

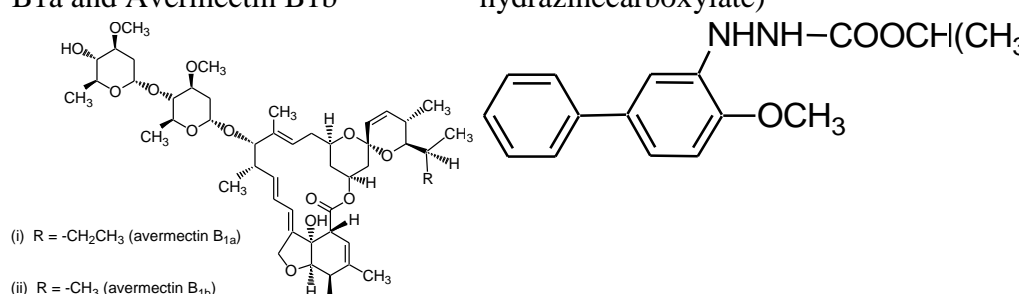


Material Safety Data Sheet (MSDS) **SHAFY SC**

IDENTIFICATION OF THE SUPPLIER:

AGRO CHEMICALS INDUSTRIES LTD
P.O. BOX 183020 AMMAN 11118 JORDAN
Fax. +962 6 5548220
Tel: +962 6 5548224
E-mail : info@aci.com.jo

PRODUCT IDENTIFICATION:

Common name :	Abamectin	Bifenazate
Trade name	Shafy SC	
Uses category	Insecticide / miticide	
Type of formulation	Suspension concentrate	
Chemical name	A mixture of avermectins containing primarily Avermectin B1a and Avermectin B1b	1-methylethyl 2-(4-methoxy[1,1-biphenyl]-3-yl)hydrazinecarboxylate
Chemical formula	 <p>(i) R = -CH₂CH₃ (avermectin B_{1a}) (ii) R = -CH₃ (avermectin B_{1b})</p>	
Molecular weight	873.1 (avermectin B _{1a}); 859.1 (avermectin B _{1b})	300.4

PRODUCT COMPOSITION:

Active ingredient	% w/v	CAS#
Abamectin	2.4	[71751-41-2]
Bifenazate	48	[149877-41-8]

Inert materials: up to 1 liter





HAZARDS IDENTIFICATION:

Emergency Overview

WARNING!

Appearance: liquid

Colour: off-white, to, light tan

Odour: mild

Hazard Summary: Harmful if swallowed.

Causes eye irritation.

Very toxic to aquatic life with long lasting effects

OSHA Regulatory status: This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

GHS Classification

Acute toxicity (Oral): Category 4

Eye irritation): Category 2B

Acute aquatic toxicity: Category 1

Chronic aquatic toxicity: Category 1

GHS Label element

Hazard pictograms



Signal word: Warning

Hazard statements:

H302 Harmful if swallowed.

H320 Causes eye irritation.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention:

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

Response:

P301 +

P312 +



P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.

P305 +

P351 +

P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 +

P313 If eye irritation persists: Get medical advice/ attention.

P391 Collect spillage.

Disposal:

P501 Dispose of contents/container to an approved waste disposal plant.

Potential Health Effects

Inhalation: May cause irritation of respiratory tract.

Skin: May irritate skin.

Eyes: Causes eye irritation.

Ingestion: Harmful if swallowed.

Aggravated Medical

Condition: None known.

Symptoms of Overexposure: Eye irritation irritant effects

Carcinogenicity:

IARC: No component of this product presents at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP: No component of this product presents at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

FIRE-FIGHTING MEASURES: -

Suitable extinguishing media :

Extinguishing media - large fires
Alcohol-resistant foam (on small fires)
Carbon dioxide (CO₂) Dry chemical

Unsuitable extinguishing media :

Water spray jet

Specific hazards during fire-fighting :

Burning produces Irritant fumes.
Contains no substances with occupational exposure limit values.
Exposure to decomposition products may be a





hazard to health

Specific extinguishing Methods:

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

Further information:

Prevent fire extinguishing water from contaminating surface water or the ground water system.

Special protective equipment for firefighters:

Body covering protective clothing, full “turn-out” gear.

Self-contained breathing apparatus (EN 133)

FIRST-AID MEASURES:

Ingestion:

Call a physician or poison control center immediately.

Do not induce vomiting without medical advice

Eye Contact:

Call a POISON CENTER or doctor/ physician.

Skin Contact:

Remove contaminated clothing and shoes.

Call a POISON CENTER or doctor/ physician.

Inhalation:

Call a POISON CENTER or doctor/ physician.

Notes to Physician

The first aid procedure should be established in consultation with the doctor responsible for industrial medicine measurements. In severe cases, observations should continue for at least several days until clinical condition is stable and normal. Since abamectin 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 abamectin exposure.

ACCIDENTAL RELEASE:

Personal precautions, protective equipment and Emergency procedures

Wear suitable protective equipment. Avoid contact with skin and eyes.



Environmental precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

Methods and materials for containment and cleaning up: Dam up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Pick up and transfer to properly labelled containers. Large spills should be collected mechanically (remove by pumping) for disposal.

PHYSICAL-CHEMICAL DATA:

Appearance	liquid
Colour	off-white, to, light tan
Odour	mild
Odour Threshold	No data available
pH	ca.7.2
Melting point/range	Not applicable
Boiling point/boiling range	100 °C
Flash point	> 110 °C
Evaporation rate	No data available
Upper explosion limit	No data available
Lower explosion	No data available
Vapour pressure	similar to water
Relative vapour density	No data available
Relative density	1.104
Solubility(ies)	
Water solubility	dispersible
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	
Viscosity, dynamic	333 mPa.s (20 °C)
Viscosity, kinematic	No data available
Self-Accelerating decomposition	





temperature (SADT) Method : No information available.

STABILITY AND REACTIVITY

Reactivity: Stable under recommended storage conditions

Chemical stability: No decomposition if stored and applied as directed.

Possibility of hazardous reactions: Hazardous polymerisation does not occur.

Conditions to avoid: No data available

Incompatible materials: Strong oxidizing agents Strong acids and strong bases

Hazardous decomposition products: Carbon oxides

PERSONAL PROTECTION/SAFETY:

Components with workplace control parameters: Contains no substances with occupational exposure limit values

Personal protective equipment

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hand protection

Remarks : Impervious gloves

Eye protection : Safety glasses with side-shields

Skin and body protection : impervious clothing

ACUTE TOXICITY (IRRITATION, SENSITISATION ETC.)

Information on likely routes of exposure: Skin contact Inhalation Ingestion

Acute toxicity

Product:

Acute oral toxicity: LD50 (Rat): 310 mg/kg

Acute inhalation toxicity: LC50 (Rat): 0.52 - 2.4 mg/l

Acute dermal toxicity: LD50 (Rat) : > 5,000 mg/kg

Components:

Bifenazate:

Acute oral toxicity: LD50 (Rat, male and female): > 5,000 mg/kg

Method: OECD Test Guideline 401 GLP: yes



LD50 (Mouse, male and female): > 5,000 mg/kg **Method:** OECD Test Guideline 401 **GLP:** yes

Acute inhalation toxicity: LC50 (Rat, male and female): > 4.4 mg/l **Exposure time:** 4 h **Test atmosphere:** dust/mist **Method:** OECD Test Guideline 403 **GLP:** yes
Assessment: The substance or mixture has no acute inhalation toxicity **Remarks:** An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration

Acute dermal toxicity: LD50 (Rat, male and female): > 5,000 mg/kg **Method:** OECD Test Guideline 402 **GLP:** yes

Avermectin B1:

Acute oral toxicity: LD50 (Rat): 11 mg/kg

LD50 (Rat, male and female): 8.7 - 12.8 mg/kg **Method:** OECD Test Guideline 401

Acute inhalation toxicity: LC50 (Rat): 1,100 mg/l **Exposure time:** 4 h

LC50 (Rat, male and female): 0.21 mg/l **Exposure time:** 4 h **Method:** OECD Test Guideline 403 **GLP:** yes

Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg

LD50 (Rabbit, male and female): > 2,000 mg/kg **Method:** OECD-Guideline No.402

Skin corrosion/irritation

Product:

Species: Rabbit

Result: slight irritation

Components:

Bifenazate:

Species: Rabbit

Exposure time: 4 h

Method: OECD Test Guideline 404

Result: No skin irritation

GLP: yes

Avermectin B1:

Species: Rabbit

Method: OECD-Guideline No.404

Result: No skin irritation

Serious eye damage/eye irritation



Product:

Species: Rabbit

Result: Mild eye irritation

Components:

Bifenazate:

Species: Rabbit

Result: No eye irritation

Exposure time: 48 h

Method: OECD Test Guideline 405

GLP: yes

Avermectin B1:

Species: Rabbit

Result: No eye irritation

Method: OECD Test Guideline 405

Respiratory or skin sensitisation

Product:

Species: Guinea pig

Result: Did not cause sensitisation on laboratory animals.

Components:

Bifenazate:

Test Type: Maximisation Test (GPMT)

Species: Guinea pig

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 406

GLP: yes

Avermectin B1:

Test Type: Maximisation Test (GPMT)

Species: Guinea pig

Assessment: Did not cause sensitisation on laboratory animals.

Method: OECD Test Guideline 406

Germ cell mutagenicity

Components:

Bifenazate:

Genotoxicity in vitro: Test Type: Ames test Metabolic activation: with and without metabolic activation Result: negative GLP: yes



Test Type: In Vitro mam-malian Cell Gene Mutation Test Metabolic activation: with and without metabolic activation **Result:** negative **GLP:** yes

Test Type: Chromosome aberration test in vitro Metabolic activation: with and without metabolic activation **Result:** negative **GLP:** yes

Genotoxicity in vivo: **Test Type:** In vivo micronucleus test **Species:** Mouse **Result:** negative **GLP:** yes

Germ cell mutagenicity

- **Assessment:** Animal testing did not show any mutagenic effects.

Avermectin B1:

Genotoxicity in vitro: **Test Type:** Ames test Metabolic activation: with and without metabolic activation **Method:** Mutagenicity (Escherichia coli - reverse mutation assay) **Result:** negative

Genotoxicity in vivo: **Test Type:** in vivo assay **Species:** Mouse (males) **Cell type:** Bone marrow **Result:** negative

Germ cell mutagenicity

- **Assessment:** Animal testing did not show any mutagenic effects.

Carcinogenicity

Components:

Bifenazate:

Carcinogenicity

- **Assessment:** Animal testing did not show any carcinogenic effects.

Avermectin B1:

Carcinogenicity

- **Assessment:** Animal testing did not show any carcinogenic effects.

Reproductive toxicity

Components:

Bifenazate:

Reproductive toxicity

- **Assessment:** No toxicity to reproduction No effects on or via lactation

Avermectin B1:

Reproductive toxicity

- **Assessment :** No toxicity to reproduction Effects on or via lactation

STOT - single exposure

Components:

Bifenazate:

Assessment: Based on available data, the classification criteria are not met.



STOT - repeated exposure

Components:

Bifenazate:

Assessment: Based on available data, the classification criteria are not met.

Avermectin B1:

Exposure routes: Oral

Target Organs: Central nervous system

Assessment: May cause damage to organs through prolonged or repeated exposure.

Exposure routes: Inhalation

Target Organs: Central nervous system

Assessment: May cause damage to organs through prolonged or repeated exposure.

Further information

Product:

Remarks: The product itself has not been tested. The following information is applicable to a component of this material

ECOLOGICAL INFORMATION: -

Ecotoxicity

Components:

Bifenazate:

Toxicity to fish: LC50 (*Lepomis macrochirus* (Bluegill sunfish)): 0.58 mg/l

Exposure time: 96 h Test Type: flow-through test GLP: yes

LC50 (*Oncorhynchus mykiss* (rainbow trout)): 0.76 mg/l Exposure time: 96 h

Test Type: flow-through test GLP: yes

Toxicity to daphnia and other aquatic invertebrates: EC50 (*Daphnia magna* (Water flea)): 0.5 mg/l Exposure time: 48 h Test Type: flow-through test GLP: yes

LC50 (*Crassostrea virginica*): 0.42 mg/l Exposure time: 96 h Test Type: flow-through test GLP: yes

Toxicity to algae: IC50 (*Lemna gibba*): > 3.82 mg/l Exposure time: 7 d

Analytical monitoring: yes GLP: yes

NOEC (*Lemna gibba*): > 3.82 mg/l Exposure time: 7 d Analytical monitoring: yes GLP: yes

NOEC (*Selenastrum capricornutum* (green algae)): 0.25 mg/l Exposure time: 96 h GLP: yes



ErC50 (*Selenastrum capricornutum* (green algae)): > 2.02 mg/l Exposure time: 96h

GLP: yes

EbC50 (*Selenastrum capricornutum* (green algae)): 0.9 mg/l Exposure time: 96 h

GLP: yes

NOEC (*Navicula pelliculosa*): 0.52 mg/l Exposure time: 96 h GLP: yes

EbC50 (*Navicula pelliculosa*): 0.82 mg/l Exposure time: 96 h GLP: yes

ErC50 (*Navicula pelliculosa*): 1.4 mg/l Exposure time: 96 h GLP: yes

NOEC (b) (*Anabaena flos-aquae* (cyanobacterium)): 0.53 mg/l Exposure time: 96h

GLP: yes

NOEC(r) (*Anabaena flos-aquae* (cyanobacterium)): 1.13 mg/l Exposure time: 96 h

GLP: yes

EbC50 (*Anabaena flos-aquae* (cyanobacterium)): 1.8 mg/l Exposure time: 96 h

GLP: yes

ErC50 (*Anabaena flos-aquae* (cyanobacterium)): > 4.48 mg/l Exposure time: 96 h

GLP: yes

NOEC (*Skeletonema costatum*): 0.2 mg/l Exposure time: 96 h GLP: yes

EbC50 (*Skeletonema costatum*): 0.3 mg/l Exposure time: 96 h GLP: yes

ErC50 (*Skeletonema costatum*): 0.36 mg/l Exposure time: 96 h GLP: yes

M-Factor (Acute aquatic toxicity): 1

Toxicity to fish (Chronic toxicity): NOEC (*Oncorhynchus mykiss* (rainbow trout)): 0.017 mg/l Exposure time: 87 d Test Type: flow-through test

Analytical monitoring: yes GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC (*Daphnia magna* (Water flea)): 0.15 mg/l Exposure time: 21 d

Analytical monitoring: yes GLP: yes

M-Factor (Chronic aquatic toxicity): 1

Toxicity to soil dwelling organisms: LC50 (*Eisenia fetida* (earthworms)): > 1,250 mg/kg Exposure time: 14 d GLP: yes

NOEC (*Eisenia fetida* (earthworms)): 95 mg/kg Exposure time: 14 d GLP: yes

Toxicity to terrestrial organisms: LD50 (*Apis mellifera* (bees)): 8.50 µg/bee

Exposure time: 48 h End point: mortality GLP: yes

Avermectin B1: Toxicity to fish: LC50 (*Lepomis macrochirus* (Bluegill)): 0.0096 mg/l Exposure time: 96 h (*Oncorhynchus mykiss* (rainbow trout)): 0.036 mg/l Exposure time: 96 h Test Type: static test

Toxicity to daphnia and other aquatic invertebrates: EC50 (*Daphnia magna*





(Water flea): 0.00037 mg/l Exposure time: 48 h Test Type: static test

Toxicity to algae: (Scenedesmus species): > 100 mg/l Exposure time: 9 d

(Pseudokirchneriella subcapitata (green algae)): 0.006 mg/l End point: Growth rate

Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity) : NOEC: 0.00052 mg/l Exposure time: 72 d

Test Type: flow-through test

Persistence and degradability

Product:

Biodegradability:

Remarks: No data available

Components

Bifenazate:

Biodegradability: Result: According to the results of tests of biodegradability this product is not readily biodegradable

Avermectin B1:

Biodegradability: aerobic Inoculum: activated sludge Concentration: 100 mg/l

Result: According to the results of tests of biodegradability this product is not readily biodegradable. Biodegradation: 3 % Exposure time: 28 d

Bioaccumulative potential

Product:

Bioaccumulation: Remarks: No data available

Components:

Bifenazate:

Partition coefficient: n-octanol/water: log Pow: 3.4 (25 °C)

Avermectin B1:

Partition coefficient: n-octanol/water: log Pow: 4.4 (20 °C)

Mobility in soil

Product: Mobility: Remarks:

No data available

Other adverse effects

Product:

Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.



DISPOSAL CONSIDERATIONS:

Disposal methods

Waste from residues: In accordance with local and national regulations.

HANDLING AND STORAGE

Advice on safe handling: Handle in accordance with good industrial hygiene and safety practice.

Avoid contact with skin and eyes.

Avoid inhalation of vapour or mist.

Use with adequate ventilation.

Wash thoroughly after handling.

Conditions for safe storage: Keep in a dry, cool place.