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Product name	<b>ROGOR STABILIZED (Dimethoate 400 g/l EC)</b>	April 2017
Safety data sheet according to EU Reg. 1907/2006 as amended		Supersedes April 2015

# SAFETY DATA SHEET

## ROGOR STABILIZED

### Dimethoate 400 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** ..... **Rogor Stabilized (Dimethoate 400 g/l EC)**  
**Contains dimethoate, cyclohexanone, xylene and acetic anhydride**
- 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](mailto: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            | Norway: +47 22 591300                                     |
| Belgium: +32 70 245 245             | Poland: +48 22 619 66 54                                  |
| Bulgaria: +359 2 9154 409           | +48 22 619 08 97  |
| Czech Republic: +420 224 919 293    | Portugal: 808 250 143 (in Portugal only)                  |
| +420 224 915 402                    | +351 21 330 3284  |
| Denmark: +45 82 12 12 12            | Romania: +40 21318 3606                                   |
| France: +33 (0) 1 45 42 59 59       | Slovakia: +421 2 54 77 4 166                              |
| Finland: +358 9 471 977             | Slovenia: +386 41 650 500                                 |
| Hungary: +36 80 20 11 99            | Spain: +34 91 562 04 20                                   |
| Ireland (Republic): +352 1 809 2166 | Sweden: +46 08-331231                                     |
| Italy: +39 02 6610 1029             | 112   |
| Lithuania: +370 523 62052           | Switzerland: 145  |
| +370 687 53378                      | United Kingdom: 0870 600 6266 (in the UK only)            |
| Luxembourg: +352 8002 5500          | U.S.A. & Canada: +1 800 / 331-3148 (PROSAR)               |
| Netherlands: +31 30 274 88 88       | All other countries: +1 651 / 632-6793 (PROSAR - Collect) |

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## SECTION 2: HAZARDS IDENTIFICATION

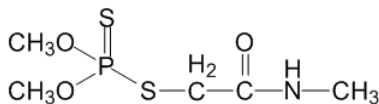
- 2.1. Classification of the substance or mixture**
- Flammable liquid: Category 3 (H226)  
 Acute oral toxicity: Category 4 (H302)  
 Inhalation toxicity: Category 4 (H332)  
 Eye damage: Category 1 (H318)  
 Aspiration toxicity: Category 1 (H304)  
 Hazards to the aquatic environment, chronic: Category 1 (H410)
- WHO classification ..... Class II: Moderately hazardous
- Physicochemical hazards ..... The product is flammable.
- Health hazards ..... The product is harmful by inhalation and by ingestion. It is irritating to eyes.
- The active ingredient **dimethoate** is a poison (cholinesterase inhibitor). It rapidly enters the body on contact with all skin surfaces and eyes.
- Repeated exposures to cholinesterase inhibitors such as **dimethoate** may, without warning, cause increased susceptibility to doses of any cholinesterase inhibitor.
- Environmental hazards ..... The product is toxic to aquatic organisms.
- 2.2. Label elements**
- According to EU Reg. 1272/2008 as amended
- Product identifier ..... Rogor Stabilized (Dimethoate 400 g/l EC)  
 Contains dimethoate, cyclohexanone, xylene and acetic anhydride
- Hazard pictograms (GHS02, GHS05, GHS07, GHS08, GHS09)
- 



- 
- Signal word ..... Danger
- Hazard statements
- H226 ..... Flammable liquid and vapour.  
 H302 ..... Harmful if swallowed.  
 H304 ..... May be fatal if swallowed and enters airways.  
 H318 ..... Causes serious eye damage.  
 H332 ..... Harmful if inhaled.

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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.
P280 .....	Wear protective gloves and eye/face protection.
P301+P330 .....	IF SWALLOWED: 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.
P310 .....	Immediately call a POISON CENTER or doctor/physician.
P501 .....	Dispose of contents/container as hazardous waste.
2.3. <b>Other hazards</b> .....	None of the ingredients in the product meets the criteria for being PBT or vPvB.

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. <b>Substances</b> .....	The product is a mixture, not a substance.
3.2. <b>Mixtures</b> .....	See section 16 for full text of hazard statements.
<u>Active ingredient</u>	
<b>Dimethoate</b> .....	Content: 39% by weight
CAS name .....	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester
CAS no. ....	60-51-5
IUPAC name .....	O,O-Dimethyl S-methylcarbamoylmethyl phosphorodithioate
Other name(s) .....	O,O-Dimethyl S-(N-methylcarbamoylmethyl) phosphorodithioate
ISO name/EU name .....	Dimethoate
EC no. (EINECS no.) .....	200-480-3
EU index no. ....	015-051-00-4
Classification of the ingredient .....	(* = Harmonised classification) Self-reactive substance Type F (H242) Acute oral toxicity: Category 4 (H302) * Acute dermal toxicity: Category 4 (H312) * Acute inhalation toxicity: Category 4 (H332) Hazards to the aquatic environment, chronic: Category 1 (H410)
Structural formula .....	



<u>Reportable ingredients</u>	Content (% w/w)	CAS no.	EC no. (EINECS no.)	Classification (* = Harmonised classification)
Cyclohexanone Reg. no. 01-2119453616-35	Max. 49	108-94-1	203-631-1	Flam. Liq. 3 (H226) * Acute Tox. 4 (H332) *

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Xylene Reg. no. 01-2119488216-32	5	1330-20-7	215-535-7	Flam. Liq. 3 (H226) * Acute Tox. 4 (H312) * Acute Tox. 4 (H332) * Skin Irrit. 2 (H315) * Asp. Tox. 1 (H304)
Acetic anhydride Reg. no. 01-2119486470-36	1	108-24-7	203-564-8	Flam. Liq. 3 (H226) * Acute Tox. 4 (H302) * Acute Tox. 4 (H332) * Skin Corr. 1B (H314) *

#### SECTION 4: FIRST AID MEASURES

- 4.1. Description of first aid measures** If exposure has occurred, do not wait for symptoms to develop, but immediately start the procedures described 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.
- If breathing has stopped, immediately start artificial respiration and maintain until a physician takes charge of the exposed person.
- Skin contact** ..... Immediately remove contaminated clothing and footwear. Flush skin with much water. Wash with water and soap. See physician immediately 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 immediately.
- 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. 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** On contact, the first symptoms to appear may be irritation. Symptoms of cholinesterase inhibition: nausea, headache, vomiting, cramps, weakness, blurred vision, pin-point pupils, tightness in chest, laboured breathing, nervousness, sweating, watering of eyes, drooling or frothing of mouth and nose, muscle spasms and coma.

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

If any of the signs of cholinesterase inhibition occurs, call a doctor (physician), clinic or hospital immediately. Explain that the victim has been exposed to **dimethoate**, an organophosphorus insecticide. Describe his/her condition and the extent of exposure. Immediately remove the exposed person from the area where the product is present.

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

Notes to physician .....

**Dimethoate** is a cholinesterase inhibitor affecting the central and peripheral nervous systems producing respiratory depression.

The product contains petroleum distillates which may pose an aspiration pneumonia hazard.

Cholinesterase inhibition – treatment

Much information on (acetyl)cholinesterase inhibition by organophosphate insecticides and its treatment can be found on the internet.

Decontamination procedures such as whole body washing, gastric lavage and administration of activated charcoal are often required.

**Antidote:** If symptoms (see subsection 4.2.) are present, administer atropine sulphate, which often is a lifesaving antidote, in large doses, TWO to FOUR mg intravenously or intramuscularly as soon as possible. Repeat at 5 to 10 minute intervals until signs of atropinisation appear and maintain full atropinisation until all organophosphate is metabolised.

Obidoxime chloride (Toxogonin), alternatively pralidoxime chloride (2-PAM), may be administered as an adjunct to, but not a substitute for atropine sulphate. Treatment with oxime should be maintained as long as atropine sulphate is administered.

Especially in the case of dimethoate, treatment with atropine sulphate is essential. Results of treatment with oxime for dimethoate poisoning are notoriously varying and it may happen that oxime doesn't have any positive effect. In no case should oxime be used in stead of atropine sulphate.

At first sign of pulmonary oedema the patient should be given supplementary oxygen and treated symptomatically.

Relapse can occur after initial improvement.  
**VERY CLOSE SUPERVISION OF THE PATIENT IS INDICATED FOR AT LEAST 48 HOURS, DEPENDING ON THE SEVERITY OF POISONING.**

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## 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 volatile, malodorous, toxic, irritant and inflammable compounds such as hydrogen sulphide, dimethyl sulphide, methyl mercaptan, sulphur dioxide, carbon monoxide, carbon dioxide, nitrogen oxides and phosphorus pentoxide.
- The product (**dimethoate**) may decompose rapidly when heated, which can result in explosion.
- 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, sealable 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
  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 boots.
- Stop the source of the spill immediately if safe to do so. Keep unprotected persons away from the spill area. Remove sources of ignition. Avoid and reduce mist formation as much as possible.
- 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. If appropriate, surface water drains should be covered. Minor spills on the floor or other impervious surface should be absorbed onto an absorptive material

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such as universal binder, hydrated lime, Fuller's earth or other absorbent clays. Collect the contaminated absorbent in suitable containers. Clean area with soda lye and much water. Absorb wash liquid with 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 7.1. for fire prevention.  
 See subsection 8.2. for personal protection.  
 See section 13 for disposal.

## ♣ **SECTION 7: HANDLING AND STORAGE**

- 7.1. **Precautions for safe handling .....** The product is flammable. Formation of explosive vapour-air mixtures is possible. Fire prevention measures should be taken. Keep away from sources of ignition and protect from exposure to fire and heat. Take precautions against static discharge.

If the temperature of the liquid is below 42°C, which is 10°C below its flash point of 52°C, the fire and explosion hazard is considered minor. At higher temperatures the hazard gradually becomes more serious.

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 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.

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.

Inhalation of vapours of the product can cause lowered consciousness, which increases the risks of operating machinery and driving.

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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**

The product is stable when stored at temperatures not exceeding 25°C.

At low temperatures (below 0°C) formation of crystals may occur.

**The product should never be heated above 35°C and also local heating above this temperature should be avoided. See subsection 10.2.**

Store in closed, labelled containers. 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

		Year	
<b>Dimethoate</b>	ACGIH (USA) TLV	2015	Not established; BEI
	OSHA (USA) PEL	2015	Not established
	EU, 2000/39/EC as amended	2009	Not established
	Germany, MAK	2014	Not established; BAT
	HSE (UK) WEL	2011	Not established
<b>Cyclo-hexanone</b>	ACGIH (USA) TLV	2015	TWA 20 ppm STEL 50 ppm Skin notation
	OSHA (USA) PEL	2015	TWA 50 ppm (200 mg/m <sup>3</sup> )
	EU, 2000/39/EC as amended	2009	8-hr TWA 10 ppm (40.8 mg/m <sup>3</sup> ) Peak level 20 ppm (81.6 mg/m <sup>3</sup> ); max. duration 15 min. Skin notation
	Germany, MAK	2014	Skin notation; EKA
	HSE (UK) WEL	2011	8-hr TWA 10 ppm (41 mg/m <sup>3</sup> ) STEL 20 ppm (82 mg/m <sup>3</sup> ); 15-minute reference period Skin notation; BMGV



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<b>Xylene</b>	ACGIH (USA) TLV	2015	TWA 100 ppm (434 mg/m <sup>3</sup> ) STEL 150 ppm (651 mg/m <sup>3</sup> ) BEI
	OSHA (USA) PEL	2015	8-hr TWA 100 ppm (435 mg/m <sup>3</sup> )
	EU, 2000/39/EC as amended	2009	8-hr TWA 50 ppm (221 mg/m <sup>3</sup> ) Peak level 100 ppm (442 mg/m <sup>3</sup> ); max. duration 15 min. Skin notation
	Germany, MAK	2014	TWA 100 ppm (440 mg/m <sup>3</sup> ) Peak level 200 ppm (880 mg/m <sup>3</sup> ) Skin notation; BAT
	HSE (UK) WEL	2011	8-hr TWA 50 ppm (220 mg/m <sup>3</sup> ) STEL 100 ppm (441 mg/m <sup>3</sup> ); 15-minute reference period Skin notation; BMGV

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

Monitoring methods ..... Persons working with this product for a longer period should have frequent blood tests of their cholinesterase levels. If the cholinesterase level falls below a critical point, no further exposure should be allowed until it has been determined by means of blood tests that the cholinesterase level has returned to normal.

<b>Dimethoate</b>	
DNEL, dermal .....	0.001 mg/kg bw/day
PNEC, aquatic environment .....	0.8 µg/l

<b>Cyclohexanone</b>	
DNEL, dermal .....	10 mg/kg bw/day
DNEL, inhalation .....	100 mg/m <sup>3</sup>
PNEC, aquatic environment .....	0.0329 mg/l

<b>Xylene</b>	
DNEL, dermal .....	180 mg/kg bw/day
DNEL, inhalation .....	77 mg/m <sup>3</sup>
PNEC, aquatic environment .....	0.327 mg/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.

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#### 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 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 shift the gloves frequently and to limit the work to be done manually.



#### Eye protection .....

Wear safety glasses. 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.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on physical and chemical properties

Appearance .....	Colourless to light yellow liquid
Odour .....	Faint mercaptanic/acetone odour
Odour threshold .....	Not determined
pH .....	1% dispersion in water at 22°C: 3.78
Melting point/freezing point .....	Below 0°C
Initial boiling point and boiling range	Crystallisation may occur from 0°C downward
	Not determined
	<b>Dimethoate</b> : decomposes
	<b>Cyclohexanone</b> : 156°C
	<b>Xylene</b> : 140°C
Flash point .....	52°C
Evaporation rate .....	(Butyl acetate = 1)
	<b>Cyclohexanone</b> : 0.3
	<b>Xylene</b> : 0.76
Flammability (solid/gas) .....	Not applicable (liquid)
Upper/lower flammability or explosive limits	<b>Cyclohexanone</b> : 1 - 9.4 vol% (≈ 1 - 9.4 kPa)
	<b>Xylene</b> : 1 - 7.0 vol% (≈ 1 - 7 kPa)
Vapour pressure .....	<b>Dimethoate</b> : 1.35 x 10 <sup>-4</sup> Pa at 25°C
	<b>Cyclohexanone</b> : 0.47 kPa at 20°C
	<b>Xylene</b> : 0.8 - 1.2 kPa at 20°C

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Vapour density .....	(Air = 1) <b>Cyclohexanone</b> : 3.4 <b>Xylene</b> : 3.7
Relative density .....	1.0269 at 20°C
Solubility(ies) .....	Solubility of <b>dimethoate</b> at 25°C in: methanol 1590 g/l cyclohexanone 1220 g/l xylene 313 g/l n-heptane 0.242 g/l water 39.8 g/l
Partition coefficient n-octanol/water	<b>Dimethoate</b> : log $K_{ow}$ = 0.704 <b>Cyclohexanone</b> : log $K_{ow}$ = 0.86 at 25°C <b>Xylene</b> : log $K_{ow}$ = 2.77 - 3.15
Autoignition temperature .....	344°C
Decomposition temperature .....	Not determined (however, see subsection 10.2.)
Viscosity .....	8.79 mPa.s at 20°C, 4.97 mPa.s at 40°C
Explosive properties.....	Not explosive
Oxidising properties .....	Not oxidising

## 9.2. Other information

Miscibility .....	The product is emulsifiable in water.
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## ♣ SECTION 10: STABILITY AND REACTIVITY

10.1. <b>Reactivity</b> .....	To our knowledge, the product has no special reactivities.
10.2. <b>Chemical stability</b> .....	The product ( <b>dimethoate</b> ) may decompose rapidly when heated, which can result in explosion. It is recommended never to heat the product above 35°C. Direct local heating such as electric heating or by steam must be avoided.  The decomposition is to a considerable extent dependent on time as well as temperature due to self-accelerating exothermic and autocatalytic reactions. The reactions involve rearrangements and polymerisation releasing volatile malodorous and inflammable compounds such as dimethyl sulphide and methyl mercaptan.
10.3. <b>Possibility of hazardous reactions</b>	None known.
10.4. <b>Conditions to avoid</b> .....	Heating of the product will produce harmful and irritant vapours. The product can be ignited by e.g. flame, spark or hot surface.
10.5. <b>Incompatible materials</b> .....	Strong alkalis and strong oxidising compounds. The product can corrode metals (but does not meet the criteria for classification).
10.6. <b>Hazardous decomposition products</b>	See subsection 5.2.

## SECTION 11: TOXICOLOGICAL INFORMATION

11.1. <b>Information on toxicological effects</b>	* = Based on available data, the classification criteria are not met.
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### Product

Acute toxicity .....	The product is harmful by ingestion and inhalation. It is considered as less harmful by skin contact. The acute toxicity is measured as:
Route(s) of entry      - ingestion	LD <sub>50</sub> , oral, rat: 300 - 2000 mg/kg (method OECD 423)
- skin	LD <sub>50</sub> , dermal, rat: > 2000 mg/kg (method OECD 402) *
- inhalation	LC <sub>50</sub> , inhalation, rat: > 2.04 mg/l/4 h (method OECD 403) signs of toxicity at this concentration
Skin corrosion/irritation .....	Not irritating to skin ( method OECD 404). *
Serious eye damage/irritation .....	Moderately irritating to eyes (method OECD 405).
Respiratory or skin sensitisation ...	Not sensitising (method OECD 406). *
Germ cell mutagenicity .....	The product contains no ingredient known to be mutagenic. *
Carcinogenicity .....	The product contains no ingredient known to be carcinogenic. *
Reproductive toxicity .....	The product contains no ingredient found to have adverse effects on reproduction. *
STOT – single exposure .....	Vapours may cause narcotic effects. *
STOT – repeated exposure .....	The following is found for the active ingredient dimethoate: Target organ: nervous system (cholinesterase inhibition) LOAEL: 25 ppm (2.5 mg/kg bw/day) in a 90-day rat study. At this exposure level, minor cholinesterase inhibition was found, which generally does not result in observable effects or discomfort. LOEL: approx. 40 mg/kg bw/day. It must be considered debatable if the cholinesterase inhibition found at this level constitutes an effect that warrants classification. *
Aspiration hazard .....	The product presents an aspiration pneumonia hazard.
Symptoms and effects, acute and delayed	On contact, the first symptoms to appear may be irritation. Symptoms of cholinesterase inhibition: nausea, headache, vomiting, cramps, weakness, blurred vision, pin-point pupils, tightness in chest, laboured breathing, nervousness, sweating, watering of eyes, drooling or frothing of mouth and nose, muscle spasms and coma.

### Dimethoate

Toxicokinetics, metabolism and distribution	Dimethoate is rapidly absorbed and excreted following oral administration. It is extensively metabolised. Dimethoate and its metabolites are primarily found in the liver and kidneys. There is no evidence for accumulation.
Acute toxicity .....	The substance is harmful by ingestion and inhalation. It is considered as less harmful by skin contact. The acute toxicity is measured as:
Route(s) of entry      - ingestion	LD <sub>50</sub> , oral, rat: 386 mg/kg (method FIFRA 81.01)

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- skin	LD <sub>50</sub> , dermal, rat: > 2000 mg/kg (method FIFRA 81.02) *
- inhalation	LC <sub>50</sub> , inhalation, rat: approx. 1.6 mg/l/4 h
Skin corrosion/irritation .....	Slightly irritating to skin (method FIFRA 81.05). *
Serious eye damage/irritation .....	Moderately irritating to eyes (method FIFRA 81.04). *
Respiratory or skin sensitisation ...	Not sensitising (method OECD 429). *
<u><b>Cyclohexanone</b></u>	
Toxicokinetics, metabolism and distribution	After oral intake, cyclohexanone is readily absorbed and widely distributed in the body. It is extensively metabolised to natural body constituents and partially taken up in the organism.
Acute toxicity .....	Cyclohexanone is harmful by inhalation. It may have harmful effects by ingestion and skin contact as well. Study results for inhalation toxicity are divergent. The acute toxicity is measured as:
Route(s) of entry	- ingestion LD <sub>50</sub> , oral, rat: 1820 mg/kg (average of 6 study results)
	- skin LD <sub>50</sub> , dermal, rabbit: 950 mg/kg (average of 5 study results)
	- inhalation LC <sub>50</sub> , inhalation, rat: 3 - 30 mg/l/4 h
Skin corrosion/irritation .....	Cyclohexanone has irritating properties to skin as has been found in several studies. It is not clear if the classification criteria are met.
Serious eye damage/irritation .....	Cyclohexanone has irritating properties to eyes as has been found in several studies. It is not clear if the classification criteria are met.
Respiratory or skin sensitisation ...	To our knowledge, no indications of allergenic effects have been reported. Negative results were found in a number of tests. *
<u><b>Xylene</b></u>	
Acute toxicity .....	The substance is classified as harmful by skin contact and inhalation. The acute toxicity is measured as:
Route(s) of entry	- ingestion LD <sub>50</sub> , oral, rat: 4300 - 5200 mg/kg (8 studies) *
	- skin LD <sub>50</sub> , dermal, rat: > 2000 mg/kg (4 studies)
	- inhalation LC <sub>50</sub> , inhalation, rat: approx. 30 mg/l/4 h (average of 3 test results)
Skin corrosion/irritation .....	Moderately irritating to rabbit skin (2 studies). *
Serious eye damage/irritation .....	Slightly irritating to eyes (2 studies). *
Respiratory or skin sensitisation ...	To our knowledge, no indications of allergenic properties have been recorded. *
Aspiration hazard .....	Xylene presents an aspiration hazard.

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#### Acetic anhydride

Acute toxicity .....	The substance is harmful by ingestion and inhalation. The acute toxicity is measured as:
Route(s) of entry	
- ingestion	LD <sub>50</sub> , oral, rat: 630 mg/kg (method similar to OECD 401)
- skin	LD <sub>50</sub> , dermal, rat: > 4000 mg/kg *
- inhalation	LC <sub>50</sub> , inhalation, rat: 4.0 - 8.5 mg/l/4 h
Skin corrosion/irritation .....	The substance is corrosive.
Serious eye damage/irritation .....	The substance is corrosive.
Respiratory or skin sensitisation ...	Indications of allergenic properties have been recorded. Study results are equivocal.

### **SECTION 12: ECOLOGICAL INFORMATION**

- 12.1. **Toxicity** ..... The product is toxic to aquatic invertebrates and highly toxic to insects. It may be harmful to birds. It is non-toxic to fish, aquatic plants, earthworms and soil macro- and microorganisms.

The ecotoxicity measured on a similar product is:

- Fish	Rainbow trout ( <i>Oncorhynchus mykiss</i> ) .....	96-h LC <sub>50</sub> : 61.3 mg/l 21-day NOEC: 0.72 mg/l
- Invertebrates	Daphnids ( <i>Daphnia magna</i> ) .....	48-h EC <sub>50</sub> : 5.44 mg/l 21-day NOEC 0.06 mg/l
- Algae	Green algae ( <i>Selenastrum capricornutum</i> ) .....	72-h EC <sub>50</sub> : 233 mg/l
- Earthworms	<i>Eisenia foetida foetida</i> .....	14-day LC <sub>50</sub> : 271 mg/kg dry soil
- Bees	Honeybee ( <i>Apis mellifera</i> ) .....	48-h LC <sub>50</sub> , contact: 0.214 µg/bee 48-h LC <sub>50</sub> , oral: 0.127 µg/bee

- 12.2. **Persistence and degradability** .... The active ingredient **dimethoate** is biodegradable. It undergoes degradation in the environment and in waste water treatment plants. No adverse effects are found at concentrations up to 100 mg/l in waste water treatment plants. Degradation occurs both aerobically and anaerobically, biologically as well as abiologically.

In aerobic soil and water **dimethoate** degrades rapidly, with primary half-lives of a few days. pH has a major influence. Degradation will increase at higher pH. Degradation products are not considered as harmful to soil dwelling or aquatic organisms and are mineralised relatively rapidly.

**Cyclohexanone** and **xylene** are readily biodegradable.

The product contains minor amounts of not readily biodegradable

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ingredients, which may not be degradable in a waste water treatment plant.

**12.3. Bioaccumulative potential .....**

See section 9 for octanol-water partition coefficients.

The active ingredient **dimethoate** does not bioaccumulate; it is rapidly metabolised and excreted.

**Cyclohexanone** is not expected to bioaccumulate.

If continuous exposure is maintained, **xylene** has a potential to bioaccumulate.

**12.4. Mobility in soil .....**

**Dimethoate** has a potentially high mobility in soil, but is relatively unstable. Degradation products are not mobile in soil.

**Cyclohexanone** has a high mobility in the environment. It will rapidly evaporate.

**Xylene** is not mobile in the environment. It will evaporate rapidly as well.

**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.

Dimethoate is rapidly hydrolysed at pH > 8.0.

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. If offered for recycling, containers must be emptied and triply rinsed (or equivalent). Do not discharge rinsing water to sewer systems.

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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** ..... 1993
- 14.2. **UN proper shipping name** ..... Flammable liquid, n.o.s. (cyclohexanone and dimethoate)
- 14.3. **Transport hazard class(es)** ..... 3
- 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  
 Second Seveso category: flammable
- 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 .....
- |       |   |
|-------|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| BAT   | Biologische Arbeitsstoff-Toleranzwert                     |
| BEI   | Biological Exposure Index                                 |
| BMGV  | Biological Monitoring Guidance Value                      |
| CAS   | Chemical Abstracts Service                                |
| Dir.  | Directive   |



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DNEL	Derived No Effect Level
EC	European Community, or Emulsifiable Concentrate
EC <sub>50</sub>	50% Effect Concentration
EINECS	European INventory of Existing Commercial Chemical Substances
EKA	Expositionsäquivalent für Krebserzeugende Arbeitsstoffe
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
GHS	Globally Harmonized classification and labelling System of chemicals, Fifth revised edition 2013
HSE	Health & Safety Executive, UK
IBC	International Bulk Chemical code
ISO	International Organisation for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LC <sub>50</sub>	50% Lethal Concentration
LD <sub>50</sub>	50% Lethal Dose
LOAEL	Lowest Observed Adverse Effect Level
LOEL	Lowest Observed Effect Level
MAK	Maximale Arbeitsplatz-Konzentration
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
OSHA	Occupational Safety and Health Administration
PBT	Persistent, Bioaccumulative, Toxic
PEL	Personal Exposure Limit
PNEC	Predicted No Effect Concentration
Reg.	Registration, or Regulation
STEL	Short-Term Exposure Limit
STOT	Specific Target Organ Toxicity
TLV	Threshold Limit Value
TWA	Time Weighted Average
vPvB	very Persistent, very Bioaccumulative
WEL	Workplace Exposure Limit
WHO	World Health Organisation

References .....	Data measured on this and a similar product are unpublished company data. Data on ingredients are available from published literature and can be found several places.
Method for classification .....	Flammable liquid: test data Acute oral toxicity: test data Inhalation toxicity: test data Eye damage: test data Aspiration toxicity: test data Hazards to the aquatic environment: calculation method
Used hazard statements .....	H226 Flammable liquid and vapour. H242 Heating may cause a fire.

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- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H312 Harmful in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H318 May cause serious eye damage.
- H332 Harmful if inhaled.
- H410 Very 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