



Specialized in chemicals

Hefei TNJ Chemical Industry Co.,Ltd.

B911 Xincheng Business Center,
Qianshan Rd. Hefei 230022 China

Tel : (0086) 551 65418695

Fax: (0086) 551 65418697

Email: info@tnjchem.com

Site: www.tnjchem.com

Material Safety Data Sheet

WARFARIN

Section 1: Chemical Product and Company Identification

Molecular formula: C₁₉H₁₆O₄

CAS Nr: 81-81-2

EINECS: 201-377-6

Molecular weight: 308.33 g/mol

Synonyms: SAKARAT;PROLIN(R);WARF COMPOUND

42(R);WARF(R);Warfarat;WARFARIN;ZOOCOUMARIN;4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)COUMARIN

Contact Information for Emergency: (0086) 551 65418696

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230004Anhui

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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS # %	By Weight
Warfarin	81-81-2	≥ 99.0%

Toxicological Data on Ingredients: Not applicable.

Section 3: Hazards Identification

Symptoms of Acute Exposure

The active ingredient is designed to cause bleeding after repeated ingestion. Large or repeated doses may cause nosebleed, hematoma, bleeding gums, bloody urine, abdominal pain, back pain, or anemia-generated weakness.

Hazardous Decomposition Products

None known.

Physical Properties

Appearance: White granules

Odor: Sweet

Unusual Fire, Explosion, and Reactivity Hazards

None known.

Section 4: First Aid Measures

Have the product container, label, or Material Safety Data Sheet with you when calling a poison control center or doctor, or going for treatment.

Ingestion: CALL PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY! Have the person sip a glass of water if able to swallow. For large doses within preceding 2-3 hours, induce vomiting by drinking 1 or 2 glasses of water and touching back of throat with finger or blunt object. Do not induce vomiting or give anything by mouth to an unconscious person.

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

Skin Contact: If on skin or clothing: Take off contaminated clothing. Wash skin with soap and water.

Inhalation: Move person 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 treatment advice.

Notes to Physician

This product contains an anticoagulant, Warfarin, that acts by interfering with the synthesis of prothrombin. The specific measure is the prothrombin time. Note this may not become prolonged until 12-18 hours after ingestion. The specific antidote is Vitamin K1(Phytomenandione BP).

Antidote must be administered under medical supervision. Initially, antidote should be given by injection (10-20 mg, or 0.25 mg/kg for children, by slow intravenous infusion at a rate of 1 mg/minute. In severe cases the use of fresh frozen plasma may be required). Maintenance treatment is given orally (40 mg/day in divided doses for adults; up to 20 mg/day in divided doses for children). The prothrombin time and the hemoglobin should be monitored. Patients should be kept under medical supervision until the prothrombin time has been normal for 3 consecutive days. Oral treatment may need to be continued for several months. (20 mg/day in divided doses for adults, and up to 20 mg/day in divided doses for children). (For animal cases the dose is 2-5 mg/kg).

Medical Condition Likely to be Aggravated by Exposure

Bleeding and other conditions which may be aggravated by extended clotting time. Exposure during pregnancy should be avoided.

Section 5: Fire and Explosion Data

Fire and Explosion

Flash Point (Test Method): Not Applicable

Flammable Limits (% in Air): Lower: % Not Applicable Upper: % Not Applicable

Autoignition Temperature: Not Available

Flammability: Combustible solid

Extinguishing Media: Fog or Water Spray, Foam, Carbon Dioxide, Dry Chemical

Hazardous Decomposition Products:

None known.

Unusual Fire, Explosion, and Reactivity Hazards

None known.

In Case of Fire

Potentially hazardous in fire. Wear self-contained breathing apparatus and full protective clothing. If water is used as an extinguishing media, diking is required to keep contaminate water out of all water supplies.

Section 6: Accidental Release Measures

In Case of Spill or Leak

Wear protective clothing to avoid bodily contact. Control the spill at its source. Clean up spills immediately, observing precautions outlined in Section 8. Sweepup material with a dust-inhibiting sweeping compound and place in a leak proof disposal container. Once all material is collected, seal container and arrange for disposition. Decontaminate equipment and spill area with detergent and water.

Section 7: Handling and Storage

Keep product in tightly closed original container. Store the material in a dry, well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Do not store near materials with a strong odor. Prevent eating, drinking, tobaccouse, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Section 8: Exposure Controls/Personal Protection

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED

FOR THE MANUFACTURE, FORMULATION, PACKAGING, AND USE OF THIS PRODUCT.

OR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Eye Contact: Eye protection is not required for normal handling. Where eye contact is likely, wear tight-fitting chemical goggles.

Skin Contact: To minimize skin contact, wearing chemical resistant (such as nitrile or butyl) gloves is recommended.

Inhalation: Respiratory protection is recommended. Use an MSHA/NIOSH-approved particulate respirator (N, P, R, or HE filter) approved for toxic dusts.

Section 9: Physical and Chemical Properties

Appearance: White granules

Odor: Sweet

Melting Point: 322° F

Boiling Point: Not Available

Specific Gravity/Density: Not Available

pH: Not Available

Solubility: Very soluble

Vapor Pressure (mmg Hg):0.09 mm (at 71° F)

Vapor Density: Not Available

Section 10: Stability and Reactivity Data

Stability: Stable under normal use and storage conditions.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: Avoid excessive heat and moisture.

Materials to Avoid: Strong oxidizers.

Hazardous Decomposition Products: None known.

Section 11: Toxicological Information

Acute Toxicity/Irritation Studies

Ingestion: Practically Non-Toxic

Oral (LD50Rat) : > 20 g/kg (Baits containing 0.025% Warfarin)

Oral (LD50Human) : > 5,000 g/kg (Baits containing 0.025% Warfarin)

Oral (LD50Rat) : 3 to 325 mg/kg (100% Technical Warfarin)

Dermal: (LD50Rat) : >2,000 g/kg (Baits containing 0.025% Warfarin)

Dermal: (LD50Rat) : 1,400 mg/kg (100% Technical Warfarin)

Inhalation: (LD50Rat) : 320 mg/m³ (100% Technical Warfarin)

Eye Contact: Not Available

Skin Contact: Not Available

Skin Sensitization: Not Available

Other Toxicity Information

Systemically toxic concentrations of this product may be absorbed through human skin. Wear chemical-resistant gloves (such as nitrile or butyl).

Because of the formulation of this product, inhalation is a potential route of exposure. Wear a dust respirator.

No irritation is likely to develop following contact with human eyes.

Irritation will probably not develop following contact with human skin.

Effects of overexposure are those of anticoagulant overdose, i.e., reduced blood clotting ability with spontaneous bleeding in various organs. Body accumulation can result from repeated exposures. Individuals with blood clotting disorders may be more susceptible to overexposure effects.

Target Organs

Active Ingredient

Warfarin : Blood

Section 12: Ecological Information

Keep out of lakes, streams or ponds. Do not discharge effluent containing this product directly to water. Do not contaminate water when disposing of equipment wash water.

Section 13: Disposal Considerations

Container Disposal

Plastic Containers: Completely empty container into equipment. Then, dispose of empty container in a sanitary landfill,

or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Pesticide Disposal

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Section 14: Transport Information

DOT Classification

Proper Shipping Name: Coumarin Derivative, Pesticides, Solid, Toxic, N.O.S.

Hazard Class: Class 6.1, Poisonous Material

UN Number: 2811

Packing Group: Not Applicable

Label: Not Applicable

Special Instructions: Not Applicable

Section 15: Other Regulatory Information

EPA SARA Title III Hazard Classification

Section 311/312 Hazard Classes:

Immediate Y Fire N Sudden Release of Pressure N

Delayed Y Reactive N

Section 313 Toxic Chemicals: Warfarin (CAS No. 81-81-2) 2.0%

California Proposition 65

This product contains Warfarin, a chemical known to the State of California to cause birth defects or other reproductive harm. This product contains Warfarin, a chemical known in the State of California to cause cancer.

CERLA/SARA 302 Reportable Quantity (RQ)

5000 pounds of the formulation, which contains 100 pounds of Warfarin.

RCRA Hazardous Waste Classification (40 CFR 261)

Waste Stream Classification P001

TSCA Status

Exempt from TSCA, subject to FIFRA

Section 16: Other Information

NFPA Hazard Ratings

Health: 3

Flammability: 1

Instability: 0

HMIS Hazard Ratings

Health: 3

Flammability: 1

Reactivity: 0

0 - Minimal

1 - Slight

2 - Moderate

3 - Serious

4 - Extreme

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