



AgrEvo[®]

Material Safety Data Sheet

A Company of Hoechst and Shering, Berlin

Ficam[®] **PLUS**

Ficam PLUS

Environmental Health

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

AgrEvo USA Company
Specialty Products
Little Falls Centre One
2711 Centerville Road
Wilmington, DE 19808

EMERGENCY TELEPHONE NUMBER

In Case of Medical Emergencies or Health and Safety Inquiries, or in Case of Fire, Leaking, or Damaged Containers, Information May Be Obtained by Calling:

1-800-228-5635, EXT. 202 (24 Hours)

General Product Information Inquiries: (302) 892-3000 (Days)

PRODUCT NAME: FICAM PLUS

PRODUCT CODE: NONE

CHEMICAL NAME: 2,2-dimethyl-1,3-benzodioxol-4-yl methyl carbamate; (active in gredients-continued below**)

CHEMICAL FORMULA: Mixture (active ingredients: C₁H₁₃NO₄, C₂₁H₂₈O₃, C₁₉H₃₀O₅)

EPA REGISTRY NUMBER: 45639-66

MSDS IDENTIFICATION CODE/NUMBER: F21501

CANADIAN REG. NO.: 20105 P.C.P ACT

CHEMICAL NAME: Pyrethrum extract (pyrethrin I mixed with five related substances);3,4-(methylenedioxy) -6-propylbenzyl butyl diethyleneglycol ether

END-USE PRODUCT DESCRIPTION - the product is an insecticide, for use by Pest Control Operators for control of indoor/perimeter household insect pests

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME:	EXPOSURE LIMITS:	CONCENTRATION PERCENT BY WEIGHT:
Bendiocarb CAS NUMBER: 22781-23-3	OSHA or ACGIH Limit: Not established; World Health Organization recommended limit: 0.2 mg/m ³	29.45
Pyrethrum Extract CAS NUMBER: 8003-34-7	OSHA-PEL= ACGIH-TLV Limit: 5 mg/m ³ (TWA) World Health Organization recommended limit: 5 mg/m ³	3.06
Piperonyl Butoxide	OSHA or ACGIH limits: Not Established	7.66

2. COMPOSITION/INFORMATION ON INGREDIENTS - Cont.'d

INGREDIENT NAME:	EXPOSURE LIMITS:	CONCENTRATION PERCENT BY WEIGHT:
Inert Ingredients,including:		59.83
Amorphous silica (hydrated) CAS NUMBER: 7631-86-9	OSHA-PEL: 6 mg/m ³ ACGIH-TLV: 6 mg/m ³	
Alkyl naphthalene-sulfonic acid (Polymerized;Na Salt) CAS NUMBER: 9084-06-4	Manufacturer's recommended limit (as Nuisance dust): see Kaolin	
Isoparaffinic Hydrocarbon CAS NUMBER: 64742-47-8	OSHA or ACGIH limits: Not Established	

INERT INGREDIENTS (59.83%): only the regulated ingredients are listed above. (see Section 15 for regulatory information).

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HARMFUL OR FATAL IS SWALLOWED. MAY BE ABSORBED THROUGH THE SKIN. MAY BE TOXIC IF INHALED; AVOID BREATHING AND WORKING IN SPRAY MIST OR DUST.

POTENTIAL HEALTH EFFECTS

PRIMARY ROUTE(S) OF ENTRY

Dust inhalation, skin contact.

EYES

A moderate eye irritant. Not corrosive to eyes

SKIN

A mild skin irritant. Can be absorbed through the skin. Not a skin sensitizer.

INGESTION

Harmful or fatal if the concentrated FICAM PLUS is swallowed. However, it should be noted that such ingestion hazards are considered unlikely to the end-users of this product (the consumers). When the consumer product-package is used/applied as specified by the product label, the bendiocarb concentrations used are very low (0.25% to 0.5% per package, per one gallon of water).

INHALATION

May be toxic if the concentrated product is inhaled which may produce effects associated with cholinesterase inhibition. However, such inhalation hazards are considered unlikely to the end users of the product (the consumers), since the consumer product is packaged to contain very low concentrations of bendiocarb technical (0.25-0.5% per package; to be diluted further in one gallon of water).

CHRONIC (CANCER INFORMATION)

None of the product components are listed as carcinogenic by NTP, IARC, OSHA.

SIGNS AND SYMPTOMS

EFFECTS OF OVEREXPOSURE: May be fatal if swallowed. May be toxic if inhaled.

Overexposure to Bendiocarb produces effects associated with cholinesterase inhibition. The threshold dose for symptoms of cholinesterase inhibition in humans was determined to be 0.15-0.2 mg/kg and the no-effect level is 0.10 mg/kg. Symptoms include a sense of "tightness" in chest, sweating, headache, nausea, dizziness, constricted pupils, reversible vision impairment, salivation, vomiting, abdominal cramps, diarrhea, incontinence, muscular incoordination and twitching.

3. HAZARDS IDENTIFICATION - Cont.'d

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE

May aggravate pre-existing respiratory conditions

NOTE: For detailed toxicological information, please refer to Section 11.

4. FIRST AID MEASURES

EYES

Flush eyes with plenty of water for 15 minutes. Get medical attention.

SKIN

Wash with soap and warm water for 15 minutes.

INGESTION

Call a physician or poison control center. Give 1 or 2 glasses of water and induce vomiting by touching finger to back of throat or administer Ipecac Syrup U.S.P adult dose 20 ml, children 10 ml. Do not induce vomiting or give anything by mouth to an unconscious or convulsing person. Get medical attention.

INHALATION

Keep patient strictly at rest and transfer to hospital immediately to get medical attention.

NOTE TO PHYSICIAN

Contains anticholinesterase carbamate insecticide. In cases of overexposure, 2 mg atropine sulfate (equivalent to 1/30 grain adult dose) should be given and repeated as necessary until fully atropinized. Morphine contraindicated. Control convulsions with 10-20 mg diazepam intravenously. Miosis due to direct eye contact will reverse spontaneously without specific treatment.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: Does not flash

FIRE AND EXPLOSION HAZARDS

When heated to the point of decomposition (above 140°C or 280°F), bendiocarb gives off a toxic fume which is rapidly eliminated by fire or water.

EXTINGUISHING MEDIA

Water spray, foam, carbon dioxide, or dry chemical.

FIRE FIGHTING INSTRUCTIONS

Remove from area of fire at once. Avoid inhalation of fumes or dust. Wear self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

GENERAL AND DISPOSAL: Use proper protective equipment to minimize personal exposure (see Section 8). Take all necessary action to prevent and to remedy the effects of the spill. Ensure that the disposal is in compliance with federal or local disposal regulations. Notify the appropriate authorities immediately. (see Section 15 for applicable Reportable Quantity (RQ) and other federal regulatory information).

LAND SPILL OR LEAK: Keep people away and isolate hazard area. Take up with sand or other non-combustible absorbent material avoiding formation of dust, and with a clean shovel place material into a clean dry container and cover for disposal. Wash areas with water and detergent. Inform authorities immediately if sewers or watercourses are contaminated.

7. HANDLING AND STORAGE

HANDLING PRECAUTIONS

Harmful or fatal if swallowed. May be absorbed through the skin. Avoid contact with the eyes, skin, and clothing. If contact occurs, wash skin and clothing immediately with soap and warm water, and eyes with clean water.

7. HANDLING AND STORAGE - Cont.'d

DO NOT rub eyes or mouth with hands. If you feel sick in any way, STOP WORK and get help right away. (See Section 4- FIRST AID MEASURES).

Avoid breathing and working in spray mist or dust. When applying in outdoor sites, keep all unprotected persons, children, and animals away from treated area or where there is danger of drift.

Wash hands and exposed skin before eating, drinking or smoking and after spraying or handling. Wash all contaminated clothing thoroughly before reuse.

DO NOT apply to humans, their clothing or bedding. DO NOT permit children or pets to contact treated surfaces until spray has dried completely.

DO NOT apply this product in conduits, motor housing, junction and switch boxes or other electrical equipment because of possible shock hazard. If there is a need to treat such areas, use oil-based sprays or FICAM D.

DO NOT use on or contaminate fruit, vegetables or other food crops. DO NOT store near feed or food products and DO NOT contaminate these or food preparation surfaces, dishes, kitchen utensils and food containers with either the concentrate or the spray.

STORAGE PRECAUTIONS

Store in a cool, dry place. DO NOT store near feed or food products. Product is stable in normal storage temperatures. (should avoid extreme temperatures; See Section 5-Hazardous Decomposition Products)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS

Control airborne concentrations below the exposure guideline (see Section 2 for OSHA/ACGIH exposure limits). Use with adequate ventilation. Local exhaust ventilation may be necessary, especially when used in a confined area.

EYE/FACE PROTECTION

Safety glasses, goggles, face shield.

SKIN PROTECTION

PVC or rubber protective gloves.

RESPIRATORY PROTECTION

Ensure good ventilation. If not adequate, wear suitable dust respirator.

OTHER/GENERAL PROTECTION

Please refer to Section 7 above for HANDLING PRECAUTIONS. Clothing should be washed thoroughly after each use or at the end of every shift. In addition, users of contact lens must wear protective safety glasses for proper protection during product handling and use.

Although general guidance has been provided, the degree of protection required in a particular situation depends on factors such as concentration and duration. More detailed advice on protective devices is available from AgrEvo.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Light tan powder

ODOR

Mild odor

9. PHYSICAL AND CHEMICAL PROPERTIES - Cont.'d

BASIC PHYSICAL PROPERTIES

PHYSICAL STATE: Solid

BOILING POINT: Not applicable F

MELTING POINT: about 264 F 128-130 * C

VAPOR PRESSURE: 3.5 X 10(-5) mm Hg *

VAPOR DENSITY (AIR=1): Not volatile

SOLUBILITY (H2O): 0.024 % (240 ppm) (for a.i.)*

VAPOR PRESSURE (25°C), MELTING POINT, AND SOLUBILITY: the data above were for bendiocarb technical.

10. STABILITY AND REACTIVITY

STABILITY: Stable; up to 280 °F (140 °C)

CONDITIONS TO AVOID (STABILITY)

Extreme heat or moisture.

HAZARDOUS DECOMPOSITION PRODUCTS

When heated to the point of decomposition (above 140°C or 280°F), bendiocarb gives off a toxic fume which is rapidly eliminated by water or fire.

HAZARDOUS POLYMERIZATION: Will not occur

11. TOXICOLOGICAL INFORMATION

ACUTE STUDIES

The following data were developed with:
FICAM PLUS

EYE IRRITATION (rabbit): moderately irritating

SKIN IRRITATION (rabbit): slightly irritating

SKIN SENSITIZATION (guinea pig): non-sensitizing

ORAL LD50(rat): 174-283 mg/kg
(moderately toxic)

DERMAL LD50 (rat): >3,000 mg/kg
(slightly toxic)

INHALATION LC50(rat-4hrs): 1.1 mg/l
(moderately toxic)

THE FOLLOWING DATA WERE DEVELOPED

WITH: Bendiocarb Technical (>96%), pyrethrum extracts, and piperonyl butoxide, the active ingredients for the formulated product. In comparison, Ficam Plus contains 29.45% bendiocarb technical, 3.06% pyrethrum, and 7.66% piperonyl butoxide.

SUBCHRONIC (TARGET ORGAN EFFECTS)

Results from 90-day animal studies suggest no target organ effects under the the recommended conditions of handling and use.

CHRONIC (CANCER INFORMATION)

Bendiocarb: In two-year feeding studies with Bendiocarb in animals, no clinical signs or mortalities related to treatment were observed in rats and dogs at dose levels up to 200 ppm and 500 ppm, respectively; the effects observed at the highest dose were reduced blood cholinesterase level in rats and lower blood and brain cholinesterase levels in dogs. Similarly, bendiocarb administered chronically to mice at dietary dose levels up to 1250 ppm showed only an effect in increased tests weight at the highest dose.

Pyrethrum and Piperonyl Butoxide: In a recent study, higher levels of benign thyroid and liver tumors were observed in rats following life time high dose exposure to pyrethrum. Thyroid and liver enlargements in rats, and higher levels of benign liver tumors in mice were observed following life time high dose exposure to Piperonyl butoxide. Doses at which these effects were observed greatly exceed anticipated human exposure levels. At the anticipated exposure levels, it is highly unlikely that this product would result in carcinogenic effects.

CARCINOGENICITY:

NTP: No

IARC: No

OSHA: No

TERATOGENICITY (BIRTH DEFECTS)

No evidence of teratogenic effects of Bendiocarb was observed in offspring of rats and rabbits fed during gestation dose levels up to 4 mg/kg/day and 5 mg/kg/day, respectively.

11. TOXICOLOGICAL INFORMATION - Cont.'d

REPRODUCTIVE EFFECTS

Bendiocarb showed no adverse effects on fertility or reproduction in rats fed dietary levels up to 800 ppm prior to mating and during gestation.

NEUROTOXICITY

No evidence of neurological lesions or irreversible or delayed neurotoxic effects were observed when bendiocarb was administered to hens by single doses up to 757 mg/kg.

MUTAGENICITY (GENETIC EFFECTS)

Bendiocarb: Bendiocarb is not mutagenic or genotoxic when tested in Ames gene mutation assay and in four other mutagenesis assays of bacteria, yeast, and rodents. In an *in vitro* analysis of metaphase chromosomes from human lymphocyte cell cultures, a positive result was observed only in the presence of metabolic activation. However, an *in vivo* analysis of metaphase chromosomes of bone marrow cells did not show any evidence of chromosomal damages, both in the absence or presence of metabolic activation. It is concluded from the results of these mutagenesis studies that bendiocarb does not damage chromosomes in humans and animals under normal conditions of use.

Piperonyl Butoxide (PB): PB was shown to have no mutagenic effects by recent mutagenicity evaluations.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

This product is toxic to fish and wildlife. DO NOT apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. DO NOT contaminate water by cleaning of equipment or disposal of waste.

TOXICITY TO BENEFICIAL MICROORGANISMS

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. DO NOT apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

ENVIRONMENTAL FATE INFORMATION

The active ingredient, bendiocarb technical, breaks down readily in the naturally environment, especially under alkaline conditions and at the concentrations applied in treatments (up to 0.5% dilutions in water).

13. DISPOSAL CONSIDERATIONS

PROPER WASTE DISPOSAL: Waste, including spills or rinsates, and leftover pesticide that cannot be used according to label instructions, must be disposed of according to applicable federal (RCRA), state or local procedures.

RCRA INFORMATION

RCRA HAZARDOUS WASTE INGREDIENTS: None; not listed by RCRA.

14. TRANSPORT INFORMATION

PROPER SHIPPING NAME:

Carbamate pesticides, solid, toxic, 6.1, UN2757, PG III, Volume in NET pounds (USA) or Kilos (Canada), Limited Quantity

DOT SHIPPING LABEL: Keep Away From Foodstuffs

FREIGHT CLASSIFICATION: Insecticides, other than agricultural, dry, N.O.I.

NOTE: Inhalation LC50 (rat-4 hours): 1.1 mg/l. For transportation purposes, (49CFR Part 170.132), the calculated LC50 (rat-1 hr) is 4.4 mg/l.

NOTE - EXCEPTION FOR SMALL QUANTITIES: If the gross mass of the package does not exceed 64 pounds (24 kgs) then this product is exempt from DOT labeling based on 49 CFR 173.4, exceptions for small quantities.

Mark the outside of the package "This package conforms to 49 CFR 173.4"

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATORY INFORMATION

TSCA: The active ingredients are registered products under FIFRA and is therefore exempted from TSCA inventory. The inert ingredients are listed.

SARA TITLE III NOTIFICATION AND INFORMATION:

Section 302 (EHS) Ingredients: Not listed
Section 304 (CERCLA & EHS) Ingredients (RQ): Pyrethrin (3.06%) (RQ=1.0); the RQ for the Ficam Plus product= 33.0 lb

SARA TITLE III NOTIFICATIONS AND INFORMATION REPORTABLE QUANTITY (POUNDS): 33

SARA TITLE III - HAZARD CLASSES:

Acute Health Hazard - "Yes"
 Chronic Health Hazard - "No"
 Fire Hazard - "No"
 Sudden Release of Pressure Hazard - "No"
 Reactivity Hazard - "No"

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

CAS NUMBER	22781-23-3
INGREDIENT NAME	Bendiocarb
PERCENT BY WEIGHT	29.45

CAS NUMBER	51-03-6
INGREDIENT NAME	Piperonyl Butoxide
PERCENT BY WEIGHT	7.66

This information must be included on all MSDSs that are copied and distributed for this material.

U.S. STATE REGULATORY INFORMATION

State right-to-know (RTK) hazardous substances: Bendiocarb and Pyrethrins are listed as RTK substances in several states (NJ, PA., or MA).

CANADIAN REGULATORY INFORMATION

Canada WHMIS Controlled Product

regulations: FICAM PLUS is a registered product under US-FIFRA regulations and are therefore exempted from WHMIS classifications. It is identify as "Pest" for Canadian inventory purpose. For hazard communication purposes, the toxicity data indicate an equivalent WHMIS classification as: inhalation and ingestion hazards (Class D; Division 1/Subdivision B).

16. OTHER INFORMATION

HMIS HAZARD RATING

- HEALTH:	2 Moderate
- FIRE:	1 Slight
- REACTIVITY:	0 Negligible
- PPE:	>F

NFPA HAZARD RATING

- HEALTH:	2 Moderate
- FIRE:	1 Slight
- REACTIVITY:	0 Negligible
- Spec. Haz.:	Non

MSDS IDENTIFICATION CODE/NUMBER:
F21501

PREPARED BY: Dept. of Regulatory Affairs
PHONE: (302)892-3051

MSDS REVISION INDICATOR: **Revised in** Section 14 to delete "n.o.s." reference from Proper Shipping Name.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

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