Chlorpyrifos: sc-217887

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Chlorpyrifos
Product Number: sc-217887

Supplier: Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, CA 95060
800.457.3801 or 831.457.3800

Emergency: ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255 (1-800-CHEMCALL) or call +613 9573 3112

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Target Organ Effect, Highly toxic by inhalation, Toxic by ingestion, Harmful by skin absorption.

Target Organs

Central nervous system, Heart, Blood, Eyes

GHS Classification

Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 2)
Acute toxicity, Dermal (Category 4)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)

H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H330	Fatal if inhaled.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P284	Wear respiratory protection.
P310	Immediately call a POISON CENTER or doctor/ physician.
P501	Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical hazards:	0

NFPA Rating

Health hazard:	3
Fire:	0
Reactivity Hazard:	0

Potential Health Effects

Inhalation	May be fatal if inhaled. May cause respiratory tract irritation.
Skin	May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Dursban; Trichlorpyrphos; Lorsban
Formula: C9H11Cl3NO3PS
Molecular Weight: 350.59

CAS-No.	*EC-No.*	*Index-No.*	*Concentration*
Chlorpyrifos			
2921-88-2	220-864-4	015-084-00-4	-

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
In case of eye contact
Flush eyes with water as a precaution.
If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products
Hazardous decomposition products formed under fire conditions - Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, Oxides of phosphorus, Hydrogen chloride gas

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Recommended storage temperature: 4 °C. Handle under nitrogen, protect from moisture. Store under inert gas. Keep in a dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Chlorpyrifos	2921-88-2	TWA	0.2 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Remarks	Skin notation			
		TWA	0.2 mg/m3	USA. NIOSH Recommended Exposure Limits
	Potential for dermal absorption			
		ST	0.6 mg/m3	USA. NIOSH Recommended Exposure Limits
	Potential for dermal absorption			
		TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Cholinesterase inhibition Substances for which there is a Biological Exposure Index or Indices (see BEI® section), see BEI® for Acetylcholinesterase Inhibiting Pesticide Not classifiable as a human carcinogen Danger of cutaneous absorption			

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	powder	pH	no data available
Melting point/freezing point	no data available	Boiling point	no data available
Flash point	no data available	Ignition temperature	no data available
Auto-ignition temperature	no data available	Lower explosion limit	no data available
Upper explosion limit	no data available	Vapor pressure	no data available
Density	no data available	Water solubility	insoluble
Relative vapor density	no data available	Odor	no data available
Odor Threshold	no data available	Partition coefficient:	log Pow: 5.27
Evaporation rate	no data available	n-octanol/water	

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.
Possibility of hazardous reactions
no data available
Conditions to avoid
no data available
Materials to avoid
Brass
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions - Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, Oxides of phosphorus, Hydrogen chloride gas
Other decomposition products
no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50 LD50 Oral - rat - 82 mg/kg
LD50 Oral - mouse - 60 mg/kg
LD50 Oral - guinea pig - 504 mg/kg
LD50 Oral - rabbit - 1,000 mg/kg
Inhalation LC50 LC50 Inhalation - rat - 4 h - > 200 mg/m3
Dermal LD50 LD50 Dermal - rat - 202 mg/kg
LD50 Dermal - mouse - 120 mg/kg
LD50 Dermal - rabbit - 2,000 mg/kg
Other information on acute toxicity LD50 Intraperitoneal - mouse - 192 mg/kg
Skin corrosion/irritation
no data available
Serious eye damage/eye irritation
no data available
Respiratory or skin sensitization
no data available
Germ cell mutagenicity
Genotoxicity in vitro - Human - lymphocyte
Sister chromatid exchange
Genotoxicity in vitro - mouse - Other cell types
Cytogenetic analysis
Genotoxicity in vitro - mouse - Other cell types
Sister chromatid exchange

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Reproductive toxicity - rat - Oral
Maternal Effects: Other effects. Effects on Newborn: Biochemical and metabolic.
Reproductive toxicity - rat - Subcutaneous
Maternal Effects: Other effects. Specific Developmental Abnormalities: Central nervous system.
Reproductive toxicity - rat - Subcutaneous
Effects on Newborn: Growth statistics (e.g., reduced weight gain). Effects on Newborn: Behavioral.

Teratogenicity

Developmental Toxicity - rat - Intraperitoneal
Specific Developmental Abnormalities: Central nervous system.
Developmental Toxicity - mouse - Oral
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Specific target organ toxicity - single exposure (Globally Harmonized System)

no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential Health Effects

Inhalation May be fatal if inhaled. May cause respiratory tract irritation.
Skin May cause skin irritation.
Eyes May cause eye irritation.
Ingestion Toxic if swallowed.

Signs and Symptoms of Exposure

Headache, Dizziness, Weakness, fatigue, Tremors

Synergistic effects

no data available

Additional Information

RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	mortality LOEC - Pimephales promelas (fathead minnow) - 0.15 mg/l - 48.0 h Growth inhibition NOEC - Pimephales promelas (fathead minnow) - 0.003 mg/l - 7.0 d LC50 - Pimephales promelas (fathead minnow) - 0.13 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	mortality LOEC - Daphnia magna (Water flea) - 0.5 µg/l - 48 h mortality NOEC - Daphnia magna (Water flea) - 0.1 µg/l - 48 h EC50 - Daphnia magna (Water flea) - 0.10 µg/l - 48 h

Bioaccumulative potential

Bioaccumulation	Pimephales promelas (fathead minnow) - 100 d Bioconcentration factor (BCF): 23,000

Persistence and degradability
no data available
Mobility in soil
no data available

PBT and vPvB assessment
no data available
Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (Chlorpyrifos)
Reportable Quantity (RQ): 1 lbs
Marine pollutant: No
Poison Inhalation Hazard: No
IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Chlorpyrifos)
Marine pollutant: Marine pollutant
IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (Chlorpyrifos)

15. REGULATORY INFORMATION

OSHA Hazards
Target Organ Effect, Highly toxic by inhalation, Toxic by ingestion, Harmful by skin absorption.
SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard
Massachusetts Right To Know Components
Chlorpyrifos CAS-No. 2921-88-2

Pennsylvania Right To Know Components
Chlorpyrifos CAS-No. 2921-88-2

New Jersey Right To Know Components
Chlorpyrifos CAS-No. 2921-88-2

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.

12/2/2013