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MATERIAL SAFETY DATA SHEET OF

CARBARYL 98% TC

1. IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Supplier: Shanghai Bosman Industrial Co., Ltd.

Street address: No.1611, North Sichuan Road, Hongkou District, Shanghai, P.R. China.

FAX: +86 21 63065878

TEL: +86 21 63065878

Product name: Carbaryl 989% TC

2. COMPOSITION/INFORMATION ON INGREDIENTS

Formulation Type: Technical (TC)

Active Ingredients: Carbaryl 98% TC

Other ingredients determined not to be hazardous

INGREDIENT	CAS NO	PROPORTION
Thidiazuron	63-25-2	98% min.
other ingredients	Not available	Balance

3. HAZARDS INDENTIFICATION

Emergency Overview

Warning! May be fatal if swallowed. Avoid breathing dusts. Do not take internally. Avoid contact with skin, eyes and clothing.

Physical State Solid powder

Odor Phenolic

Appearance Off-white powder

Immediate Effects

Eye Causes redness, irritation, tearing.

Skin Harmful if absorbed through the skin; May produce symptoms similar to those from ingestion.

Ingestion May be fatal if swallowed. This product causes reversible cholinesterase inhibition. Repeated overexposure may cause more severe cholinesterase inhibition with more pronounced signs and symptoms. May lead to rapid onset of nausea, vomiting, diarrhea, abdominal pain, involuntary shaking, excess

salivation, pinpoint pupils, blurred vision, profuse sweating, temporary paralysis, respiratory depression, and convulsions.

Inhalation Harmful if inhaled. May produce symptoms similar to those from ingestion.

4. FIRST AID MEASURES

Eye Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Skin Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Ingestion Immediately call a poison control center or doctor for treatment advice. Do not induce vomiting unless told to do so by a poison control center or doctor. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person.

Inhalation Remove victim to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Note to Physician Carbaryl is an N-Methyl carbamate that inhibits cholinesterase. Drugs like 2-Pam (pyridine-2-aldoxime methiodide) are not recommended. Specific treatment consists of parenteral atropine sulfate. Improve tissue oxygenation as much as possible before administering atropine to minimize the risk of ventricular fibrillation. Mild cases may be given 1 to 2 mg intramuscularly every 10 minutes until full atropinization has been achieved and repeated thereafter whenever symptoms reappear. Severe cases should be given 2 to 4 mg intravenously every 10 minutes until fully atropinized, then intramuscularly every 30 to 60 minutes as needed to maintain the effect for at least 12 hours.

5. FIRE FIGHTING MEASURES

Flash Point Not applicable

Explosiveness strong

Fire and Explosion Hazards

Like all organic and most dry chemicals, as a powder or dust, this product (when mixed with air in critical proportions and in the presence of an ignition source) may present an explosion hazard.

Decomposition materials (Under fire Conditions): oxides of nitrogen, oxides of carbon, methyl isocyanate (trace; no adverse effects expected)

Suitable Extinguishing Media

Small Fires:carbon dioxide (CO2), dry chemical

Large Fires: water spray, alcohol foam, polymer foam

Fire Fighting Instructions

Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Keep unnecessary people away, isolate hazard area and deny entry. Evacuate residents who are downwind of fire. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later. Persons who may have been exposed to contaminated smoke should be immediately examined by a physician and checked for symptoms of poisoning. The symptoms should not be mistaken for heat exhaustion or smoke inhalation.

6. ACCIDENT RELEASE MEASURES

General and Disposal

Evacuation Procedures and Safety: Wear appropriate gear for the situation. See Personal Protection information in Section 8.

Cleanup and Disposal of Spill: Shovel up into an appropriate closed container (see Section 7: Handling and Storage). Clean up residual material by washing area with water. Decontaminate tools and equipment following cleanup. Avoid creation of dusty conditions.

Land Spill or Leaks

Containment of Spill: Follow procedure under Cleanup and Disposal of Spill.

Environmental and Regulatory Reporting: If spilled on the ground, the affected area should be scraped clean and placed in an appropriate container for disposal. Runoff from fire control or dilution water may cause pollution. Prevent material from entering public sewer system or any waterway.

7. HANDLING AND STORAGE

Handling Procedures

Avoid direct or prolonged contact with skin and eyes. Avoid breathing dusts. Do not ingest.

Storing Procedures

Store in original container. Keep in a dry, cool place. Store in an area that is away from foodstuffs or animal feed, out of reach of children and animals.

Work/Hygienic Procedures

Personal hygiene is an important work practice exposure control measure and the following general

measures should be taken when working with or handling this material:

Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored. Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet. Wash exposed skin promptly to remove accidental splashes of contact with this material.

In addition, based upon the specific hazard of this product: Do not take clothing/objects contaminated by this material off the work site. Shower and change into street clothes before leaving the work site.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Where engineering controls are indicated by use conditions of a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures: general area dilution/exhaust ventilation.

Eye/Face Protection

Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material.

Eye contact should be prevented through use of chemical safety glasses with side shields or splash proof goggles. An emergency eye wash must be readily accessible to the work area.

Skin contact should be prevented through use of suitable protective clothing, gloves and footwear, selected with regard for use conditions and exposure potential. Consideration must be given both to durability as well as permeation resistance.

Respiratory Protection

When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.

Exposure Limits

CARBARYL	63-25-2	ACGIH	TWA	5 mg/m3
		NIOSH	REL	5 mg/m3
		OSHA Z1	PEL	5 mg/m3
		OSHA Z1A	TWA	5 mg/m3
		US CA OEL	TWA PEL	5 mg/m3

9. PHYSICAL AND CHEMICAL PROPERTIES

Form : Powder

Appearance : Off-white

Odour : Phenolic

pH : Not applicable

Solubility : Insoluble

Molecular weight : 201.2g/mol

Decomposition temp. : 40℃

10. STABILITY AND REACTIVITY

Chemical Stability: This material is stable under normal handling and storage conditions described in Section 7.

Conditions to Avoid： dusting conditions, extreme heat, open flame

Incompatibility: strong acids, bases

Hazardous Products of Decomposition

Decomposition Type: thermal, oxides of nitrogen, carbon oxides, methyl isocyanate (trace; no adverse effects expected)

Hazardous Polymerization (Conditions to avoid): Not applicable

11. TOXICOLOGICAL IMFORMATION

Acute Oral Toxicity Rat: LD50: 264 mg/kg

Acute Dermal Toxicity Rabbit: LD50: > 2,000 mg/kg

Acute Inhalation Toxicity Rat: LC50: 2.5 mg/l 4 h

Acute Respiratory Irritation: No test data found for product.

Skin Irritation Rabbit: Minimally Irritating

Eye Irritation Rabbit: Slightly irritating.

Chronic Toxicity

Carbaryl has been shown to cause tumors in laboratory animals in lifetime feeding studies. Carbaryl, when administered by various routes, at doses toxic to the maternal animals, has been shown to produce developmental toxicity in a number of species. Carbaryl produces no teratogenic effect in the absence of maternal toxicity.

Assessment Carcinogenicity

IARC: CARBARYL class 3

12. ECOLOGICAL IMFORMATION

Birds Acute oral LD50 for young mallard ducks >2179, young pheasants >2000, Japanese quail 2230, pigeons 1000 – 3000 mg/kg.

Fish LC50 (96 h) for rainbow trout 1.3, sheepshead minnows 2.2, bluegill sunfish 10 mg/l.

Daphnia LC50 (48 h) 0.006 mg/l.

Algae EC50 (5 d) for Selenastrum capricornutum 1.1 mg/l.

Other aquatic spp. LC50 (96 h) for mysid shrimps (Mysidopsis bahia) 0.0057 mg/l; LC50 (48 h) for eastern oysters (Crassostrea virginica) 2.7 mg/l.

Bees Toxic to bees; LD50 (oral) 0.18 μg/bee (HSG); (topical) 1 μg/bee.

Worms LC50 (28 d) 106 – 176 mg/kg soil.

Other beneficial spp. Toxic to beneficial insects.

13. DISPOSAL CONSIDERATION

Product Disposal Dispose of product only by using according to the label, or at an approved landfill.

Container Disposal Triple rinse empty container and add rinsate to the spray tank. Recycle empty container. Otherwise crush and bury in a suitable landfill.

14. TRANSPORT INFORMATION

ADR/RID

U.N. Number 2757

UN classification: 6.1

Packing Group III

IMDG

U.N. Number 2757

UN classification: 6.1

Packing Group III

IMO Marine pollutant: Marine pollutant

IATA

U.N. Number 2757

UN classification: 6.1

Packing Group III

15. REGULATARY INFORMATION

Follow all local, national, international degree, regulations and laws.

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 the 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 the company.

-- END OF MSDS --