



Hazards of Common Pesticides: A Quick Reference Guide

For additional information on these and other pesticides, visit Pesticide Action Network's www.pesticideinfo.org

Active Ingredient	Use Type	Carcinogen Status ^{1,2}	Neurotoxicant by Cholinesterase Inhibition ³	Endocrine Disruptor Status ^{1,4}	Birth Defects/ Reproductive Harm ^{1,5}	Acute Toxicity of Pure Chemical ⁶	Symptoms of Acute Poisoning ⁷
2,4-D, esters and salts	Herbicide	Possible	No	Suspected	Not Evaluated	Moderate	• Irritating to skin and mucous membranes. Vomiting, diarrhea, headache, confusion, bizarre or aggressive behavior, peculiar odor on breath. Kidney failure, rapid heartbeat.
4-Aminopyridine	Avicide	Unclassifiable	No	Not Evaluated	Not Evaluated	High	• Severe muscle spasms, seizures. Abdominal pain, nausea, and vomiting. Weakness, dizziness, profuse sweating.
Acephate	Insecticide	Possible	Yes	Not Evaluated	Not Evaluated	Slight	• Headache, excessive salivation and tearing, muscle twitching, nausea, diarrhea. • Respiratory depression, seizures, loss of consciousness. Pinpoint pupils.
Aluminum phosphide	Fumigant	Not Evaluated	No	Not Evaluated	Not Evaluated	High	• Irritating to skin and eyes (redness, burning). Sore throat, cough, shortness of breath. Headache, dizziness, nausea, vomiting, diarrhea, abdominal pain. Convulsions, shock or collapse and unconsciousness. Delayed lung edema aggravated by physical effort.
Atrazine	Herbicide	Possible	No	Suspected	Not Evaluated	Slight	• Systemic toxicity is unlikely unless large amounts have been ingested. Irritating to eyes, skin, and respiratory tract.
Avermectin	Insecticide	Not Likely	No	Not Evaluated	Not Evaluated	High	• Irritating to eyes and skin. Tremors, incoordination, lethargy, excitation, pupil dilation. Central nervous system depression.
Bacillus thuringiensis	Insecticide	Not Evaluated	No	Not Evaluated	Not Evaluated	Slight	• Irritating to the eyes and respiratory tract. May cause infection or corneal ulcers in the eyes. If ingested, may cause bacterial gastroenteritis: abdominal cramps, vomiting and diarrhea.
Benomyl	Fungicide	Possible	No	Suspected	Yes	Slight	• Irritating to eyes and skin. Can cause skin allergies.
Bensulide	Herbicide	Not Likely	Yes	Not Evaluated	Not Evaluated	Moderate	• Headache, excessive salivation and tearing, muscle twitching, nausea, diarrhea. • Respiratory depression, seizures, loss of consciousness. Pinpoint pupils.
Bifenthrin	Insecticide	Possible	No	Suspected	Not Evaluated	Moderate	• Central nervous system toxicity: seizures, numbness. Abnormal facial sensation, dizziness, salivation, headache, fatigue, vomiting, diarrhea, and irritability to sound or touch. In severe cases, lungs fill with fluid and involuntary muscle movements can develop.
Boric acid	Insecticide	Not Likely	No	Not Evaluated	Not Evaluated	Slight	• Moderately irritating to skin and respiratory tract. Nausea, persistent vomiting, abdominal pain, and diarrhea. Headache, weakness, lethargy, restlessness, tremors. • With severe poisoning, red and flaking skin rash, unconsciousness, respiratory depression, renal failure, and shock.
Bromacil	Herbicide	Possible	No	Not Evaluated	Not Evaluated	Slight	• Irritating to skin, eyes, and respiratory tract.
Bromadiolone	Rodenticide	Not Evaluated	No	Not Evaluated	Not Evaluated	Extreme	• Nosebleeds, bleeding gums, bloody urine, extensive bruising in the absence of injury. • Fatigue, shortness of breath on exertion.
Carbaryl	Insecticide	Possible	Yes	Suspected	Not Evaluated	Moderate	• Malaise, muscle weakness, dizziness, and sweating. Headache, salivation, nausea, vomiting, abdominal pain, and diarrhea. Central nervous system depression and fluid in the lungs.
Chlorophacinone	Rodenticide	Not Evaluated	No	Not Evaluated	Not Evaluated	Extreme	• Nosebleeds, bleeding gums, bloody urine, extensive bruising in the absence of injury. • Fatigue, shortness of breath on exertion. Fluid in the lungs. Seizures.
Chlorothalonil	Fungicide	Probable	No	Not Evaluated	Not Evaluated	High	• Irritating to skin, eyes and respiratory tract. Repeated overexposure may cause nosebleeds and skin rash.

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Chlorpyrifos	Insecticide	Not Likely	Yes	Suspected	Not Evaluated	Moderate	<ul style="list-style-type: none"> Headache, excessive salivation and tearing, muscle twitching, nausea, diarrhea. Respiratory depression, seizures, loss of consciousness. Pinpoint pupils.
Chlorthal-dimethyl	Herbicide	Possible	No	Not Evaluated	Not Evaluated	Not acutely toxic	<ul style="list-style-type: none"> Moderately irritating to eyes.
Copper naphthenate	Wood preservative	Not Evaluated	No	Not Evaluated	Not Evaluated	Moderate	<ul style="list-style-type: none"> Irritating to skin, respiratory tract and particularly to eyes. Metallic taste, nausea, vomiting and epigastric pain. In more severe cases, there may be blood in vomit or the victim may excrete black or tarry stools. Jaundice and swollen liver.
Cyfluthrin	Insecticide	Not Evaluated	No	Suspected	Not Evaluated	Moderate	<ul style="list-style-type: none"> Central nervous system toxicity: seizures, numbness. Abnormal facial sensation, dizziness, salivation, headache, fatigue, vomiting, diarrhea, and irritability to sound or touch. In severe cases, lungs fill with fluid and involuntary muscle movements can develop.
Cypermethrin	Insecticide	Possible	No	Suspected	Not Evaluated	High	<ul style="list-style-type: none"> Central nervous system toxicity: seizures, numbness. Abnormal facial sensation, dizziness, salivation, headache, fatigue, vomiting, diarrhea, and irritability to sound or touch. In severe cases, lungs fill with fluid and involuntary muscle movements can develop.
Deltamethrin	Insecticide	Unclassifiable	No	Suspected	Not Evaluated	Moderate	<ul style="list-style-type: none"> Central nervous system toxicity: seizures, numbness. Abnormal facial sensation, dizziness, salivation, headache, fatigue, vomiting, diarrhea, and irritability to sound or touch. In severe cases, lungs fill with fluid and involuntary muscle movements can develop.
Diazinon	Insecticide	Not Likely	Yes	Not Evaluated	Not Evaluated	Moderate	<ul style="list-style-type: none"> Headache, excessive salivation and tearing, muscle twitching, nausea, diarrhea. Respiratory depression, seizures, loss of consciousness. Pinpoint pupils.
Dicamba, salts and esters	Herbicide	Possible	No	Not Evaluated	Not Evaluated	Slight	<ul style="list-style-type: none"> Irritating to skin and mucous membranes. Vomiting, diarrhea, headache, confusion, bizarre or aggressive behavior, peculiar odor on breath. Kidney failure, rapid heartbeat.
Diphacinone	Rodenticide	Not Evaluated	No	Not Evaluated	Not Evaluated	Extreme	<ul style="list-style-type: none"> Nosebleeds, bleeding gums, bloody urine, extensive bruising in the absence of injury. Fatigue, shortness of breath on exertion. Fluid in the lungs. Seizures.
Diquat dibromide	Herbicide	Not Likely	No	Not Evaluated	Not Evaluated	Moderate	<ul style="list-style-type: none"> Burning pain in mouth, throat, chest, and upper abdomen. Fluid in the lungs, pancreatitis, and kidney damage. Neurologic toxicity: nervousness, irritability, restlessness, combativeness, disorientation, nonsensical statements, inability to recognize familiar persons, diminished reflexes, coma, seizures, and tremors.
Disodium octaborate tetrahydrate	Insecticide	Not Evaluated	No	Not Evaluated	Not Evaluated	Slight	<ul style="list-style-type: none"> Moderately irritating to skin and respiratory tract. Nausea, persistent vomiting, abdominal pain, and diarrhea. Headache, weakness, lethargy, restlessness, tremors. With severe poisoning, red and flaking skin rash, unconsciousness, respiratory depression, renal failure, and shock.
Diuron	Herbicide	Known	No	Not Evaluated	Not Evaluated	Slight	<ul style="list-style-type: none"> Systemic toxicity is unlikely unless large amounts have been ingested. Irritating to eyes, skin, and mucous membranes.
Esfenvalerate	Insecticide	Not Likely	No	Suspected	Not Evaluated	Moderate	<ul style="list-style-type: none"> Central nervous system toxicity: seizures, numbness. Abnormal facial sensation, dizziness, salivation, headache, fatigue, vomiting, diarrhea, and irritability to sound or touch. In severe cases, lungs fill with fluid and involuntary muscle movements can develop.
Fipronil	Insecticide	Possible	No	Not Evaluated	Not Evaluated	Moderate	<ul style="list-style-type: none"> New pesticide: No human poisoning information available.
Fluazifop-butyl	Herbicide	Not Evaluated	No	Not Evaluated	Yes	Slight	<ul style="list-style-type: none"> No human poisoning information available.
Glyphosate, salts and esters	Herbicide	Not Likely	No	Not Evaluated	Not Evaluated	Slight	<ul style="list-style-type: none"> Mildly irritating to eyes, skin, and upper respiratory tract. Other ingredients in the formulation of glyphosate-containing herbicides are often more severely irritating than glyphosate itself. Ingestion of large quantities of glyphosate results in sore throat, difficulty swallowing, and bleeding in the gastrointestinal tract.
Halosulfuron	Herbicide	Not Likely	No	Not Evaluated	Not Evaluated	Slight	<ul style="list-style-type: none"> New pesticide: No human poisoning information available.
Hydramethylnon	Insecticide	Possible	No	Not Evaluated	Yes	Slight	<ul style="list-style-type: none"> Irritating to eyes and mucous membranes.

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Hydroprene	Insect growth regulator	Unclassifiable	No	Not Evaluated	Not Evaluated	Slight	• Minimal eye irritation. No skin irritation.
Imidacloprid	Insecticide	Not Likely	No	Not Evaluated	Not Evaluated	Slight	• Irritating to eyes and skin. Fatigue, twitching, cramps, and muscle weakness including the muscles necessary for breathing.
Isoxaben	Herbicide	Possible	No	Not Evaluated	Not Evaluated	Slight	• New pesticide: No human poisoning information available.
Linalool	Insecticide	Not Evaluated	No	Not Evaluated	Not Evaluated	Slight	• Skin irritation and sensitization. Long-term exposure may affect liver.
Malathion	Insecticide	Possible	Yes	Suspected	Not Evaluated	Moderate	• Headache, excessive salivation and tearing, muscle twitching, nausea, diarrhea. • Respiratory depression, seizures, loss of consciousness. Pinpoint pupils.
Maneb	Fungicide	Probable	No	Suspected	Not Evaluated	Not acutely toxic	• Irritating to skin, eyes, and respiratory tract. Chronic skin disease with long term exposure. Acute renal failure. Behavioral and neurological symptoms, including seizures.
Methoprene	Insect growth regulator	Not Evaluated	No	Not Evaluated	Not Evaluated	Not acutely toxic	• No reported symptoms.
Muscalure	Insect pheromone	Not Evaluated	No	Not Evaluated	Not Evaluated	Slight	• No human poisoning information available. Unlikely to be problematic because used in extremely small quantities.
N-Octyl bicycloheptene dicarboximide	Insecticide synergist	Possible	No	Not Evaluated	Not Evaluated	Slight	• No human poisoning information available.
Nonanoic acid	Herbicide	Not Evaluated	No	Not Evaluated	Not Evaluated	Not acutely toxic	• Skin irritation, redness, colored patches on skin.
Oryzalin	Herbicide	Possible	No	Not Evaluated	Not Evaluated	Slight	• Irritating to skin, eyes, and respiratory tract.
Oxadiazon	Herbicide	CA Known	No	Not Evaluated	Yes	Slight	• Irritating to skin and eyes.
PCNB	Fungicide	Possible	No	Suspected	Not Evaluated	Slight	• Skin sensitization from acute or chronic contact. Redness and soreness of eyes with eye contact.
Pendimethalin	Herbicide	Possible	No	Not Evaluated	Not Evaluated	Slight	• Moderately irritating to skin and eyes.
Phenothrin	Insecticide	Not Evaluated	No	Suspected	Not Evaluated	Slight	• Central nervous system toxicity: seizures, numbness. Abnormal facial sensation, dizziness, salivation, headache, fatigue, vomiting, diarrhea, and irritability to sound or touch. In severe cases, lungs fill with fluid and involuntary muscle movements can develop.
Piperonyl butoxide	Insecticide synergist	Possible	No	Not Evaluated	Not Evaluated	Moderate	• No direct symptoms, but interacts with the active ingredient in some insecticides to enhance toxicity of the active ingredient.
Potash soap	Insecticide	Not Evaluated	No	Not Evaluated	Not Evaluated	Not acutely toxic	• Irritating to eyes and skin.
Propetamphos	Insecticide	Not Likely	Yes	Not Evaluated	Not Evaluated	High	• Headache, excessive salivation and tearing, muscle twitching, nausea, diarrhea. • Respiratory depression, seizures, loss of consciousness. Pinpoint pupils.
Propoxur	Insecticide	Probable	Yes	Not Evaluated	Not Evaluated	High	• Malaise, muscle weakness, dizziness, and sweating. Headache, salivation, nausea, vomiting, abdominal pain, and diarrhea. Central nervous system depression and fluid in the lungs.
Pyrethrins	Insecticide	Probable	No	Not Evaluated	Not Evaluated	Moderate	• Irritating to skin and upper respiratory tract. Asthma attacks.
Silica aerogel	Insecticide	CA Known	No	Not Evaluated	Not Evaluated	Slight	• Irritating to skin, eyes and respiratory tract. Chronic exposure causes permanent lung damage.
Sulfur	Fungicide	Not Evaluated	No	Not Evaluated	Not Evaluated	Slight	• Moderately irritating to the skin and associated with skin rashes. Airborne dust irritating to the eyes and respiratory tract. Ingestion induces diarrhea and vomiting.

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Sulfuryl fluoride	Fumigant	Not Evaluated	No	Not Evaluated	Not Evaluated	High	• Irritating to eyes and upper respiratory tract. Weakness, nausea, vomiting, shortness of breath, cough, restlessness, muscle-twitching, and seizures. Kidney damage, as evidenced by excessive amounts of nitrogen and protein in the urine. Suffocation may follow early re-entry into treated area.
Tebuthiuron	Herbicide	Unclassifiable	No	Not Evaluated	Not Evaluated	Moderate	• Systemic toxicity is unlikely unless large amounts have been ingested. Irritating to eyes, skin, and mucous membranes.
Trichlorfon	Insecticide	Probable	Yes	Not Evaluated	Not Evaluated	Moderate	• Headache, excessive salivation and tearing, muscle twitching, nausea, diarrhea. • Respiratory depression, seizures, loss of consciousness. Pinpoint pupils.
Triclopyr, esters and salts	Herbicide	Unclassifiable	No	Not Evaluated	Not Evaluated	Slight	• Irritating to skin, eyes and upper respiratory tract; may cause allergic reactions. • Ingestion of large amounts may cause lung damage by accidental inhalation of the substance, and death. Ingestion of large amounts may cause gastrointestinal irritation and ulceration. Excessive exposure may cause liver or kidney effects.
Trifluralin	Herbicide	Possible	No	Suspected	Not Evaluated	Slight	• Irritating to the nose, throat, and respiratory tract. Irritating to eyes and skin. Skin rash may be made worse by exposure to sunlight.
Ziram	Fungicide	Probable	No	Suspected	Not Evaluated	Moderate	• Irritating to skin, eyes, and respiratory tract. Neural and visual disturbances. Destruction of red blood cells may be fatal. If alcohol is ingested, flushing, throbbing headache, nausea and vomiting may occur.

1. "Not Evaluated" means that no weight-of-the-evidence evaluation has been done. More about weight-of-the-evidence evaluations at: http://www.pesticideinfo.org/documentation3/ref_toxicity1.html.
2. The cancer ratings given in this table are a composite of those from the U.S. EPA, the International Agency for Research on Cancer (IARC), the U.S. National Toxicology Program, and California's Proposition 65 list. Carcinogenicity designations from different sources are not always in agreement with each other; the ratings given here reflect the most toxic ranking assigned by any organization. The different designations used by different organizations to describe carcinogen status were translated into a single set of terms, using IARC's terminology: Known, Probable, Possible, Not Likely, and Unclassifiable. The equivalences between the different ranking systems and more information about each rating can be found at: http://www.pesticideinfo.org/documentation3/ref_toxicity3.html.
3. Many pesticides, particularly insecticides, are neurotoxic to humans and other animals because their mechanism of action targets the insect nervous system. The most common mechanism of action is inhibition of the enzyme cholinesterase, which is essential for transmission of nerve impulses. Most pesticides in this category are organophosphorus or carbamate compounds. More information can be found at: http://www.pesticideinfo.org/documentation3/ref_toxicity6.html.
4. Endocrine disruptors are substances that interfere with the proper functioning of estrogen, androgen and thyroid hormones in humans and animals. Exposures can cause sterility or decreased fertility, impaired development, birth defects of the reproductive tract, and metabolic disorders. There is not yet a definitive list of endocrine disruptors and much research remains to be done to determine the full range of effects and their implications for human health. The sources for this information are: a) *Report on Endocrine Disrupting Chemicals*, Illinois EPA (February, 1997). b) Lawrence H. Keith, *Environmental Endocrine Disruptors: A Handbook of Property Data*, Wiley Interscience (New York, 1997). c) Charles M. Benbrook, *Growing Doubt: A Primer on Pesticides Identified as Endocrine Disruptors and/or Reproductive Toxicants*, National Campaign for Pesticide Policy Reform (Washington, DC, September 1996). d) T. Colborn, F.S. Vom Saal and A.M. Soto, "Developmental effects of endocrine-disrupting chemicals in wildlife and humans," *Environmental Health Perspectives*, 1993, v. 101, pp. 378-384. More information can be found at: http://www.pesticideinfo.org/documentation3/ref_toxicity5.html.
5. The source for this information is the California Proposition 65 list of chemicals determined by the state of California to cause reproductive and developmental harm: birth defects, infertility, sterility and impairment of normal growth and development. More information can be found at: http://www.pesticideinfo.org/documentation3/ref_toxicity4.html.
6. Acute toxicity is a measure of how immediately poisonous the pure active ingredient is. Rankings are based on an EPA scale that evaluates the amount of chemical required to cause death of a certain fraction of the test animals. These ratings are: Extreme, High, Moderate, Slight, and Not Acutely Toxic. It is important to note that very few pesticide products contain pure active ingredients. Most are in dilute form which moderates their acute toxicity given in this column. The best guide to the acute toxicity of a product is the signal word used on the label of the product. The terminology used and its equivalent in toxicity rankings is: Danger-Poison = Extremely toxic; Danger = Highly toxic; Warning = Moderately toxic; Caution = Slight toxicity or Practically non-toxic. For more information on acute toxicity, see http://www.pesticideinfo.org/documentation3/ref_toxicity2.html.
7. The sources for this information include: a) *U.S. EPA's Recognition and Management of Pesticide Poisoning* (<http://ace.ace.orst.edu/info/nptn/rmpp.htm>), b) *Pesticide Information Profiles*, ExToxNet (<http://ace.orst.edu/info/extoxnet/pips/ghindex.html>), c) *New Jersey Right-to-Know Consumer Factsheets* (<http://www.state.nj.us/health/eoh/rtkweb/rtkhsfs.htm>), d) National Library of Medicine's *Hazardous Substances Data Bank* (<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>), e) Materials Safety Data Sheets (MSDS) for individual chemicals (http://www.pesticideinfo.org/documentation3/ref_toxicity1.html).

For more information on school pest control that protect children's health, contact the Healthy Schools Campaign at 888-CPR-4880 or <http://www.calhealthyschools.org>.