



Hangzhou Tianlong Biotechnology Co., Ltd.

Add: Room 1906, Fengqi Times Tower, No.338, Fengqi East Road, Hangzhou, Zhejiang, China.

MATERIAL SAFETY DATA SHEET

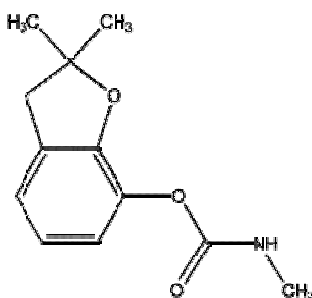
1. Chemical Product and company Identification

Product name: Carbofuran

Molecular Formula: C₁₂H₁₅NO₃

Molecular Weight: 221.25

Structural Formula:



Chemical name: 2,3-dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate

Chemical family: Insecticide (Carbamate)

CAS No.: 1563-66-2

Supplier: HANZHOU TIANLONG BIOTECHNOLOGY CO., LTD

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2. Composition / Information On Ingredients

Composition	CAS No.	Content %
Carbofuran	1563-66-2	98.0
Other ingredients		2.0

3. Hazards Identification

Effects of Overexposure

Emergency Overview: Purple granules with a slightly phenolic odor. Slightly combustible. May support combustion at elevated temperatures.

Degrades at temperatures above 130°C (266°F). Thermal decomposition and burning may form toxic by-products. For large exposures or fire, wear

personal protective equipment. Moderately toxic to fish and aquatic organisms. Keep out of drains and water courses. Moderate oral toxicity. Potential Health Effects: Effects from overexposure result from either swallowing or absorption through the skin and may result from breathing the dust. Conditions of increased temperature and humidity may aid skin absorption of this product, and therefore, increase toxicity. Symptoms of overexposure include headache, light-headedness, weakness, abdominal cramps, nausea, excessive salivation, perspiration, blurred vision, tearing, pin-point pupils, blue skin color, convulsions, tremor, and coma. Medical Conditions Aggravated by Exposure: None presently known.

4. First Aid Measures

Eyes: Flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

Skin: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

Inhalation: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, obtain medical attention.

Ingestion: Drink 1 or 2 glasses of water and induce vomiting by touching the back of the throat with a finger or by giving syrup of ipecac. Never induce vomiting or give anything by mouth to an unconscious person. Contact a medical doctor.

5. Fire-Fighting Measures

Extinguishing Media: Foam, CO₂, or dry chemical. Soft stream water fog only if necessary. Contain all runoff.

Degree of Fire/Explosion Hazard: Slightly combustible. Carbofuran will burn if ignited and degrades at temperatures above 130°C (266°F).

Special Fire Fighting Procedures: Isolate fire area. Evacuate downwind.

Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke, gases, or vapor generated.

Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, carbon dioxide, and methyl isocyanate

6. Accidental Release Measures

Isolate and post spill area. Wear protective clothing and personal protective equipment as prescribed in Section 8, "Exposure Controls/Personal Protection." Keep unprotected persons and animals out of the area.

Keep material out of streams and sewers. Large spills should be covered to prevent dispersal. For dry materials, use a wet sweeping compound or water to prevent the formation of dust. If water is used, prevent runoff or dispersion of excess liquid by diking and absorbing with a noncombustible absorbent such as clay, sand, or soil. Vacuum, shovel, or pump all waste material, including absorbent, into a drum and label contents for disposal.

To clean and neutralize spill area, tools, and equipment, wash with a bleach or caustic/soda ash solution. Follow this by washing with a strong soap and water solution. Absorb, as above, any excess liquid and add to the drums of waste already collected. Repeat if necessary. Dispose of drummed waste according to the method outlined in Section 13, "Disposal Considerations."

7. Handling And Storage

Store in a cool, dry, well-ventilated place. Do not use or store near heat, open flame, or hot surfaces. Store in original containers only. Keep out of reach of children and animals. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

8. Exposure Controls/Personal Protection

Personal protective recommendations for mixing or applying this product are prescribed on the product label. Information stated below provides useful, additional guidance for individuals whose use or handling of this product is not guided by the product label.

Ventilation: Use local exhaust at all process locations where dust may be emitted. Ventilate all transport vehicles prior to unloading. Work Clothing: Depending upon concentrations encountered, wear coveralls or long-sleeved uniform and head covering. For larger exposures as in the case of spills, wear full body cover barrier suit, such as a rubber rain suit. Leather items -- such as shoes, belts, and watchbands -- that become contaminated should be removed and destroyed. Launder all work clothing before reuse (separately from household laundry).

Eye Protection: For dust exposure, wear chemical protective goggles or a face shield.

Respiratory Protection: For dust exposure wear, as a minimum, a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides. Respirator use and selection must be based on airborne concentrations.

Gloves: Wear chemical protective gloves made of materials such as rubber, neoprene, or nitrile. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

Personal Hygiene: Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking, or using tobacco. Shower at the end of the workday.

9. Physical and Chemical Properties

Form: crystalline solid

Color: white

Odor: Slightly phenolic.

Melting point: 150-152°C

Vapor pressure :0.031mPa@20°C

Odor: Slightly phenolic.

Relative Density: 1.18 g/mL@20°C

Partition Coefficient: 1.2304-1.4150

Adsorption Coefficient: 22

Water Solubility: 320 mg/L @ 25°C

Solubility in Other Solvents: acetone v.s.; acetonitrile v.s.; benzene v.s.; cyclohexane v.s.

10. Stability and Reactivity

Stability: Stable.

Conditions/Materials to Avoid (Incompatibility): Excessive heat and fire.

Hazardous Polymerization: Will not occur.

11. Toxicological Information

Rat Acute Oral: LD50 = 167 mg/kg

Rabbit Acute Dermal: LD50 > 2000 mg/kg

Rat Acute Inhalation: LC50 = 1.18 mg/L/4 hr

Reproductive effects: Consuming high doses over long periods of time caused damage to testes in dogs, but carbofuran did not have any reproductive effects on rats or mice. Available studies indicate carbofuran is unlikely to cause reproductive effects in humans at expected exposure levels.

Teratogenic effects: Studies indicate carbofuran is not teratogenic. No significant teratogenic effects have been found in offspring of rats given carbofuran (3 mg/kg/day) on days 5 to 19 of gestation. No effects were found in offspring of mice given as much as 1 mg/kg/day throughout gestation. In rabbits, up to 1 mg/kg/day on days 6 to 18 of gestation was not teratogenic.

Mutagenic effects: Weak or no mutagenic effects have been reported in animals and bacteria. Carbofuran is most likely nonmutagenic .

Carcinogenic effects: Data from animal studies indicate that carbofuran does not pose a risk of cancer to humans.

Organ toxicity: Carbofuran causes cholinesterase inhibition in both humans and animals, affecting nervous system function

12. Ecological Information

Effects on birds: Carbofuran is highly toxic to birds. One granule is sufficient to kill a small bird. Bird kills have occurred when birds ingested carbofuran granules, which resemble grain seeds in size and shape, or when predatory or scavenging birds have ingested small birds or mammals that have eaten carbofuran pellets. Red-shouldered hawks have been poisoned after eating prey from carbofuran-treated fields. The LD50 is

0.238 mg/kg in fulvous ducks, 0.48 to 0.51 mg/kg in mallard ducks, 12 mg/kg in bobwhite quail, and 4.15 mg/kg in pheasant. The LD50 is 25 to 39 mg/kg in chickens consuming carbofuran as a powder. The LC50 (96-hour) in Japanese quail is 746 ppm.

Effects on aquatic organisms: Carbofuran is highly toxic to many fish. The LD50 (96-hour) is 0.38 mg/L in rainbow trout and 0.24 mg/L in bluegill sunfish. The compound has a low potential to accumulate in aquatic organisms. The bioconcentration factor ranges from 10 in snails to over 100 in fish.

Effects on other organisms: Carbofuran is toxic to bees except in the granular formulation .

13. Disposal Considerations

Open dumping or burning of this pesticide or its packaging is prohibited. If spilled material cannot be disposed of by use according to label instructions, an acceptable method of disposal is to incinerate in accordance with local, and national laws and regulations. However, because acceptable methods of disposal may vary by location and regulatory requirements may change, the appropriate regulatory agencies should be contacted prior to disposal. Completely empty bag into application equipment. Then dispose of empty bag by incineration, or, if allowed by national, state, and local authorities, by burning. If burned, stay out of smoke.

14. Transport Information

Class NO. : 6.1

UN NO.: 2757

PG: III.

15. Reactivity data

Safe phrase: Keep locked up and out of reach children.

Keep away from food, drink and animal feeding stuffs.

Do not breathe vapour/spray.

Avoid contact with skin and eyes.

Wear suitable protective clothing, gloves and eye/face protection.

Avoid release to the environment.

16. Other Information

This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.