

Poison Facts:

Low Chemicals: Parathion

Properties of the Chemical

Parathion is a pale yellow or brown liquid with a faint garlic-like odor.

Uses of the Chemical

Parathion is a broad-spectrum, organophosphate pesticide used to control insects and mites. It is available in dust, emulsion concentrate, granular, ULV liquid and wettable-powder formulations.

Absorption, Distribution, Metabolism and Excretion (ADME)

The organophosphates are efficiently absorbed orally, dermally and through inhalation. Organophosphates are distributed to most organ systems and have been detected at higher levels in the fat and tissue than in the blood. Parathion is hydrolyzed very slowly at pH 1-7, but undergoes rapid conversion into the active transformation product paraoxon. Parathion is an indirect inhibitor of cholinesterase. As a result, signs and symptoms of poisoning develop after a latent period and may continue to increase after exposure has been discontinued.

Clinical Effects Of Acute Exposure

The organophosphates are only minimally irritating to the skin, eyes or mucous membranes. However, they are absorbed through all routes. Every exposure can lead to systemic symptoms.

Effects can be divided into three categories:

- **Muscarinic symptoms:** These include bradycardia, bronchospasm, bronchorrhea, salivation, lacrimation, diaphoresis, vomiting, diarrhea, urination and miosis.
- **Nicotinic symptoms:** These include tachycardia, hypertension, fasciculations, mydriasis, muscle cramps and weakness.
- **Central effects:** These include CNS depression, agitation, confusion, mydriasis delirium, coma, seizures and respiratory paralysis.

Adults are more likely to demonstrate the muscarinic effects, and children are more susceptible to the nicotinic effects.

In-Field Treatment Prior to Arrival at a Health Care Facility

- **Ocular exposures:** Immediately flush the eyes with water for 15 minutes, occasionally lifting the upper and lower lids.
- **Dermal exposures:** Immediately remove all contaminated clothing, and wash thoroughly with soap and water. Make sure to shampoo the hair if exposed.
- **Inhalation exposures:** Move the patient from the contaminated area. DO NOT use direct mouth-to-mouth resuscitation.
- **Ingestion exposures:** Give the patient small amounts of liquid. Do not give more than 1 cup to an adult or 1/2 cup to a child.

Special note to first responders:

- Wear a positive-pressure Self-Contained Breathing Apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer.

Treatment of Exposures in a Health Care Facility

- **Ocular exposures:** Irrigate exposed eyes with room-temperature 0.9 percent saline for 15 to 30 minutes. Monitor for systemic symptoms.
- **Dermal exposures:** Wash exposed skin with soap and water for 15 to 30 minutes. Special care must be taken to avoid the exposure of health care personnel to the chemical. Monitor the patient for systemic symptoms.
- **Inhalation exposures:** Organophosphate vapors initially are irritating and may cause bronchospasm. However, the organophosphates are well-absorbed by inhalation, and after the initial irritation has resolved, the patient may develop systemic symptoms. Systemic respiratory effects include increased bronchial secretions, followed by respiratory failure and non-cardiogenic pulmonary edema. Acute respiratory insufficiency is the main cause of death in exposed patients.
- **Ingestion exposures:** GI decontamination is needed for recent ingestions. The liquid forms of the organophosphates will frequently contain a hydrocarbon base. Protect the airway from aspiration.

For more poison prevention and first aid information, call the

Poison Control Center
Serving the Residents of Kansas

Toll-free Hotline
1-800-222-1222

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