

Community Outreach

Paladin® (Dimethyl disulfide)



What is Paladin® Soil Fumigant?

Paladin® Soil Fumigant (Dimethyl disulfide or DMDS), a methyl bromide alternative, is a broad-spectrum fumigant used for the control or suppression of nematodes, various soil-borne plant diseases and weeds. Methyl bromide is an ozone-depleting chemical which the EPA is gradually banning from use as a soil fumigant.

Paladin® will be applied to fields where tomatoes, peppers, eggplants, cucurbit crops, strawberries, blueberries, ornamentals and forestry nursery crops will be produced.

Certain crops such as onions, garlic, radishes, cabbage, broccoli, etc. produce DMDS. DMDS has a short persistence in the environment and no ozone depletion potential. Paladin® fumigant residue is not found in or on crops grown in treated soil.

DMDS has a distinctive, garlic-like odor (one of its other uses is as a registered food additive providing a garlic odor and flavor). Because of this distinctive odor of DMDS and related sulfur compounds, they are often added to natural gas and propane as an odorant to warn of leaks and protect people. The sulfur odor from DMDS can be mistaken for a gas leak.

What fumigants are and how they work

Fumigants are important for the domestic production of fruits and vegetables and provide consumers with high-quality produce at an economical cost. Soil fumigants control parasitic nematodes, diseases and weed populations in farm field soils, and by doing so improve a field's yield and the quality of produce. For the public, soil fumigation results in more fresh fruits and vegetables, grown domestically and available at lower prices.

Soil fumigants are pesticides which form gases when applied into a farm field's soil. By forming gas, fumigants distribute throughout the planting soil profile, which is a key to their effectiveness. They are applied to empty fields during the period after harvest and before new planting. The fields are covered with plastic tarps to help retain the fumigants within the soil while they work, reducing emissions from the field. Soil fumigants play a very important part in agriculture, but they also have the potential to pose risk concerns to people involved in the application, workers who reenter fumigated fields, and people who may be near the treated area.

Fumigants are restricted-use products whose application must be supervised on-site by a trained, certified Applicator.

Buffer Zones – protection for the community

Buffer zones have been determined for DMDS to protect the community.

There can be no occupied buildings within the buffer zone and entry into the buffer zone is restricted. Vehicular and bicycle traffic on public and private roadways through the buffer zone is permitted.

Paladin® may not be applied within 1/4 mile of nursing homes, hospitals, licensed schools, licensed day care facilities, licensed assisted living facilities (licensed by State or local governments) or prisons that will be occupied during the buffer zone period.

Buffer zone perimeters must be clearly posted or otherwise controlled to restrict entry.

Buffer zones remain in effect for 48 hours following the completion of a fumigation treatment.

Incidental releases of DMDS outside the buffer zone may occur due to variations in weather conditions and geography.

Early signs & symptoms of exposure

DMDS has a strong, objectionable odor which can be detected at concentrations significantly below the levels that can potentially cause harm. The odor of DMDS may cause nausea, headache, drowsiness or dizziness.

The odor threshold for DMDS is about 7 parts per billion (ppb). The Human Equivalent Concentration (HEC) for the no observed adverse effects level is 1.65 parts per million. The US EPA level of concern is 55 ppb.

At concentrations significantly greater than its odor threshold, Paladin® may cause nasal irritation. Exposure to liquid DMDS may cause skin irritation.

Based on toxicology studies, DMDS is no more than slightly toxic and slightly irritating when applied to the skin. It is practically nontoxic if inhaled and slightly to moderately irritating to the respiratory tract and the eyes.

PALADIN®

It is considered moderately toxic if swallowed. DMDS is not a skin sensitizer or known to cause allergic responses. It is not mutagenic or a suspected carcinogen. It is not a developmental or reproductive toxicant.

Appropriate steps to take to mitigate exposures

Paladin® vapor is heavier than air and as a result of gravity will tend to flow into geographic depressions during atmospheric inversions. If you are in a geographically depressed area near a recent Paladin® application and detect a pronounced garlic-like odor, move uphill and away from the fumigated field to reduce exposure.

Odor should dissipate once the atmospheric conditions resolve. Residues of Paladin® do not remain on surfaces. When odor is no longer detected, it is safe to return to the area.

How to report incidents

In case of any personal or potential exposure, contact the Paladin Hotline: (800) 286.4110. If unable to reach the Hotline or in case of transportation related product spills, contact your local emergency responders or CHEMTREC (800) 424.9300. CHEMTREC will provide immediate advice and forwards all calls regarding Paladin to Arkema Inc. for further assistance.

For more information and non-emergency contact

For more information, see <http://www.paladin.com> or refer to the product MSDS and label. **Paladin Hotline: 800.286.4110**