



MATERIAL SAFETY DATA SHEET

**Manufactured for Hacco, Inc.
By Syngenta Crop Protection
110 Hopkins Drive
Randolph, WI 53956
(920) 326-2461
(Regulatory Office)
(920) 326-5141
(Manufacturing Location)**

In Case of Emergency, Call:
1-800-498-5743 (U.S. Medical Emergency)
1-651-523-0318 (International, Medical Emergency)
1-800-424-9300 (U.S. CHEMTREC)
1-703-527-3887 (International, CHEMTREC)
(collect calls will be accepted on all lines)

1. PRODUCT IDENTIFICATION

Product Name: **Havoc[®] XT Blok Kills Rats & Mice**
Signal Word: **CAUTION**
Active Ingredient (%): Brodifacoum Technical (0.005%) CAS No.: 56073-10-0
Chemical Name: 3-[3-(4'-bromo[1,1'-biphenyl]-4-yl)-1,2,3,4-tetrahydro-1-naphthalenyl]-4-hydroxy-2H-1-benzopyran-2-one
Chemical Class: A coumarin-type anticoagulant rodenticide.
Registration Number: 100-1368-61282 **Section(s) Revised: New Issue**

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Paraffin Wax	Not Established	Not Established	Not Established	No
Cereal Ingredients	Not Established	Not Established	Not Established	No
Blue Pigment	Not Established	Not Established	Not Established	No
Brodifacoum Technical (0.005%)	Not Established	Not Established	0.002 mg/m ³ TWA***	No

*** Syngenta Occupational Exposure Limit (OEL)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
Syngenta Hazard Category: A

3. HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

Slightly irritating to the eyes. The active ingredient is designed to cause bleeding after repeated ingestion.

Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Blue solid
Odor: Slight cereal and wax odor

Unusual Fire, Explosion, and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

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. **FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL 1-800-498-5743 (U.S. Medical Emergencies) or 1-651-523-0318 (International Medical Emergencies, Collect Calls will be accepted).**

- Ingestion: If swallowed: Call 1-800-498-5743, a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling 1-800-498-5743 or by a poison control center or doctor. Do not 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 1-800-498-5743, 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: Not applicable.

Notes to Physician

This product contains anticoagulants with an effect similar to warfarin in that they act 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).

Each 20g bar contains 1mg of brodifacoum.

Medical Condition Likely to be Aggravated by Exposure

As stated above this product contains anticoagulants with an effect similar to that of Warfarin. The anticoagulant interferes with the synthesis of prothrombin. Significant exposure (e.g. ingestion) can cause anticoagulation effects and could aggravate existing blood clotting disorders.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	> 375°F (paraffin wax) Method: PMCC	
Flammable Limits (% in Air):	Lower: % Not Applicable	Upper: % Not Applicable
Autoignition Temperature:	Not Available	
Flammability:	Not Flammable	

Unusual Fire, Explosion, and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire

Use dry chemical, foam or CO₂ extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes, or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Control the spill at its source. Clean up spills immediately, observing precautions outlined in Section 8. Sweep up material and place in a compatible disposal container. Once all material is collected, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

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.

FOR 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: Gloves are not required for normal handling. Where heavy contact is likely, wear chemical resistant (such as nitrile or butyl) gloves.
- Inhalation: Respiratory protection is not required for normal handling. In the event of an unusual dust exposure, use engineering controls or a NIOSH-approved particulate respirator (N, P, R, or HE filter) to keep exposure below the Occupational Exposure Limit.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance: Blue solid
Odor: Slight cereal and wax odor
Melting Point: 130°F (paraffin wax)
Boiling Point: Not Available
Specific Gravity/Density: 1.15 g/ml
pH: Not Available

Solubility in H₂O

- Brodifacoum Technical: Insoluble

Vapor Pressure

- Brodifacoum Technical: 6 x 10⁽⁻⁶⁾ mmHg @ 68°F (20°C)

10. STABILITY AND REACTIVITY

- Stability: Stable under normal use and storage conditions.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: None known.
Materials to Avoid: None known.
Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:	<u>Practically Non-Toxic</u>	
	Oral (LD ₅₀ Rat) :	> 5,000 mg/kg body weight
Dermal:	<u>Not Available</u>	
	Dermal (LD ₅₀ Rat) :	See "Other Toxicity Information," Section 11
Inhalation:	<u>Not Available</u>	
	Inhalation (LC ₅₀ Rat) :	See "Other Toxicity Information," Section 11
Eye Contact:	See "Other Toxicity Information," Section 11	
Skin Contact:	See "Other Toxicity Information," Section 11	
Skin Sensitization:	Not Available	

Reproductive/Developmental Effects

Brodifacoum Technical: Not teratogenic, embryotoxic or fetotoxic in rats or rabbits at doses up to 0.02 mg/kg/day – the dose causing excessive maternal toxicity.
Non-genotoxic in a range of assays.

Chronic/Subchronic Toxicity Studies

Brodifacoum Technical: The biological half-life for brodifacoum in body tissue in rats is > 100 days. Adverse clinical effect can develop from body accumulation. Prolonged prothrombin time, depression, pallor, subcutaneous hemorrhage, bleeding of nose or gums, gastrointestinal hemorrhage, cerebral hemorrhage, shock and death can develop following exposures.
No neurotox studies have been conducted.

Carcinogenicity

Brodifacoum Technical: Unlikely to be carcinogenic.

Other Toxicity Information

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 since the half-life of brodifacoum is > 100 days. Individuals with blood clotting disorders may be more susceptible to overexposure effects.

Systemically toxic concentrations of this product will probably not be absorbed through human skin.

Because this product is a wax block, inhalation is not expected to be a normal route of exposure.

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

Irritation will probably not develop following contact with human skin.

Toxicity of Other Components

Blue Pigment:	Not Applicable
Cereal Ingredients:	Not Applicable
Paraffin Wax:	Not Applicable

Target Organs

Active Ingredients

Brodifacoum Technical: Blood

Inactive Ingredients

Blue Pigment:	Not Applicable
Cereal Ingredients:	Not Applicable
Paraffin Wax:	Not Applicable

12. ECOLOGICAL INFORMATION

Summary of Effects

Brodifacoum Technical: The risk of this formulation to most non-target organisms is low. However, if this product is misused or stored improperly, birds and other non-target animals may be at higher risk.

Eco-Acute Toxicity

Brodifacoum Technical: Fish (Trout) 96-hr LC₅₀ 0.04 ppm
Invertebrates (Daphnia) 48-hr EC₅₀ 0.06 ppm
Birds (8-day dietary – Bobwhite Quail) 40-day LC₅₀ 0.8 ppm
Birds (8-day dietary – Mallard Duck) 40-day LC₅₀ 2.7 ppm

Formulation (Predicted): Fish (Trout) 96-hr LC₅₀ 800 ppm
Invertebrates (Daphnia) 48-hr EC₅₀ 1,200 ppm
Birds (8-day dietary – Bobwhite Quail) LC₅₀ 16,000 ppm
Birds (8-day dietary – Mallard Duck) LC₅₀ 54,000 ppm

Eco-Chronic Toxicity

Brodifacoum Technical: Not applicable studies available.

Environmental Fate

Brodifacoum Technical: The information presented here is for the active ingredient brodifacoum.
Not persistent in soil. Stable in water. Immobile in soil. Sinks in water (after 24 hours).

13. DISPOSAL CONSIDERATIONS

Disposal

Do not reuse empty container except for holding additional product.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification

Proper Shipping Name: Exterminator, Vermin, O/T Poison
Hazard Class: Not Applicable
UN Number: Not Applicable
Packing Group: Not Applicable
Label: Not Applicable
Special Instructions: Not Applicable

IMDG Classification

Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (brodifacoum)
Hazard Class: 9
UN Number: 3077
Packing Group: III
Label: Not Applicable
Special Instructions: This product is not currently regulatory for airfreight within the NAFTA region. Effective 01/01/2011 the above classification must be used.

IATA Classification

Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (brodifacoum)
Hazard Class: 9
UN Number: 3077
Packing Group: III
Label: Not Applicable
Special Instructions: This product is not currently regulatory for airfreight within the NAFTA region. Effective 01/01/2011 the above classification must be used.

Canadian Classification

Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (brodifacoum)
Hazard Class: 9
UN Number: 3077
Packing Group: III
Label: Not Applicable
Special Instructions: This product is not currently regulatory for airfreight within the NAFTA region. Effective 01/01/2011 the above classification must be used.

15. REGULATORY INFORMATION

EPA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard

Section 313 Toxic Chemicals: Not Applicable

California Proposition 65

Not Applicable

CERLA/SARA 302 Reportable Quantity (RQ)

None

RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

TSCA Status

Exempt from TSCA, subject to FIFRA



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16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 1
Flammability: 1
Instability: 0

HMIS Hazard Ratings

Health: 1
Flammability: 1
Reactivity: 0

0 - Minimal
1 - Slight
2 - Moderate
3 - Serious
4 - Extreme

For Non-Emergency Questions About This Product Call:

1-800-621-8829
Neogen Corporation
Lexington, KY

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