

MATERIAL SAFETY DATA SHEET

Section 1. Company Contact and Chemical Product Information

Product Name: ABACUS[®] Agricultural Miticide/Insecticide

EPA Reg. No.: 83100-4-83979

Product Code: RTFI-001

Corporate Contact: 1-866-927-6826

Emergency number for spills and cleanup: CHEMTREC: 1-800-424-9300

Chemical Name of Active Ingredient (IUPAC):

(10*E*,14*E*,16*E*)-(1*R*,4*S*,5'*S*,6*S*,6'*R*,8*R*,12*S*,13*S*,20*R*,21*R*,24*S*)-6'-[(*S*)-sec-butyl]-21,24-dihydroxy-5',11,13,22-tetramethyl-2-oxo-(3,7,19-trioxatetracyclo[15.6.1.1^{4,8}.0^{20,24}]pentacosa-10,14,16,22-tetraene)-6-spiro-2'-(5',6'-dihydro-2'*H*-pyran)-12-yl 2,6-dideoxy-4-*O*-(2,6-dideoxy-3-*O*-methyl- α -L-*arabino*-hexopyranosyl)-3-*O*-methyl- α -L-*arabino*-hexopyranoside (i) and 20% (10*E*,14*E*,16*E*)-(1*R*,4*S*,5'*S*,6*S*,6'*R*,8*R*,12*S*,13*S*,20*R*,21*R*,24*S*)-21,24-dihydroxy-6'-isopropyl-5',11,13,22-tetramethyl-2-oxo-(3,7,19-trioxatetracyclo[15.6.1.1^{4,8}.0^{20,24}]pentacosa-10,14,16,22-tetraene)-6-spiro-2'-(5',6'-dihydro-2'*H*-pyran)-12-yl 2,6-dideoxy-4-*O*-(2,6-dideoxy-3-*O*-methyl- α -L-*arabino*-hexopyranosyl)-3-*O*-methyl- α -L-*arabino*-hexopyranoside (ii)

Chemical Formula of Active Ingredient:

Avermectin B1a: C₄₈H₇₂O₁₄ (i)

Avermectin B1b: C₄₇H₇₀O₁₄ (ii)

CAS/EU Registry Number of Active Ingredient:

(CAS) 65195-55-3 & 65195-56-4; (CIPAC) 495

Section 2. Composition/Information on Ingredients

Component	CAS Number	Content (%)
Abamectin	71751-41-2	2
Avermectin B1a	65195-55-3	
Avermectin B1b	65195-56-4	
Inerts	Proprietary	98

Section 3. Hazards Identification

WARNING: Causes substantial but temporary eye injury. Harmful if swallowed. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wear protective eyewear (goggles or face shield). Do not get in eyes, on skin, or on clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.

Section 4. First Aid Measures

If in Eyes: 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 poison control center or doctor for treatment advice.

If Swallowed: Do not induce vomiting unless told to do so by the 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. Call poison control center or doctor for treatment advice.

If Inhaled: 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 poison control center or doctor for treatment advice.

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

Note to Physician: Recommendations for Medical Treatment for ABACUS® (Avermectin B1) Acute Toxicity:

Early signs of intoxication include mydriasis (dilated pupils), ataxia (unsteadiness), and muscle tremors. Toxicity follows accidental ingestion of the concentrate and can be minimized by inducing vomiting within one-half hour of exposure. If toxicity from exposure has progressed to cause severe vomiting, the extent of resultant fluid and electrolyte imbalance should be gauged. Appropriate supportive parenteral fluid replacement therapy should be given, along with other required supportive measures (such as maintenance of blood pressure levels) as indicated by clinical signs, symptoms, and measurements. In severe cases, observations should continue for at least several days until clinical condition is stable and normal. Since avermectin is believed to enhance GABA activity in animals, it is probably wise to avoid drugs that enhance GABA activity (barbiturates, benzodiazepines, valproic acid) in patients with potentially toxic avermectin exposure.

For information on this pesticide product (including health concerns, medical emergencies, or pesticide incidents), call the National Pesticide Information Center at 1-800-858-7378 or a poison control center for assistance.

Section 5. Fire Fighting Measures

Fire and Explosion Hazards: Combustible liquid. Flash point >61°C (Closed cup method). When heated above the flash point, this product releases vapors which, when mixed with air, can burn or be explosive.

Firefighting Media: Foam; dry chemical or CO₂ to extinguish fire.

Firefighting Precaution: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full-face piece operated in the pressure demand or other positive pressure mode. Keep unnecessary people away. Use as little water as possible. Dike area of fire to prevent material run-off. Decontaminate emergency personnel with soap and water before leaving the fire area. Avoid breathing dusts, vapors and fumes from burning materials. Control run-off water.

Section 6. Accidental Release Measures

In case materials are released, contact emergency response personnel. Keep unnecessary persons away. If emergency response personnel are unavailable, absorb small spills on spill pillows or other suitable absorbing material and place in a sealed container for disposal. Dike large spills and transfer to an appropriate container for disposal. Avoid contact of spilled materials and runoff with soil and surface waterways. Use suitable protective equipment (Section 8). Follow all fire prevention procedures (Section 5).

Section 7. Handling and Storage

Handling Precautions: Harmful if swallowed or absorbed through skin. Avoid contact with eyes, skin or clothing. Do not breathe spray mist. Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Storage Precautions: Do not use, pour, or store near heat or open flame. Store in the original container and keep closed. Store in cool, dry and well-ventilated place.

Section 8. Exposure Controls/Personal Protection

Engineering Controls: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system.

Eye/Face: To protect against accidental eye contact, goggles/face-shield should be worn.

Skin Protection: Rubber gloves should be worn. Wash thoroughly with soap and water after handling.

Respiratory Protection: Ensure good ventilation. For maximum protection, wear a supplied air, full-face piece respirator, air lined hood, or full-face piece self-contained breathing apparatus.

Note to applicators and handlers of agricultural products: Applicators and handlers must wear the following Personal Protective Equipment (PPE):

- Coveralls worn over short-sleeved shirt and short pants.
- Chemical-resistant gloves - EPA chemical resistance category B.
(e.g. barrier laminate or butyl rubber \geq 14 mils).
- Chemical-resistant footwear plus socks.
- Protective eyewear.
- Chemical-resistant headgear for overhead exposure.
- Chemical-resistant apron when cleaning equipment, mixing and loading.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Section 9. Physical and Chemical Properties

Appearance	Yellowish liquid
Odor	Characteristic odor
Specific Gravity	0.966 lb/gal
Water Solubility	Disperse in water

Section 10. Stability and Reactivity

Stability: Stable under normal handling and storage conditions.

Incompatibilities: Avoid mixed with highly reactive chemicals such as strong acid, strong base or strong oxidizing agent.

Hazard Decomposition: Thermal decomposition may emit toxic fumes of carbon monoxide and carbon dioxide.

Hazard Polymerization: Will not occur.

Section 11. Toxicological Information

Acute Oral Toxicity: LD50 for albino rats 303 mg/kg

Acute Dermal Toxicity: LD50 for rabbits >2020 mg/kg

Acute Inhalation Toxicity: LC50 (4 h) for rats 2.29 mg/l

Skin Irritation: Moderately irritating.

Eye Irritation: Moderately irritating.

Dermal Irritation: Mildly irritating to the skin.

Section 12. Ecological Information

This product is toxic to aqueous organism. Referenced technical ecological toxicology data list as below:

Birds	Acute oral LD50 for mallard ducks 84.6, bobwhite quail >2000 mg/kg
Fish	LC50 (96 h) for rainbow trout 3.2, bluegill sunfish 9.6 µg/l.
Bee	Toxic to bees.

Environmental Fate:

Animals	Rapidly eliminated (80-100% in 96 h), mainly via feces; urinary excretion was 0.5-1.4%.
Plants	Degradation/metabolism in each of three different plants is similar and occurs predominantly by photolysis on the plant surfaces. The definition of the residues is thus expressed as the combined residues of avermectin B 1 and its 8, 9- Z-avermectin B 1 photoisomer.

Soil/Environment:

Binds tightly to soil, with rapid degradation by soil microorganisms. No bioaccumulation.

Section 13. Disposal Considerations

Disposal of product would be treated, stored, transported, and disposed of according to the local waste regulation authority. Do not flush to surface water or sanitary sewer system.

Section 14. Transport Information

US DOT Classification

Proper Shipping Name: Pesticides, Liquid, Toxic, N.O.S. (Abamectin)
Abacus® Agricultural Miticide/Insecticide (19g/kg) Emulsifiable Concentrate

Class: 6.1

UN No.: 2902

Packaging Group: PG III

IMO Classification

Proper Shipping Name: Pesticides, Liquid, Toxic, N.O.S. (Abamectin)
Abacus® Agricultural Miticide/Insecticide (19g/kg) Emulsifiable Concentrate

Class: 6.1

UN No.: 2902

Packaging Group: PG III

Marine Pollutant

IATA Classification

Proper Shipping Name: Pesticides, Liquid, Toxic, N.O.S. (Abamectin)
Abacus® Agricultural Miticide/Insecticide (19g/kg) Emulsifiable Concentrate

Class: 6.1

UN No.: 2902

Packaging Group: PG III

ADR Classification

Proper Shipping Name: Pesticides, Liquid, Toxic, N.O.S. (Abamectin)
Abacus® Agricultural Miticide/Insecticide (19g/kg) Emulsifiable Concentrate

Class: 6.1

UN No.: 2902

Packaging Group: PG III

Section 15. Regulatory Information

USEPA Registered Company Address:

Rotam North America, Inc., 660 Newtown-Yardley Rd., Newtown, PA 18940

Product Signal Word: WARNING

Abacus® is registered by the USEPA as a RESTRICTED USE PESTICIDE

Regulatory Information continued . . .

European/International Regulation:**Hazard Symbols:**

Xn Harmful.

Risk Phrases:

R 20 Harmful by inhalation.

R 22 Harmful if swallowed.

Safety Phrases:

S 1/2 Keep locked-up and out of reach of children.

S 3 Keep in a cool place.

S 4 Keep away from living quarters.

S 7 Keep container tightly closed.

S 9 Keep container in well-ventilated place.

S 13 Keep away from food, drink and animal feeding stuffs.

S 20 When using do not eat or drink.

S 24/25 Avoid contact with skin and eyes.

S 36 Wear suitable protective clothing and gloves.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 46 If swallowed, seek medical advice immediately and show this container or label.

Section 16. Other Information

Disclaimer: The information provided by Rotam North America, Inc. contained herein is given in good faith and to the best of our knowledge. However, no warranty is expressed or implied.