

Type	Insecticide
Controls	Whiteflies
Mode of Action	Could not be determined

Thurston County Review Summary:

Jojoba oil is the liquid wax produced in the seed of the jojoba plant, a shrub native to southern Arizona, southern California and Northwestern Mexico. Although the USEPA could not determine that the mode of action was not by a toxic effect, it is still considered low in toxicity to mammals and the usual toxicity testing requirements were waived. Pesticide products containing jojoba oil as the sole active ingredient are considered low in hazard and pass Thurston County's review criteria.

MOBILITY

Property	Value	Reference	Rating
Solubility (mg/L)	"insoluble"	2	Low
Soil Sorption (Kd=mL/g)	Not found		
Organic Sorption (Koc=mL/g)	Not found		

Mobility Summary:

The mobility hazard of jojoba oil is not able to be determined.

PERSISTENCE

Property	Value	Reference	Rating
Vapor Pressure (mm Hg)	Not found		
Biotic or Aerobic Half-life (days)	Not found		
Abiotic Half-life (days)	Not found		
Terrestrial Field Test Half-life (days)	Not found		
Hydrolysis Half-life (days)	Not found		
Anaerobic Half-life (days)	Not found		
Aquatic Field Test Half-life (days)	Not found		

Persistence Summary:

The persistence hazard of jojoba oil is not able to be determined.

BIOACCUMULATION

Property	Value	Reference	Rating
Bioaccumulation Factor	Not found		
Bioconcentration Factor	Not found		
Octanol/Water Partition Coefficient	Not found		

Bioaccumulation Summary:

Jojoba oil is indegestible and is eliminated from the body unchanged. The bioaccumulation hazard for jojoba oil is considered low.

ACUTE TOXICITY

Test Subject	Value	Reference	Rating
Mammalian (LD50)	160,000 mg/kg	4	Low
Avian (LD50)	Not tested		
Honey bee or insect (LD50)	Not tested		
Annelida -worms (LC50)	Not tested		
Fish (LC50)	"toxic"	1	Moderate to High
Crustacean (LC50)	"toxic"	1	Moderate to High
Mollusk (LC50)	Not tested		
Amphibian (LD50 or LC50)	Not tested		

Acute Toxicity Summary:

Single-dose toxicity testing of jojoba oil was not required by the EPA for product registration. Jojoba oil is not considered toxic to mammals but is toxic to fish and other aquatic organisms. Shrimp and crab can be killed by jojoba oil at recommended application rates. Jojoba oil used as a pesticide is not expected to have negative effects on honeybees (Reference 1). The toxic glycosides in jojoba beans are not present in the jojoba oil used for pesticides, and the maximum amount of the toxic chemical erucic acid, found in in jojoba oil, does not exceed 0.2% (10% of the amount allowed in food).

ACUTE TOXICITY - Risk Assessment

Subject and Scenario	Dose of Concern	Exposure	Margin of Safety	Route	Reference	Rating
Applicator assessment was waived						
Post-application exposure assessment was waived						
Drinking water exposure assessment was waived						
Combined exposure assessment was waived						

Acute Toxicity Risk Assessment Summary

The EPA believes that jojoba oil will pose any substantial risk to humans from its use as an insecticide or fungicide. Farmworkers and anyone entering a treated area will be exposed to jojoba oil, but based on the low acute toxicity, no occupational risk is expected. Short-term exposures to jojoba oil from persticidal use is considered low in hazard.

CHRONIC TOXICITY

Property	Value	Adverse Effect	Reference	Rating
Carcinogenicity	Not listed	--	3	Low
Mutagenicity	Not listed	--	3	Low
Neurotoxicity - (NOAEL)	Not listed	--	3	Low
Endocrine Disruption	Not listed	--	3	Low
Developmental Toxicity (NOAEL)	Not listed	--	3	Low
Reproductive Toxicity (NOAEL)	Not listed	--	3	Low
Chronic Toxicity (NOAEL)	Not found			

Chronic Toxicity Summary:

Jojoba oil is not considered a mutagen, carcinogen, reproductive or developmental toxicant, nor is it considered a suspected endocrine disruptor (Reference 3). There is no cancer classification data available from the EPA, IARC, NTP, OSHA or ACGIH.

CHRONIC TOXICITY - Risk Assessment

Subject and Scenario	Dose of Concern	Exposure	Margin of Safety	Route	Reference	Rating
Post application exposure assessment was waived						
Combined exposure assessment was waived						
Drinking water exposure assessment was waived						
Dietary exposure assessment was waived						

Chronic Toxicity Risk Assessment Summary:

"Long-term exposure data was not required because of the low application rates and because most ingested jojoba oil is excreted in the feces. A person's expected dietary exposure as a result of pesticidal use of jojoba oil is far below levels that did not produce adverse effects in laboratory animals." Long-term exposures from jojoba oil from pesticidal uses are considered low in hazard.

Degradation Products:

Jojoba oil withstands degradation and can remain intact in temperatures over 350 degrees. Jojoba oil also resists metabolism and is generally eliminated from the body unchanged.

Comments:

Jojoba oil can cause eye and skin irritation but is not considered a skin sensitizer.

References

1. USEPA. Pesticides: Regulating Pesticides. Jojoba oil (067200) Technical Document. Issued: 6/99.
2. Landis P. S. and Craver Sr. R. H., Journal of the American Oil Chemists' Society. Springer Berlin / Heidelberg. Volume 61, Number 12 / December, 1984.
3. Scorecard - The Pollution Information site. Health Effects (Accessed 8/4/2009) . <http://www.scorecard.org/health-effects/>
4. Drug information Online (Drugs.com). Natural Products (Professional) Jojoba. www.drugs.com (accessed 8/5/2009).