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www.fmc.com
CVR No. DK 12 76 00 43

SAFETY DATA SHEET

2021-03, ABAMECTIN 18 g/l EC

Revision: Sections containing a revision or new information are marked with a ♣.

♣ SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. **Product identifier** .....

2021-03, ABAMECTIN 18 g/l EC
Contains avermectin B1a, hexan-1-ol, N,N-dimethyloctan-amide and benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts

1.2. **Relevant identified uses of the substance or mixture and uses advised against** .....

Can be used as insecticide only.

1.3. **Details of the supplier of the safety data sheet**

CHEMINOVA A/S, a subsidiary of FMC Corporation
Thyborønvej 78
DK-7673 Harboøre
Denmark
SDS.Ronland@fmc.com

1.4. **Emergency telephone number**
Company .....

+45 97 83 53 53 (24 h; for emergencies only)

Medical emergencies:
Austria: +43 1 406 43 43
Belgium: +32 70 245 245
Bulgaria: +359 2 9154 409
Cyprus: 1401
Czech Republic: +420 224 919 293
+420 224 915 402
Denmark: +45 82 12 12 12
France: +33 (0) 1 45 42 59 59
Finland: +358 9 471 977
Greece: 30 210 77 93 777
Hungary: +36 80 20 11 99
Ireland (Republic): +353 1 809 2166
Italy: +39 02 6610 1029
Lithuania: +370 523 62052
+370 687 53378
Luxembourg: +352 8002 5500
Netherlands: +31 30 274 88 88
Norway: +47 22 591300
Poland: +48 22 619 66 54
+48 22 619 08 97
Portugal: 808 250 143 (in Portugal only)
+351 21 330 3284
Romania: +40 21318 3606
Slovakia: +421 2 54 77 4 166
Slovenia: +386 41 650 500
South Africa: +27 83 123 3911 (Bateleur Emergency Response Co.)
Spain: +34 91 562 04 20
Sweden: +46 08-331231
112
Switzerland: 145
Turkey: 114
United Kingdom: 111
U.S.A. & Canada: +1 800 / 331-3148 (ProPharma)
All other countries: +1 651 / 632-6793 (ProPharma - Collect)

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SECTION 2: HAZARDS IDENTIFICATION

2.1. **Classification of the substance or mixture**

Acute oral toxicity: Category 4 (H302)
Skin irritation: Category 2 (H315)
Eye damage: Category 1 (H318)
Specific target organ toxicity - single exposure: Category 3 (H335)
Specific target organ toxicity - repeated exposure: Category 2 (H373)
Hazards to the aquatic environment, acute: Category 1 (H400)
chronic: Category 1 (H410)

WHO classification ..... Class II: Moderately hazardous

Health hazards ..... The product is harmful by ingestion. On prolonged exposure, it can cause several serious effects. See section 11.

Abamectin is a dangerous poison if swallowed or inhaled. It is harmful in contact with skin. Inhalation of aerosol or spray mist is hazardous as well. Abamectin is suspected of causing birth defects.

Environmental hazards ..... The product is very toxic to aquatic organisms.

2.2. **Label elements**

According to EU Reg. 1272/2008 as amended

Product identifier ..... 2021-03, Abamectin 18 g/l EC
Contains avermectin B1a, hexan-1-ol, N,N-dimethyloctanamide and benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts

Hazard pictograms (GHS07, GHS05, GHS08, GHS09)

Signal word ..... Danger

Hazard statements
H302 ..... Harmful if swallowed.
H315 ..... Causes skin irritation.
H318 ..... Causes serious eye damage.
H335 ..... May cause respiratory irritation.
H373 ..... May cause damage to nervous system through prolonged or repeated exposure.
H410 ..... Very toxic to aquatic life with long lasting effects.

Supplementary hazard statement
EUH401 ..... To avoid risks to human health and the environment, comply with the instructions of use.

Precautionary statements
P261 ..... Avoid breathing vapours.
P264 ..... Wash hands thoroughly after handling.

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P280 ..... Wear protective gloves and eye protection.
P305+P351+P338 ..... IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 ..... Immediately call a POISON CENTER or doctor/physician.
P501 ..... Dispose of contents/container as hazardous waste.

2.3. **Other hazards** ..... None of the ingredients in the product meets the criteria for being PBT or vPvB.

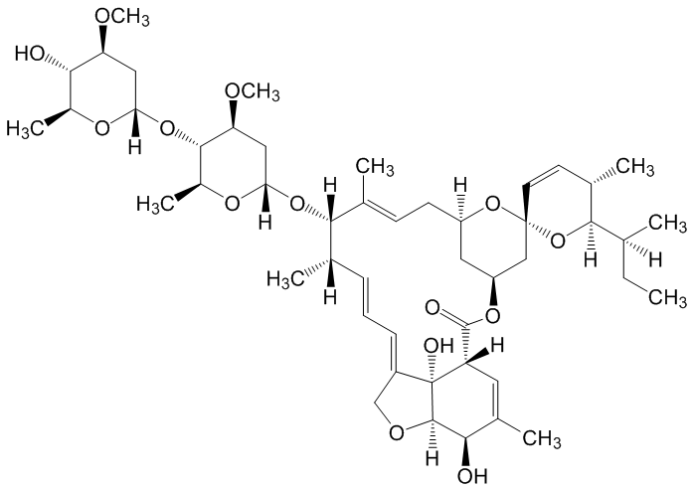
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substances** ..... The product is a mixture, not a substance

3.2. **Mixtures** ..... See section 16 for full text of hazard statements.

Abamectin ..... Content: 2% w/w
CAS name ..... Avermectin A1a, 5-O-demethyl-
CAS no. 65195-55-3
IUPAC name ..... (10*E*,14*E*,16*E*,22*Z*)-(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
EC no. (EINECS no.) 265-610-3
EU index no. 606-143-00-0
Classification of the ingredient ..... Acute oral toxicity: Category 2 (H300)
Acute inhalation toxicity: Category 1 (H330)
Toxic to reproduction: Category 2 (H361d)
Specific target organ toxicity - repeated exposure: Category 1 (H372)
Hazards to the aquatic environment, acute: Category 1 (H400)
chronic: Category 1 (H410)

Structural formula .....



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Reportable ingredients	Content (% w/w)	CAS no.	EC no. (EINECS no.)	Classification
Hexan-1-ol Reg. no. 01-2119487976-12	29	111-27-3	203-852-3	Acute Tox. 4 (H302)
N,N-Dimethyloctanamide Reg. no. 01-2119974106-36	max. 18	1118-92-9	214-272-5	Skin Irrit. 2 (H315) Eye Dam. 1 (H318) STOT SE 3 (H335)
N,N-Dimethyldecan-1-amide Reg. no. 01-2119485027-36	max. 12	14433-76-2	238-405-1	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335) Aquatic Chronic 3 (H412)
Distillates (petroleum), hydrotreated middle	3	64742-46-7	265-148-2	Asp. Tox. 1 (H304)
Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts	2	84989-14-0	284-903-7	Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Aquatic Chronic 3 (H412)
2-Ethylhexan-1-ol Reg. no. 01-2119487289-20	2	104-76-7	203-234-3	Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335)
2,6-Di-*tert*-butyl-*p*-cresol	1	128-37-0	204-881-4	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)

SECTION 4: FIRST AID MEASURES

4.1. **Description of first aid measures**

In case of exposure, do not wait for symptoms to develop. Immediately start the recommended procedures below.

Inhalation .....

If experiencing any discomfort, immediately remove from exposure. Light cases: Keep person under surveillance. Get medical attention immediately if symptoms develop. Serious cases: Get medical attention immediately or call for an ambulance.

Skin contact .....

Clothing contaminated with material must be removed immediately and all skin washed thoroughly. Wash skin thoroughly with water and soap. Get medical attention if symptoms develop.

Eye contact .....

Immediately rinse eyes with much water or eyewash solution, occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and rinse again. See physician if irritation develops.

Ingestion .....

Call a doctor or get medical attention immediately. Make the exposed person rinse mouth and then drink 1 or 2 glasses of water or milk.

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Induce vomiting only if:
1. a significant amount (more than a mouthful) has been ingested
2. patient is fully conscious
3. medical aid is not readily available
4. time since ingestion is less than one hour.

Let the patient induce vomiting by touching the back of the throat with a finger. If vomiting occurs, take care that vomit does not enter airways. Let the exposed person rinse mouth and drink fluids again.

4.2. **Most important symptoms and effects, both acute and delayed**

Exposure may cause symptoms of nervous system depression. High doses cause death by respiratory failure.

4.3. **Indication of any immediate medical attention and special treatment needed**

If there is any sign of poisoning, call a doctor (physician), clinic or hospital immediately. Explain that the victim has been exposed to an insecticide. Describe his/her condition and the extent of exposure. Immediately remove the exposed person from the area where the product is present. Perform artificial respiration if needed.

It may be helpful to show this safety data sheet to physician.

Notes to physician .....

Abamectin acts as agonist of the GABA (gamma-aminobutyric acid) neurotransmitter in nerve cells.

A specific antidote for exposure to this material is not known. Gastric lavage and/or the administration of activated charcoal can be considered. After decontamination, treatment should be directed at the control of symptoms and the clinical condition.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. **Extinguishing media** .....

Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Avoid heavy hose streams.

5.2. **Special hazards arising from the substance or mixture**

The essential breakdown products are carbon monoxide, carbon dioxide, nitrogen oxides and sulphur dioxide.

5.3. **Advice for firefighters** .....

Use water spray to keep fire-exposed containers cool. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Fight fire from protected location or maximum possible distance. Dike area to prevent water runoff. Firemen should wear self-contained breathing apparatus and protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. **Personal precautions, protective equipment and emergency procedures**

It is recommended to have a predetermined plan for the handling of spills. Empty, closable vessels for the collection of spills should be available.

In case of large spill (involving 10 tonnes of the product or more):
1. use personal protection equipment; see section 8

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2. call emergency telephone no.; see section 1
3. alert authorities.

Observe all safety precautions when cleaning up spills. Use personal protection equipment. Depending on the magnitude of the spill this may mean wearing respirator, face mask or eye protection, chemical resistant clothing, gloves and rubber boots.

Stop the source of the spill immediately if safe to do so. Keep unprotected persons away from the spill area. Avoid and reduce mist formation as much as possible. Remove sources of ignition.

6.2. **Environmental precautions** .....

Contain the spill to prevent any further contamination of surface, soil or water. Wash waters must be prevented from entering surface water drains. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.

6.3. **Methods and materials for containment and cleaning up**

It is recommended to consider possibilities to prevent damaging effects of spills, such as bunding or capping. See GHS (Annex 4, Section 6).

Use non-sparking tools and equipment. Surface water drains should be covered if appropriate. Minor spills on the floor or other impervious surface should be absorbed onto an absorptive material such as universal binder, hydrated lime, Fuller's earth or other absorbent clays. Collect the contaminated absorbent in suitable containers. Clean area with much water and industrial detergent. Absorb wash liquid onto absorbent and transfer to suitable containers. The used containers should be properly closed and labelled.

Large spills which soak into the ground should be dug up and transferred to suitable containers.

Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal.

6.4. **Reference to other sections** .....

See subsection 8.2. for personal protection.
See section 13 for disposal.

♣ SECTION 7: HANDLING AND STORAGE

7.1. **Precautions for safe handling** ....

In an industrial environment, it is important to avoid all personal contact with the product, if possible by using closed systems with remote system control. The material should be handled by mechanical means as much as possible. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation, see section 8.

For its use as a pesticide, first look for precautions and personal

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protection measures on the officially approved label on the packaging or for other official guidance or policy in force. If these are lacking, see section 8.

Keep all unprotected persons and children away from working area.

Persons working with this material for a longer period should be careful to minimise exposure. See section 11. Pregnant women must avoid all work with the product, because it may damage the unborn child.

Remove contaminated clothing immediately. Wash thoroughly after handling. Before removing gloves, wash them with water and soap. After work, take off all work clothes and footwear. Take a shower, using water and soap. Wear only clean clothes when leaving job. Wash protective clothing and protective equipment with water and soap after each use.

The respirator must be cleaned and the filter replaced according to the accompanying instructions.

Do not discharge to the environment. Do not contaminate water when disposing of equipment wash waters. Collect all waste material and remains from cleaning equipment, etc., and dispose of as hazardous waste. See section 13 for disposal.

7.2. **Conditions for safe storage, including any incompatibilities**

Storage at temperatures not exceeding 35°C is recommended.

Keep in closed, labelled containers in the dark. Protect against strong heat from sunshine or other source.

The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. A warning sign reading "POISON" is recommended. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present. A hand wash station should be available.

7.3. **Specific end use(s)** ..... The product is a registered pesticide which may only be used for the applications it is registered for, in accordance with a label approved by the regulatory authorities.

♣ SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. **Control parameters**

Personal exposure limits ..... To our knowledge not established for abamectin. An internal value of 0.02 mg abamectin/m^3 is recommended by the manufacturer.

However, other personal exposure limits defined by local regulations may exist and must be observed.

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Abamectin

DNEL ..... Not established
EFSA has established an AOEL of 0.0025 mg/kg bw/day

PNEC, aquatic environment ..... 0.35 ng/l

8.2. **Exposure controls** .....

When used in a closed system, personal protection equipment will not be required. The following is meant for other situations, when the use of a closed system is not possible, or when it is necessary to open the system. Consider the need to render equipment or piping systems non-hazardous before opening.

The precautions mentioned below are primarily meant for handling of the undiluted product and for preparing the spray solution, but can be recommended for spraying as well.

In cases of incidental high exposure, maximal personal protection may be necessary, such as respirator, face mask, chemical resistant coveralls.

Respiratory protection

In the event of an accidental discharge of the material which produces a heavy vapour or mist, workers must put on officially approved respiratory protection equipment with a universal filter type including particle filter.

Protective gloves .....

Wear long chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber. The breakthrough times of these materials for the product are unknown. Generally, however, the use of protective gloves will give only partial protection against dermal exposure. Small tears in the gloves and cross-contamination can easily occur. It is recommended to limit the work to be done manually and to change the gloves frequently. Be careful not to touch anything with contaminated gloves. Used gloves should be thrown out and not be reused.

To avoid spreading of chemicals, it may be useful to have an appointment for the workplace where gloves may be worn and especially where gloves may not be worn.

Eye protection .....

Wear safety glasses or face shield. It is recommended to have an eye wash fountain immediately available in the workplace when there is a potential for eye contact.

Other skin protection

Wear appropriate chemical resistant clothing to prevent skin contact depending on the extent of exposure. During most normal work situations where exposure to the material cannot be avoided for a limited time span, waterproof pants and apron of chemical resistant material or coveralls of polyethylene (PE) will be sufficient. Coveralls of PE must be discarded after use if contaminated. In cases of excessive or prolonged exposure, coveralls of barrier laminate may be required.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. **Information on physical and chemical properties**

Appearance	Pale yellow liquid		
Odour	Amine-like odour		
Odour threshold	Not determined		
pH	Not determined		
Melting point/freezing point	Not determined		
Initial boiling point and boiling range	Not determined **Abamectin**: decomposes		
Flash point	> 61°C		
Evaporation rate	Not determined		
Flammability (solid/gas)	Not applicable (liquid)		
Upper/lower flammability or explosive limits	**Hexan-1-ol**	:	1.2 - 7.7 vol%
Vapour pressure	**Abamectin**	:	< 1.0 x 10^{-5} Pa at 25°C
	Hexan-1-ol	:	93 Pa at 20°C
Vapour density	Not determined		
Relative density	Not determined Density: 0.922 g/ml at 20°C		
Solubility(ies)	Solubility of **abamectin** at 25°C in:		
	octanol	74.3	g/l
	methanol	12.1	g/l
	hexanes	0.00443	g/l
	water	0.00054	g/l (at 20°C)
Partition coefficient n-octanol/water	**Abamectin**	:	log K_{ow} = 5.5
	Hexan-1-ol	:	log K_{ow} = 2.02
Autoignition temperature	**Hexan-1-ol**	:	285°C
Decomposition temperature	Decomposition of **abamectin** starts at 60°C.		
Viscosity	Not determined		
Explosive properties	Not explosive		
Oxidising properties	Not oxidising		

9.2. **Other information**

Miscibility	The product is dispersible in water.

SECTION 10: STABILITY AND REACTIVITY

10.1.	**Reactivity**	To our knowledge, the product has no special reactivities.
10.2.	**Chemical stability**	The product is stable during normal handling and storage at ambient temperatures.
10.3.	**Possibility of hazardous reactions**	None known.
10.4.	**Conditions to avoid**	Heating of the product will evolve harmful and irritant vapours.
10.5.	**Incompatible materials**	None known.

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10.6. **Hazardous decomposition products** See subsection 5.2.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. **Information on toxicological effects** * = Based on available data, the classification criteria are not met.

Product

Acute toxicity ..... The product is harmful if swallowed. It is not classified as harmful by inhalation or by skin contact, but harmful effects can occur by these routes as well. The acute toxicity of the product is estimated as:

Route(s) of entry
- ingestion: LD_{50}, oral, rat: 500 - 2000 mg/kg
- skin: LD_{50}, dermal, rat: > 2000 mg/kg *
- inhalation: LC_{50}, inhalation, rat: > 5 mg/l/4 h *

Skin corrosion/irritation ..... May be mildly to moderately irritating to skin.

Serious eye damage/irritation ..... May be seriously irritating to eyes.

Respiratory or skin sensitisation ... Not expected to be a skin sensitizer. *

Germ cell mutagenicity ..... The product contains no ingredients known to be mutagenic. *

Carcinogenicity ..... The product contains no ingredients known to be carcinogenic. *

Reproductive toxicity ..... Reduced mating results and birth defects were observed in animal tests with **abamectin** at maternal toxic doses (3 studies).

STOT – single exposure ..... To our knowledge, no specific effects have been observed after single exposure. *

STOT – repeated exposure ..... The following was measured on the active ingredient **abamectin**:
Target organ: primarily nervous system
Abamectin has neurotoxic effects at prolonged exposure. In animal studies apathy and general bad condition were noted at dose levels of around 10 mg abamectin/kg bw/day.
LOEL, oral: 0.5 mg/kg bw/day in an 18-week dog study (method OECD 409)
LOAEC, inhalation: 0.0027 mg/l in a 30-day rat study (6 hrs/day).

Aspiration hazard ..... The product does not present an aspiration pneumonia hazard. *

Symptoms and effects, acute and delayed: Exposure causes symptoms of nervous system depression, such as pupil dilation, vomiting, excitation, incoordination, tremors, lethargy, coma. High doses cause death by respiratory failure.

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Abamectin

Toxicokinetics, metabolism and distribution		Abamectin is rapidly absorbed and excreted with half-live times of one to two days. It is extensively metabolised. Bioaccumulation is not likely. Abamectin and its metabolites are found throughout all organs.
Acute toxicity		The substance is very toxic if swallowed and by inhalation. It is less toxic by skin contact. The acute toxicity is measured as:
Route(s) of entry	- ingestion	LD_{50}, oral, rat: 8.2 mg/kg (method OECD 401)
	- skin	LD_{50}, dermal, rat: > 2000 mg/kg (method OECD 402) *
	- inhalation	LC_{50}, inhalation, rat: 0.031 - 0.051 mg/l/4 h (method OECD 403)
Skin corrosion/irritation		Not irritating to skin (method similar to OECD 404). *
Serious eye damage/irritation		Not irritating to eyes (method OECD 405). *
Respiratory or skin sensitisation ...		Not a skin sensitizer (method OECD 406). *

Hexan-1-ol

Acute toxicity		The substance is harmful by ingestion. It is not considered as harmful by inhalation or skin contact. The acute toxicity is measured as:
Route(s) of entry	- ingestion	LD_{50}, oral, rat: 200 - 2000 mg/kg (method OECD 401). Various numbers are quoted in literature.
	- skin	LD_{50}, dermal, rabbit: > 2000 mg/kg (method OECD 402) *
	- inhalation	LC_{50}, inhalation, rat: > 21 mg/l/1 h *
Skin corrosion/irritation		Slightly irritating to skin (method OECD 404). *
Serious eye damage/irritation		Slightly irritating to eyes (method OECD 405). Various study results are quoted in literature. *
Respiratory or skin sensitisation ...		Not sensitising to skin (method OECD 406). *

The following has either been measured on a mixture of N,N-dimethyloctanamide and N,N-dimethyldecan-1-amide or on a mixture of these two compounds with other comparable N,N-dimethylalkanamides

Acute toxicity		The mixture is not considered as harmful by inhalation, ingestion or skin contact. * The acute toxicity is measured as:
Route(s) of entry	- ingestion	LD_{50}, oral, rat: > 2000 mg/kg (method OECD 401)
	- skin	LD_{50}, dermal, rat: > 2000 mg/kg (method OECD 402)
	- inhalation	LC_{50}, inhalation, rat: > 3.5 mg/l/4 h (method OECD 403)
Skin corrosion/irritation		Irritating to skin (method similar to OECD 404).
Serious eye damage/irritation		Severely irritating to eyes (method similar to OECD 405).

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Respiratory or skin sensitisation ... Not a skin sensitizer (method similar to OECD 406). *

STOT – single exposure ..... The product can be irritating to airways.

Distillates (petroleum), hydrotreated middle

Acute toxicity ..... The substance is not considered as harmful by single exposure. * However, harmful effects may occur by inhalation. The acute toxicity is measured as:

Route(s) of entry - ingestion LD_{50}, oral, rat: > 5000 mg/kg (method OECD 401)

- skin LD_{50}, dermal, rabbit: > 2000 mg/kg (measured on a similar product, method OECD 402)

- inhalation LC_{50}, inhalation, rat: 4.6 mg/l/4 h (measured on a similar product, method OECD 403)

Skin corrosion/irritation ..... Irritating to skin (measured on a similar product, method OECD 404).

Serious eye damage/irritation ..... Mildly to moderately irritating to eyes (measured on a similar product, method OECD 405). *

Respiratory or skin sensitisation ... Not sensitising to skin (measured on a similar product, method OECD 406). *

Aspiration hazard ..... The substance presents an aspiration pneumonia hazard.

Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts

Acute toxicity ..... The substance is not considered as harmful by skin contact, ingestion or inhalation. *

Route(s) of entry - ingestion LD_{50}, oral, rat: not available

- skin LD_{50}, dermal, rat: not available

- inhalation LC_{50}, inhalation, rat: not available

Skin corrosion/irritation ..... Irritating to skin.

Serious eye damage/irritation ..... Irritating to eyes with the potential to cause permanent eye damage.

2-Ethylhexan-1-ol

Acute toxicity ..... The substance is not considered as harmful. *
The acute toxicity is measured as:

Route(s) of entry - ingestion LD_{50}, oral, rat: 3290 mg/kg (method OECD 401)

- skin LD_{50}, dermal, rat: > 3000 mg/kg (method OECD 402)

- inhalation LC_{50}, inhalation, rat: 0.89 - 5.3 mg/l/4 h (method OECD 403)

Not harmful at saturated vapour pressure (approx. 0.89 mg/l). Harmful at 5.3 mg/l, a mixture of vapour and droplets.

Skin corrosion/irritation ..... Mildly irritating to skin.

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Serious eye damage/irritation ..... Moderately to severely irritating to eyes.

Respiratory or skin sensitisation ... Not a skin sensitizer. *

2,6-Di-tert-butyl-p-cresol

Acute toxicity ..... The product is not considered as harmful by inhalation, ingestion or skin contact. * The acute toxicity is measured as:

Route(s) of entry	- ingestion	LD_{50}, oral, rat: > 2930 mg/kg (method OECD 401)
	- skin	LD_{50}, dermal, rat: > 2000 mg/kg (method OECD 402)
	- inhalation	LC_{50}, inhalation, rat: not accessible

Skin corrosion/irritation ..... Not irritating to skin (method OECD 404). *

Serious eye damage/irritation ..... Not irritating to eyes (method OECD 405). *

Respiratory or skin sensitisation ... Negative in human patch test. *

SECTION 12: ECOLOGICAL INFORMATION

12.1. **Toxicity** ..... The product is very toxic to fish, aquatic invertebrates, aquatic life stages of amphibians and insects. It is harmful to aquatic plants and earthworms. It is not considered as harmful to birds and soil micro-organisms.

The measured ecotoxicity of **abamectin** is:

- Fish	Zebrafish (*Danio rerio*)	96-h LC_{50}: 32.8 µg/l
	Fathead minnow (*Pimephales promelas*)	28-day NOEC: 4.4 µg/l
- Invertebrates	Daphnids (*Daphnia magna*)	48-h EC_{50}: 0.23 µg/l 21-day NOEC: 0.03 µg/l
- Algae	Green algae (*Selenastrum capricornutum*)	72-h EC_{50}: 70 mg/l
- Birds	Japanese quail (*Coturnix coturnix japonica*)	LD_{50}: > 2000 mg/kg
- Earthworms	*Eisenia foetida*	14-day LC_{50}: 16 mg/kg dry soil
- Insects	Honey bees (*Apis mellifera*)	48-h LC_{50}, contact: 0.00083 µg/bee

12.2. **Persistence and degradability** .... **Abamectin** is not readily biodegradable. However, it undergoes degradation in the environment and in waste water treatment plants. Primary degradation half-lives vary with circumstances from 14 to 20 days in different soil types. Abamectin is degraded photochemically in soil and water as well.

The product contains minor amounts of other not readily biodegradable components, which may not be degradable in waste water treatment plants.

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12.3. **Bioaccumulative potential** ..... See section 9 for octanol-water partition coefficient.

Abamectin is not expected to bioaccumulate. The Bioconcentration Factor (BCF) was measured to be 54 in zebrafish (*Danio rerio*; whole fish).

12.4. **Mobility in soil** ..... **Abamectin** is mobile in soil.

12.5. **Results of PBT and vPvB assessment** ..... None of the ingredients meets the criteria for being PBT or vPvB.

12.6. **Other adverse effects** ..... Other relevant hazardous effects in the environment are not known.

♣ SECTION 13: DISPOSAL CONSIDERATIONS

13.1. **Waste treatment methods** ..... Remaining quantities of the material and empty but unclean packaging should be regarded as hazardous waste.

Disposal of waste and packagings must always be in accordance with all applicable local regulations.

Disposal of product ..... According to the Waste Framework Directive (2008/98/EC), possibilities for reuse or reprocessing should first be considered. If this is not feasible, the material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing.

Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Disposal of packaging ..... It is recommended to consider possible ways of disposal in the following order:
1. Reuse or recycling should first be considered. Reuse is prohibited except by the authorisation holder. If offered for recycling, containers must be emptied and triply rinsed (or equivalent). Do not discharge rinsing water to sewer systems.
2. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.
3. Delivery of the packaging to a licensed service for disposal of hazardous waste.
4. Disposal in a landfill or burning in open air should only occur as a last resort. For disposal in a landfill, containers should be emptied completely, rinsed and punctured to make them unusable for other purposes. If burned, stay out of smoke.

♣ SECTION 14: TRANSPORT INFORMATION

ADR/RID/IMDG/IATA/ICAO classification

14.1. **UN number** 3082

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14.2. **UN proper shipping name** ..... Environmentally hazardous substance, liquid, n.o.s. (abamectin)

14.3. **Transport hazard class(es)** 9

14.4. **Packing group** III

14.5. **Environmental hazards** ..... Marine pollutant

14.6. **Special precautions for user** ..... Avoid any unnecessary contact with the product. Misuse can result in damage to health. Do not discharge to the environment.

14.7. **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code** ..... The product is not transported in bulk by ship.

SECTION 15: REGULATORY INFORMATION

15.1. **Safety, health and environmental regulations/legislation specific for the substance or mixture**

Seveso category (Dir. 2012/18/EU): dangerous for the environment.

The Young Worker Directive (94/33/EC) prohibits people under the age of 18 to work with this product.

All ingredients are covered by EU chemical legislation.

15.2. **Chemical safety assessment** ..... A chemical safety assessment is not required to be included for this product.

♣ SECTION 16: OTHER INFORMATION

Relevant changes in the safety data sheet ..... Minor corrections only.

List of abbreviations .....

AOEL	Acceptable Operator Exposure Level
CAS	Chemical Abstracts Service
Dir.	Directive
DNEL	Derived No Effect Level
EC	Emulsifiable Concentrate, or European Community
EC_{50}	50% Effect Concentration
EFSA	European Food Safety Authority
EINECS	European INventory of Existing Commercial Chemical Substances
GHS	Globally Harmonized classification and labelling System of chemicals, Fifth revised edition 2013
IBC	International Bulk Chemical code
IUPAC	International Union of Pure and Applied Chemistry
LC_{50}	50% Lethal Concentration
LD_{50}	50% Lethal Dose
LOAEC	Lowest Observed Adverse Effect Concentration

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LOEL	Lowest Observed Effect Level
MARPOL	Set of rules from the International Maritime Organisation (IMO) for prevention of sea pollution
NOEC	No Observed Effect Concentration
n.o.s.	Not otherwise specified
OECD	Organisation for Economic Cooperation and Development
PBT	Persistent, Bioaccumulative, Toxic
PNEC	Predicted No Effect Concentration
Reg.	Registration, or Regulation
STOT	Specific Target Organ Toxicity
vPvB	very Persistent, very Bioaccumulative
WHO	World Health Organisation

References ..... Data on ingredients are available from published literature and can be found several places.

Method for classification ..... Calculation rules

Used hazard statements .....

H300	Fatal if swallowed.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H361d	Suspected of damaging the unborn child.
H372	Causes damage to nervous system through prolonged or repeated exposure.
H373	May cause damage to nervous system through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Toxic to aquatic life with long lasting effects.
EUH401	To avoid risks to human health and the environment, comply with the instructions of use.

Advice on training ..... This material should only be used by persons who are made aware of its hazardous properties and have been instructed in the required safety precautions.

The information provided in this safety data sheet is believed to be accurate and reliable, but uses of the product vary and situations unforeseen by FMC Corporation may exist. The user has to check the validity of the information under local circumstances.

Prepared by: FMC Corporation / Cheminova A/S / GHB