please review the final DOH report and Q&A document posted at www.SulfurOdorSmell.com*

Disease Reporting Requirements for Health Care Professionals

Acute pesticide-related illness and injury is listed as a notifiable disease in the State of Florida under Statute 381.0031, Chapter 64D-3, *Florida Administrative Code (F.A.C.)*. Health care providers, laboratories, and other public health personnel are required to report the occurrence of reportable diseases as defined in the Chapter. Report suspected pesticide-related illness and injury to the Florida Department of Health in Hillsborough County at (813) 307-8010.