SAFETY DATA SHEET

Updated on 27/08/2024

1. Material Identification

Product Name : Disulfoton
Catalog Number : io-2298
CAS Number : 298-04-4
Identified uses : Laboratory chemicals, manufacture of chemical compounds
Company : Ionz

>> R&D Use only

2. Hazards Identification

GHS Classification:

Flammable liquid (category 2)
Acute toxicity, oral (Category 3)
Acute toxicity, dermal (Category 3)
Acute toxicity, inhalation (Category 3)
Specific target organ toxicity, single exposure (Category 1)

Pictogram(s)

GHS Hazard Statements

>> H300 (100%): Fatal if swallowed [Danger Acute toxicity, oral]

>> H310 (100%): Fatal in contact with skin [Danger Acute toxicity, dermal]

>> H330 (12.77%): Fatal if inhaled [Danger Acute toxicity, inhalation]

>> H400 (100%): Very toxic to aquatic life [Warning Hazardous to the aquatic environment, acute hazard]

>> H410 (100%): Very toxic to aquatic life with long lasting effects [Warning Hazardous to the aquatic environment, long-term hazard]

Precautionary Statement Codes

>> P260, P262, P264, P270, P271, P273, P280, P284, P301+P316, P302+P352, P304+P340, P316, P320, P321, P330, P361+P364, P391, P403+P233, P405, and P501

Health Hazards:

>> It is classified as super toxic. Probable oral lethal dose in humans is less than 5 mg/kg or a taste (less than 7 drops) for a 70 kg (150 lb.) person. It is poisonous and may be fatal if inhaled, swallowed, or absorbed through the skin. Contact may cause burns to skin and eyes. (EPA, 1998)

>> Material may burn but does not ignite easily. Cylinder may explode in the heat of fire. Poisonous gases may be generated from the fire or runoff water. Oxidizable in air. (EPA, 1998)

>> Combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire.

3. Composition/Information On Ingredients

Chemical name : Disulfoton
CAS Number : 298-04-4
Molecular Formula : C8H19O2PS3
Molecular Weight : 274.4000 g/mol

4. First Aid Measures

First Aid:

>> Note: Disulfoton is a cholinesterase inhibitor.

>> Signs and Symptoms of Acute Disulfoton Exposure: Acute exposure to disulfoton may produce the following signs and symptoms: pinpoint pupils, blurred vision, headache, dizziness, muscle spasms, and profound weakness. Vomiting, diarrhea, abdominal pain, seizures, and coma may also occur. The heart rate may decrease following oral exposure or increase following dermal exposure. Hypotension (low blood pressure) and chest pain may be noted. Hypertension (high blood pressure) is not uncommon. Respiratory symptoms include dyspnea (shortness of breath), respiratory depression, and respiratory paralysis. Psychosis may occur.

>> Emergency Life-Support Procedures: Acute exposure to disulfoton may require decontamination and life support for the victims. Emergency personnel should wear protective clothing appropriate to the type and degree of contamination. Air-purifying or supplied-air respiratory equipment should also be worn, as necessary. Rescue vehicles should carry supplies such as plastic sheeting and disposable plastic bags to assist in preventing spread of contamination.

>> Inhalation Exposure:

>> 1. Move victims to fresh air. Emergency personnel should avoid self-exposure to disulfoton.

>> 2. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.

>> 3. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.

>> 4. Transport to a health care facility.

>> Dermal/Eye Exposure:

>> 1. Remove victims from exposure. Emergency personnel should avoid self- exposure to disulfoton.

>> 3. Remove contaminated clothing as soon as possible.

>> 4. If eye exposure has occurred, eyes must be flushed with lukewarm water for at least 15 minutes.

>> 5. Wash exposed skin areas three times with soap and water.

>> 6. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.

>> 7. Transport to a health care facility.

>> Ingestion Exposure:

>> 1. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.

>> 2. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.

>> 3. Vomiting may be induced with syrup of Ipecac. If elapsed time since ingestion of disulfoton is unknown or suspected to be greater than 30 minutes, do not induce vomiting and proceed to Step

>> 4.Ipecac should not be administered to children under 6 months of age.Warning: Ingestion of disulfoton may result in sudden onset of seizures or loss of consciousness. Syrup of Ipecac should be administered only if victims are alert, have an active gag-reflex, and show no signs of impending seizure or coma. If ANY uncertainty exists, proceed to Step

>> 4.The following dosages of Ipecac are recommended: children up to 1 year old, 10 mL (1/3 oz); children 1 to 12 years old, 15 mL (1/2 oz); adults, 30 mL (1 oz). Ambulate (walk) the victims and give large quantities of water. If vomiting has not occurred after 15 minutes, Ipecac may be readministered. Continue to ambulate and give water to the victims. If vomiting has not occurred within 15 minutes after second administration of Ipecac, administer activated charcoal.

>> 4. Activated charcoal may be administered if victims are conscious and alert. Use 15 to 30 g (1/2 to 1 oz) for children, 50 to 100 g (1-3/4 to 3-1/2 oz) for adults, with 125 to 250 mL (1/2 to 1 cup) of water.

>> 5. Promote excretion by administering a saline cathartic or sorbitol to conscious and alert victims. Children require 15 to 30 g (1/2 to 1 oz) of cathartic; 50 to 100 g (1-3/4 to 3-1/2 oz) is recommended for adults.

>> 6. Transport to a health care facility. (EPA, 1998)

First Aid Measures

Inhalation First Aid

>> Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.

Skin First Aid

>> Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

Eye First Aid

>> First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Ingestion First Aid

>> Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention .

5. Fire Fighting Measures

>> Fight fire from maximum distance. Dike fire control water for later disposal; do not scatter the material. Wear positive pressure breathing apparatus and special protective clothing.

>> Extinguish with dry chemical, carbon dioxide, water spray, fog, or foam. (EPA, 1998)

>> Use water spray, powder, foam, carbon dioxide.

6. Accidental Release Measures

Isolation and Evacuation:

Isolation and evacuation measures to take when a large amount of this chemical is accidentally released in an emergency.

>> Excerpt from ERG Guide 152 [Substances - Toxic (Combustible)]:

>> IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

>> SPILL: Increase the immediate precautionary measure distance, in the downwind direction, as necessary.

>> FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

Spillage Disposal:

Methods for containment and safety measures to protect workers dealing with a spillage of this chemical.

>> Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

7. Handling And Storage

Safe Storage:

>> Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs. Well closed.

Storage Conditions:

>> Store in original container, preferably in a locked area, away from children, food, feed.

8. Exposure Control/ Personal Protection

REL-TWA (Time Weighted Average)

>> 0.1 mg/m³

>> TWA 0.1 mg/m3 [skin]

>> none See Appendix G

>> 0.05 [mg/m3], inhalable fraction and vapor

>> 0.05 mg/m

TLV-TWA (Time Weighted Average)

>> 0.05 mg/m³ (inhalable fraction and vapor) [2000]

Inhalation Risk:

>> Evaporation at 20 °C is negligible; a harmful concentration of airborne particles can, however, be reached quickly on spraying.

Effects of Short Term Exposure:

>> The substance may cause effects on the nervous system. This may result in convulsions and respiratory failure. Exposure above the OEL could cause death. Cholinesterase inhibition. The effects may be delayed. Medical observation is indicated.

Effects of Long Term Exposure:

>> Cholinesterase inhibition. Cumulative effects are possible. See Acute Hazards/Symptoms.

Acceptable Daily Intakes:

An estimate of the amount of a chemical in food or drinking water that can be consumed daily over a lifetime without presenting an appreciable risk to health. It is usually expressed as milligrams of the substance per kilogram of body weight per day and applies to chemicals such as food additives, pesticide residues and veterinary drugs.

>> FAO/WHO ADI: 0.0003 mg/kg bw

Fire Prevention

>> NO open flames.

Exposure Prevention

>> STRICT HYGIENE! PREVENT GENERATION OF MISTS! IN ALL CASES CONSULT A DOCTOR!

Inhalation Prevention

>> Use ventilation, local exhaust or breathing protection.

Skin Prevention

>> Protective gloves. Protective clothing.

Eye Prevention

>> Wear face shield or eye protection in combination with breathing protection.

Ingestion Prevention

>> Do not eat, drink, or smoke during work. Wash hands before eating.

Exposure Control and Personal Protection

Exposure Summary

>> Biological Exposure Indices (BEI) [ACGIH] - Acetylcholinesterase activity in red blood cells = 70% of individual's baseline; Butylcholinesterase activity in serum or plasma = 60% of individual's baseline; Sample at end of shift; [TLVs and BEIs]

9. Physical And Chemical Properties

Molecular Weight:

>> 274.4

Exact Mass:

>> 274.02848036

Physical Description:

>> Disulfoton is a dark, yellow, oily liquid with a characteristic sulfur odor. It is a water emulsifiable liquid. It is toxic by inhalation, skin absorption, and/or ingestion. Exposure to skin or eyes may cause burns. It is combustible but does not ignite easily. When exposed to high temperature this material may emit toxic fumes. It is used as a pesticide. May be found in the form of a dry mixture where the liquid is absorbed onto a dry carrier.

>> OILY COLOURLESS LIQUID WITH CHARACTERISTIC ODOUR.

Color/Form:

>> Pure compound: yellow liquid

Odor:

>> Characteristic, sulfur odor.

Boiling Point:

>> 270 to 271 °F at 1.5 mmHg (EPA, 1998)

>> at 0.2kPa: 132-133 °C

Melting Point:

>> Greater than -13 °F (EPA, 1998)

Flash Point:

>> greater than 180 °F (NIOSH, 2024)

Solubility:

>> 0.003 % at 73 °F (NIOSH, 2024)

>> Solubility in water: none

Density:

>> 1.144 (EPA, 1998) - Denser than water; will sink

>> Relative density (water = 1): 1.14

Vapor Pressure:

>> 0.00018 mmHg at 68 °F (EPA, 1998)

>> Vapor pressure, Pa at 20 °C: 0.02

LogP:

>> log Kow = 4.02

>> 4.02

Stability/Shelf Life:

>> OXIDIZABLE IN AIR /SRP: TO SULFOXIDES, SULFOXONES AND THEIR OXONES/.

Decomposition:

>> /Decomposition half-life/ (22 °C) 133 days (pH 4), 169 days (pH 7), 131 days (pH 9). Photolysis DT50 1-4 days.

Refractive Index:

>> Index of refraction: 1.5348 for 20 °C and sodium light

10. Stability And Reactivity

>> Slightly soluble in water.

11. Toxicological Information

Toxicity Summary:

>> Disulfoton is a cholinesterase or acetylcholinesterase (AChE) inhibitor. A cholinesterase inhibitor (or 'anticholinesterase') suppresses the action of acetylcholinesterase. Because of its essential function, chemicals that interfere with the action of acetylcholinesterase are potent neurotoxins, causing excessive salivation and eye-watering in low doses, followed by muscle spasms and ultimately death. Nerve gases and many substances used in insecticides have been shown to act by binding a serine in the active site of acetylcholine esterase, inhibiting the enzyme completely. Acetylcholine esterase breaks down the neurotransmitter acetylcholine, which is released at nerve and muscle junctions, in order to allow the muscle or organ to relax. The result of acetylcholine esterase inhibition is that acetylcholine builds up and continues to act so that any nerve impulses are continually transmitted and muscle contractions do not stop. Among the most common acetylcholinesterase inhibitors are phosphorus-based compounds, which are designed to bind to the active site of the enzyme. The structural requirements are a phosphorus atom bearing two lipophilic groups, a leaving group (such as a halide or thiocyanate), and a terminal oxygen.

EPA Provisional Peer-Reviewed Toxicity Values:

This section provides EPA Provisional Peer-Reviewed Toxicity Values (PPRTVs) and links of related assessment documents.

Chemical Substance

>> Disulfoton

PPRTV Assessment

>> PDF Document

Last Revision

>> 2002

Evidence for Carcinogenicity:

Evidence that this chemical does or may cause cancer. The information here is collected from various sources by the Hazardous Substances Data Bank (HSDB).

>> Cancer Classification: Group E Evidence of Non-carcinogenicity for Humans

Carcinogen Classification:

This section provides the International Agency for Research on Cancer (IARC) Carcinogenic Classification and related monograph links. In the IARC Carcinogenic classification, chemicals are categorized into four groups: Group 1 (carcinogenic to humans), Group 2A (probably carcinogenic to humans), Group 2B (possibly carcinogenic to humans), and Group 3 (not classifiable as to its carcinogenicity to humans).

>> No indication of carcinogenicity to humans (not listed by IARC).

Health Effects:

>> Acute exposure to cholinesterase inhibitors can cause a cholinergic crisis characterized by severe nausea/vomiting, salivation, sweating, bradycardia, hypotension, collapse, and convulsions. Increasing muscle weakness is a possibility and may result in death if respiratory muscles are involved. Accumulation of ACh at motor nerves causes overstimulation of nicotinic expression at the neuromuscular junction. When this occurs symptoms such as muscle weakness, fatigue, muscle cramps, fasciculation, and paralysis can be seen. When there is an accumulation of ACh at autonomic ganglia this causes overstimulation of nicotinic expression in the sympathetic system. Symptoms associated with this are hypertension, and hypoglycemia. Overstimulation of nicotinic acetylcholine receptors in the central nervous system, due to accumulation of ACh, results in anxiety, headache, convulsions, ataxia, depression of respiration and circulation, tremor, general weakness, and potentially coma. When there is expression of muscarinic overstimulation due to excess acetylcholine at muscarinic acetylcholine receptors symptoms of visual disturbances, tightness in chest, wheezing due to bronchoconstriction, increased bronchial secretions, increased salivation, lacrimation, sweating, peristalsis, and urination can occur. Certain reproductive effects in fertility, growth, and development for males and females have been linked specifically to organophosphate pesticide exposure. Most of the research on reproductive effects has been conducted on farmers working with pesticides and insecticdes in rural areas. In females menstrual cycle disturbances, longer pregnancies, spontaneous abortions, stillbirths, and some developmental effects in offspring have been linked to organophosphate pesticide exposure. Prenatal exposure has been linked to impaired fetal growth and development. Neurotoxic effects have also been linked to poisoning with OP pesticides causing four neurotoxic effects in humans: cholinergic syndrome, intermediate syndrome, organophosphate-induced delayed polyneuropathy (OPIDP), and chronic organophosphate-induced neuropsychiatric disorder (COPIND). These syndromes result after acute and chronic exposure to OP pesticides.

Exposure Routes:

>> The substance can be absorbed into the body by inhalation of its aerosol, through the skin and by ingestion.

>> inhalation, skin absorption, ingestion, skin and/or eye contact

Inhalation Exposure

>> Pupillary constriction, muscle cramp, excessive salivation. Sweating. Nausea. Laboured breathing. Dizziness. Convulsions. Unconsciousness.

Skin Exposure

>> EASILY ABSORBED! See Inhalation.

Ingestion Exposure

>> Abdominal cramps. Diarrhoea. Vomiting. Further see Inhalation.

>> irritation eyes, skin; nausea, vomiting, abdominal cramps, diarrhea, salivation; headache, dizziness, lassitude (weakness, exhaustion); rhinorrhea (discharge of thin nasal mucus), chest tightness; blurred vision, miosis; cardiac irreg; muscle fasciculation; dyspnea (breathing difficulty); eye, skin burns

Target Organs:

Organs that are affected by exposure to this chemical. Information in this section reflects human data unless otherwise noted.

>> Developmental (effects during periods when organs are developing) , Neurological (Nervous System)

>> Nervous

Adverse Effects:

An adverse effect is an undesired harmful effect resulting from a medical treatment or other intervention.

>> Other Poison - Organophosphate

>> ACGIH Carcinogen - Not Classifiable.

Toxicity Data:

>> LC50 (rat) = 200 mg/m3

Minimum Risk Level:

The minimal risk level (MRL) is an estimate of the amount of a chemical a person can eat, drink, or breathe each day without a detectable risk to health

>> Acute Inhalation: 0.006 mg/m3 (L134) Intermediate Inhalation: 0.0002 mg/m3 (L134) Acute Oral: 0.001 mg/kg/day (L134) Intermediate Oral: 0.00009 mg/kg/day (L134) Chronic Oral: 0.00006 mg/kg/day (L134)

Treatment:

Treatment when exposed to toxin

>> If the compound has been ingested, rapid gastric lavage should be performed using 5% sodium bicarbonate. For skin contact, the skin should be washed with soap and water. If the compound has entered the eyes, they should be washed with large quantities of isotonic saline or water. In serious cases, atropine and/or pralidoxime should be administered. Anti-cholinergic drugs work to counteract the effects of excess acetylcholine and reactivate AChE. Atropine can be used as an antidote in conjunction with pralidoxime or other pyridinium oximes (such as trimedoxime or obidoxime), though the use of '-oximes' has been found to be of no benefit, or possibly harmful, in at least two meta-analyses. Atropine is a muscarinic antagonist, and thus blocks the action of acetylcholine peripherally.

Interactions:

>> DISULFOTON WAS FED TO RATS IN A DIETARY CONCN THAT DEPRESSED ACETYLCHOLINESTERASE BUT WAS INSUFFICIENT TO CAUSE CHOLINERGIC SIGNS. IT INDUCED TOLERANCE TO THE LETHAL EFFECTS OF CARBACHOL.

Antidote and Emergency Treatment:

>> Basic treatment: Establish a patent airway. Suction if necessary. Aggressive airway control may be needed. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary ... . Monitor for shock and treat if necessary ... . Anticipate seizures and treat if necessary ... . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport ... . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal ... . /Organophosphates and related compounds/

Human Toxicity Excerpts:

>> /HUMAN EXPOSURE STUDIES/ A farmer who had worn disulfoton-contaminated gloves for several days developed signs of disulfoton toxicity (weakness, fatigue, and cyanosis and had to be hospitalized. Because a considerable amount (not

otherwise specified) of disulfoton was detected in the serum and because blood cholinesterase activity was severely depressed, it can be assumed that the patient had absorbed a considerable amount of disulfoton through the skin. The patient recovered following treatment for the toxicosis.

Non-Human Toxicity Excerpts:

>> /LABORATORY ANIMALS: Acute Exposure/ Breathing difficulties were observed in rats given a single gavage dose of 1.0 mg/kg & in mice given 5.0 mg/kg disulfoton. Rats given 0.5 mg/kg & mice given 2.5 mg/kg did not display breathing disorders.

Non-Human Toxicity Values:

>> LD50 CAPRA AEGAGRUS (DOMESTIC GOAT) MALE ORAL <15.0 MG/KG, > 60 MO OLD /SAMPLE PURITY 97%/

Populations at Special Risk:

>> Work ... must not be carried out by young persons under 18 yr, expectant or nursing mothers, or persons for whom work with toxic chemicals is contraindicated on account of their state of health; the same applies to alcoholics. Contraindications for work with organophosphorus pesticides are organic diseases of the CNS, mental disorders & epilepsy, pronounced endocrine & vegetative disorders, pulmonary tuberculosis, bronchial asthma, chronic respiratory diseases, cardiovascular diseases and circulatory disorders, gastrointestinal diseases (peptic ulcer), gastroenterocolitis, diseases of the liver & kidneys, eye diseases (chronic conjunctivitis and keratitis). /Organophosphorus pesticides/

12. Ecological Information

Resident Soil (mg/kg)

>> 2.50e+00

Industrial Soil (mg/kg)

>> 3.30e+01

Tapwater (ug/L)

>> 5.00e-01

MCL (ug/L)

>> 2.00e+01

Risk-based SSL (mg/kg)

>> 9.40e-04

Chronic Oral Reference Dose (mg/kg-day)

>> 4e-05

Volatile

>> Volatile

Mutagen

>> Mutagen

Fraction of Contaminant Absorbed in Gastrointestinal Tract

>> 1

Fraction of Contaminant Absorbed Dermally from Soil

>> 0.1

ICSC Environmental Data:

>> The substance is very toxic to aquatic organisms. This substance may be hazardous to the environment. Special attention should be given to birds and bees. This substance does enter the environment under normal use. Great care, however, should be taken to avoid any additional release, for example through inappropriate disposal.

Sediment/Soil Concentrations:

Concentrations of this compound in sediment/soil.

>> SOIL: Disulfoton was detected in bottom soil from tailwater pits used to collect irrigation runoff from corn fields, 6 samples, 83% pos, 13.8 ppb mean concn, 32.7 ppb max concn and both corn and sorghum fields, 1 sample, 100% pos, 11.0

ppb(1). 4 of 822 soil samples collected from 49 agrichemical facilities located throughout Illinois tested positive for disulfoton(2). A median concn 827 ug/kg, mean concn 1,036 ug/kg, mode 360 ug/kg, concn range 260-4,800 ug/kg, with detection range limits of 18-60 ug/kg were reported for the samples collected at 4 sites(2).

Average Daily Intake:

The average amount of the compound taken into the body through eating, drinking, or breathing.

>> The average daily intake of disulfoton estimated from the Food and Drug Administration's 1990 Total Diet study was 2 ug/kg/day(1). The estimated exposure for 6-11 month olds was <0.0001 ug/kg/day; 14-16 yr old males, 0.0002 ug/kg/day; and 60-65 yr old females was 0.0003 ug/kg/day(1).

13. Disposal Considerations

Spillage Disposal

>> Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Disposal Methods

>> Group I Containers: Combustible containers which formerly contained organic or metallo-organic pesticides, except organic mercury, lead, cadmium, or arsenic compounds, should be disposed of in a pesticide incinerator or buried in a specially designated landfill as noted in 165.8(a); except that small quantities of such containers may be burned in open fields by the user of the pesticide when such open burning is permitted by State and local regulations, or buried singly by the user in open fields with due regard for protection of surface and sub-surface water. /Organo or metallo-organic pesticides/

>> Group II Containers: Non-combustible containers whichformerly contained organic or metallo-organic pesticides except organic mercury, lead, cadmium, or arsenic compounds should first be triple-rinsed. Containers in good condition may then be returned to the pesticide manufacturer or formulator of the pesticide product, or drum reconditioner for reuse with the same chemical class of pesticide previously contained provided such reuse is legal under currently applicable US Department of Transportation regulations including those set forth in 49 CFR 173.28. Other rinsed metal containers should be punctured to facilitate drainage prior to transport to a scrap metal facility for recycling or for disposal or burial. All rinsed containers may be crushed an and disposed of by burial in a sanitary landfill, in conformance with State and local standards or buried in the field by the user of the pesticide. Unrinsed containers should be disposed of in a specially designated landfill, or subjected to incineration in a pesticide incinerator. /Organic or metallo-organic pesticides/

>> Generators of waste (equal to or greater than 100 kg/mo) containing this contaminant, EPA hazardous waste number P039, must conform with USEPA regulations in storage, transportation, treatment and disposal of waste.

>> Good candidate for liquid injection incineration with a temperature range of 650 to 1600 °C and a residence time of 0.1 to 2 seconds. Also, a good candidate for rotary kiln incineration with a temperature range of 820 to 1600 °C and a residence times for liquids and gases, seconds; Solids, hours. Also, a good candidate for fluidized bed incineration with a temperature range of 450 to 980 °C with residence times for liquids and gases, seconds; Solids, longer.

>> For more Disposal Methods (Complete) data for DISULFOTON (6 total), please visit the HSDB record page.

14. Transport Information

DOT

Disulfoton
6.1
UN Pack Group: I
Reportable Quantity of 1 lb or 0

IATA

Disulfoton
6.1,
UN Pack Group: I

15. Regulatory Information

Federal Drinking Water Guidelines:

Federal drinking water guidelines (e.g. maximum containment level (MCL)) for this chemical. In general, these guidelines are recommendations and not legally enforceable.

>> EPA 0.3 ug/L

Clean Water Act Requirements:

The Clean Water Act (CWA) of 1972 establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Under CWA, the U.S. Environmental Protection Agency (EPA) developed the Toxic Pollutant List (40 CFR Part 401.15) and the Priority Pollutant List (40 CFR Part 423, Appendix A). These lists are to be used by EPA and States to develop the Effluent Guidelines regulations and ensure water quality criteria and standards.

>> Disulfoton is designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance. This designation includes any isomers and hydrates, as well as any solutions and mixtures containing this substance.

Regulatory Information

New Zealand EPA Inventory of Chemical Status

>> Disulfoton: Does not have an individual approval but may be used as a component in a product covered by a group standard. It is not approved for use as a chemical in its own right.

16. Other Information

Toxic Combustion Products:

Toxic products (e.g., gases and vapors) produced from the combustion of this chemical.

>> Highly toxic oxides of sulfur and phosphorus are emitted.

Other Safety Information

Chemical Assessment

>> IMAP assessments - Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester: Human health tier I assessment

>> IMAP assessments - Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester: Environment tier I assessment