

Material group	3765 (50000647)	Page 1 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	Revision: January 2021
Safety data sheet according to EU Reg. 1907/2006 as amended		Supersedes March 2015

## SAFETY DATA SHEET

### Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)

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** ..... **Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)**  
**Contains dimethoate,  $\gamma$ -butyrolactone, hydrocarbons, C9, aromatics and maleic 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** **FMC Agricultural Solutions A/S**  
 Thyborønvej 78  
 DK-7673 Harbøre  
 Denmark  
[SDS.Ronland@fmc.com](mailto:SDS.Ronland@fmc.com)
- 1.4. **Emergency telephone number**  
Medical emergencies:
- |                                     |   |
|-------------------------------------|---|
| Austria: +43 1 406 43 43            | Malta: 112  |
| Belgium: +32 70 245 245             | Netherlands: +31 30 274 88 88                                   |
| Bulgaria: +359 2 9154 409           | Norway: +47 22 591300   |
| Cyprus: 1401                        | Poland: +48 22 619 66 54  |
| Czech Republic: +420 224 919 293    | +48 22 619 08 97  |
| +420 224 915 402                    | Portugal: 800 250 250 (in Portugal only)                        |
| Denmark: +45 82 12 12 12            | +351 21 330 3284  |
| England and Wales: 111              | Romania: +40 21318 3606   |
| Estonia: +372 7943500               | Scotland: +8454 24 24 24  |
| Finland: +358 9 471 977             | Slovakia: +421 2 54 77 4 166                                    |
| France: +33 (0) 1 45 42 59 59       | Slovenia: +386 41 650 500                                       |
| Greece: 30 210 77 93 777            | South Africa: +27 83 123 3911 (Bateleur Emergency Response Co.) |
| Hungary: +36 80 20 11 99            | Spain: +34 91 562 04 20   |
| Ireland (Republic): +353 1 837 9964 | Sweden: +46 08-331231   |
| Italy: +39 02 6610 1029             | 112   |
| Latvia: +371 670 42 473             | Switzerland: 145  |
| 112                                 | Turkey: 114   |
| Lithuania: +370 523 62052           | U.S.A. & Canada: +1 800 / 331 3148                              |
| +370 687 53378                      | All other countries: +1 651 / 632 6793 (Collect)                |
| Luxembourg: +352 8002 5500          |   |

Material group	3765	Page 2 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

For fire, leak, spill or other accident emergencies:

U.S.A.: +1 800 / 424 9300 (CHEMTREC)

All other countries: +1 703 / 741 5970 (CHEMTREC - Collect)

**♣ S SECTION 2: HAZARDS IDENTIFICATION**

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

Flammable liquid: Category 3 (H226)  
 Self-reactive mixture Type F (H242)  
 Acute oral toxicity: Category 3 (H301)  
 Acute inhalation toxicity: Category 4 (H332)  
 Sensitisation – skin: Category 1B (H317)  
 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. On heating, above 55°C self-accelerating decomposition may occur.

Health hazards ..... The product is harmful by inhalation and may be toxic by ingestion. It may be mildly to moderately irritating to skin and eyes.

A similar product was found to be an allergic sensitizer in animal tests.

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 ..... Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)  
 Contains dimethoate,  $\gamma$ -butyrolactone, hydrocarbons, C9, aromatics and maleic anhydride

Hazard pictograms (GHS02, GHS06, GHS08, GHS09)



Signal word ..... Danger

Material group	3765	Page 3 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

#### Hazard statements

H226 .....	Flammable liquid and vapour.
H242 .....	Heating may cause a fire.
H301 .....	Toxic if swallowed.
H304 .....	May be fatal if swallowed and enters airways.
H317 .....	May cause an allergic skin reaction.
H332 .....	Harmful if inhaled.
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.
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#### Precautionary statements

P210 .....	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 .....	Avoid breathing vapours.
P280 .....	Wear protective gloves, protective clothing and eye protection.
P303+P361+P353 .....	IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water/shower.
P310 .....	Immediately call a POISON CENTER or physician.
P501 .....	Dispose of content and 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.
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### ♣ 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.

#### Active ingredient

<b>Dimethoate</b> .....	Content: 45% 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
Molecular weight .....	229.26
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), M-factor 1

Material group	3765	Page 4 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

<u>Reportable ingredients</u>	Content (% w/w)	CAS no.	EC no. (EINECS no.)	Classification (* = harmonised classification)
$\gamma$ -Butyrolactone Reg. no. 01-2119471839-21	20	96-48-0	202-509-5	Acute Tox. 4 (H302) Eye Dam. 1 (H318) STOT SE 3 (H336)
Hydrocarbons, C9, aromatics Reg. no. 01-2119455851-35	13		918-668-5	Flam. Liq. 3 (H226) STOT SE 3 (H335) STOT SE 3 (H336) Asp. Tox. 1 (H304) Aquatic Chronic 2 (H411) EUH066
Cyclohexanone Reg. no. 01-2119453616-35	10	108-94-1	203-631-1	Flam. Liq. 3 (H226) * Acute Tox. 4 (H302) * Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Dam. 1 (H318)
Acetophenone Reg. no. 01-2119533169-37	8	98-86-2	202-708-7	Acute Tox. 4 (H302) Eye Irrit. 2 (H319)
Maleic anhydride Reg. no. 01-2119472428-31	0.1 - < 1	108-31-6	203-571-6	Acute Tox. 4 (H302) Skin Corr. 1B (H314) Eye Dam. 1 (H318) Resp. Sens. 1 (H334) Skin Sens. 1A (H317) STOT SE 1 (H372) EUH071 Specific concentration limit for Skin Sens. 1A (H317): $\geq 0.001\%$

#### 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

Material group	3765	Page 5 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

with 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.

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.

In an industrial setting, the antidote atropine sulphate should be available at the workplace.

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

Material group	3765	Page 6 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

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 instead 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.**

#### ♣ SECTION 5: FIRE-FIGHTING MEASURES

- |   |  |
|---|--|
| 5.1. <b>Extinguishing media</b> .....                             | Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Avoid heavy hose streams.   |
| 5.2. <b>Special hazards arising from the substance or mixture</b> | 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.   |
| 5.3. <b>Advice for firefighters</b> .....                         | 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. <b>Personal precautions, protective equipment and emergency procedures</b> | <p>It is recommended to have a predetermined plan for the handling of spills. Empty, sealable vessels for the collection of spills should be available.</p> <p>In case of large spill (involving 10 tonnes of the product or more):</p> <p>1. use personal protection equipment; see section 8</p> |
|---|--|

Material group	3765	Page 7 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

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

**♣ SECTION 7: HANDLING AND STORAGE**

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

Formation of explosive vapour-air mixtures is possible. Fire prevention measures should be taken. Take measures against electrostatic discharges. Keep away from sources of ignition and protect from exposure to fire and heat.

In an industrial environment, it is recommended 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

Material group	3765	Page 8 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

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.

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. Protect against strong heat from sunshine or other source, e.g. fire.

At low temperatures 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.



Material group	3765	Page 9 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

## ♣ 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	2017	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	2017	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
<b>Aceto-phenone</b>	ACGIH (USA) TLV	2015	TWA 10 ppm (49 mg/m <sup>3</sup> )
	OSHA (USA) PEL	2015	Not established
	EU, 2000/39/EC as amended	2017	Not established
	Germany, MAK	2014	Not established
	HSE (UK) WEL	2011	Not established
<b>Aromatic hydrocarbons</b> .....			100 ppm total hydrocarbon is recommended. The mixture contains trimethyl benzene. The ACGIH recommends a TLV-TWA of 25 ppm (123 g/m <sup>3</sup> ) for trimethyl benzene.
			However, other personal exposure limits defined by local regulations may exist and must be observed.
<b>Monitoring methods</b> .....			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 .....		Not established	
PNEC, aquatic environment .....		The EFSA has established an AOEL of 0.001 mg/kg bw/day 0.8 µg/l	

Material group	3765	Page 10 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

#### **γ-Butyrolactone**

DNEL, dermal .....	19 mg/kg bw/day
DNEL, inhalation .....	130 mg/m <sup>3</sup>
PNEC, aquatic environment .....	0.056 mg/l

#### **Aromatic hydrocarbons**

DNEL, dermal .....	23 mg/kg bw/day
DNEL, inhalation .....	150 mg/m <sup>3</sup>
PNEC, aquatic environment .....	Not applicable

#### **Cyclohexanone**

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

#### **Acetophenone**

DNEL, dermal .....	5.6 mg/kg bw/day
DNEL, inhalation .....	9.8 mg/m <sup>3</sup>
PNEC, aquatic environment .....	0.0864 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.



#### 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.

Material group	3765	Page 11 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021



#### 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

Physical state .....	Liquid
Colour .....	Blue
Odour .....	Mercaptanic/acetone odour
Melting point/freezing point .....	Below 5°C
	Crystallisation may occur from 5°C downward
Boiling point or initial boiling point and boiling range	Not determined
	<b>Dimethoate</b> : decomposes
	<b>γ-Butyrolactone</b> : 204 - 206°C
	<b>Aromatic hydrocarbons</b> : 155 - 181°C
	<b>Cyclohexanone</b> : 156°C
	<b>Acetophenone</b> : 202°C
Flammability .....	Ignitable
Lower and upper explosive limit ..	<b>γ-Butyrolactone</b> : 2.7 - 17.5 vol% (≈ 2.7 - 17.5 kPa)
	<b>Aromatic hydrocarbons</b> : 0.7 - 7.0 vol% (≈ 0.7 - 7.0 kPa)
	<b>Cyclohexanone</b> : 1 - 9.4 vol% (≈ 1 - 9.4 kPa)
	<b>Acetophenone</b> : 1.4 - 5.2 vol% (≈ 1.4 - 5.2 kPa)
Flash point .....	60°C (Pensky-Martens closed cup)
Auto-ignition temperature .....	<b>Dimethoate</b> : 314°C
	<b>γ-Butyrolactone</b> : 455°C
	<b>Aromatic hydrocarbons</b> : > 400°C
	<b>Cyclohexanone</b> : 420°C
	<b>Acetophenone</b> : 570°C
Decomposition temperature .....	See subsection 10.2.
pH .....	1% emulsion in water: 3.0
Kinematic viscosity .....	Not determined
Solubility .....	The product is emulsifiable in water.
	Solubility of <b>dimethoate</b> at 25°C in:
	cyclohexanone 1220 g/l
	n-heptane 0.242 g/l
	methanol 1590 g/l
	xylene 313 g/l
	water 39.8 g/l
Partition coefficient n-octanol/water (log value)	<b>Dimethoate</b> : log K <sub>ow</sub> = 0.704
	<b>γ-Butyrolactone</b> : log K <sub>ow</sub> = -0.57 at 25°C
	<b>Aromatic hydrocarbons</b> : some of the main components have log K <sub>ow</sub> = 3.4 - 4.1

Material group	3765	Page 12 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

Vapour pressure .....	<b>Cyclohexanone</b> : log $K_{ow}$ = 0.86 at 25°C <b>Acetophenone</b> : log $K_{ow}$ = 1.6 - 1.7 <b>Dimethoate</b> : $1.35 \times 10^{-4}$ Pa at 25°C <b><math>\gamma</math>-Butyrolactone</b> : approx. 53 Pa at 20°C <b>Aromatic hydrocarbons</b> : < 1 kPa at 20°C <b>Cyclohexanone</b> : 470 Pa at 20°C <b>Acetophenone</b> : 40 Pa at 20°C
Density and/or relative density .....	Density: 1.128 g/ml at 20°C
Relative vapour density .....	(Air = 1)
Particle characteristics .....	<b>Aromatic hydrocarbons</b> : > 1 <b>Cyclohexanone</b> : 3.4 <b>Acetophenone</b> : 4.14 Not applicable (liquid)

## 9.2. Other information

Self-accelerating decomposition temperature .....	55 - 60°C
Evaporation rate .....	(Butyl acetate = 1)
	<b>Aromatic hydrocarbons</b> : 0.16
	<b>Cyclohexanone</b> : 0.3

## ♣ SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity .....	To our knowledge, the product has no special reactivities.
10.2. Chemical stability .....	<p>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.</p> <p>The product is relatively stable for a long period at temperatures not exceeding 25°C. At higher temperatures decomposition will take place and lower the quality of the product.</p> <p>Expected decomposition during storage for two months at average day and night temperature 30°C is approx. 3% of the dimethoate content and at average day and night temperature 25°C it is approx. 1.6%. These numbers may vary between batches due to variations in content of impurities. The reactions involve rearrangements and polymerisation.</p> <p>The self-accelerating reactions which dimethoate is capable of, do not occur at these temperatures, but at temperatures of 55 - 60°C and higher. At these temperatures the released heat can raise the temperature further and accelerate the decomposition. Above 80°C dimethoate will decompose rapidly, causing significant risk of explosion.</p>
10.3. Possibility of hazardous reactions	None known.

Material group	3765	Page 13 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

- 10.4. **Conditions to avoid** ..... 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. **Incompatible materials** ..... Strong alkalis and strong oxidising compounds. The product can corrode metals (but does not meet the criteria for classification).
- 10.6. **Hazardous decomposition products** See subsection 5.2.

#### ♣ SECTION 11: TOXICOLOGICAL INFORMATION

- 11.1. **Information on hazard classes as defined in Regulation (EC) No 1272/2008** \* = Based on available data, the classification criteria are not met.

##### Product

Acute toxicity ..... The product is harmful by inhalation and may be toxic by ingestion. It is considered as less harmful by skin contact. The acute toxicity as estimated from measurements on similar products is:

Route(s) of entry      - ingestion      LD<sub>50</sub>, oral, rat: 250 - 450 mg/kg  
                                  - skin              LD<sub>50</sub>, dermal, rat: > 2000 mg/kg \*  
                                  - inhalation      LC<sub>50</sub>, inhalation, rat: approx. 2.5 mg/l/4 h

Skin corrosion/irritation ..... Expected to be mildly to moderately irritating to skin. \*

Serious eye damage/irritation ..... Expected to be moderately irritating to eyes. \*

Respiratory or skin sensitisation ... A similar product was found to be an allergic sensitizer (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 have narcotic effects at high doses. \*

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.

Material group	3765	Page 14 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

### 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)
- 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). *

### γ-Butyrolactone

Toxicokinetics, metabolism and distribution

γ-Butyrolactone is rapidly and completely absorbed and distributed primarily to plasma and liver. It is rapidly metabolised and eliminated primarily as respiratory carbon dioxide and urinary metabolites.

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 <sub>50</sub> , oral, rat: 1582 mg/kg
- skin	LD <sub>50</sub> , dermal, guinea pig: > 5000 mg/kg *
- inhalation	LC <sub>50</sub> , inhalation, rat: > 5.1 mg/l/4 h *
Skin corrosion/irritation .....	Not irritating to skin. *
Serious eye damage/irritation .....	Seriously irritating to eyes (method OECD 405).
Respiratory or skin sensitisation ...	Not sensitising to skin in animal tests. To our knowledge, allergenic effects have not been reported. *
STOT – single exposure .....	May have narcotic effects by inhalation.

### Hydrocarbons, C9, aromatics

Acute toxicity .....

The substance is not considered as harmful by single exposure. \*

Skin corrosion/irritation .....

Mildly irritating to skin at prolonged exposure. \* Can cause skin dryness (method similar to OECD 404).

Serious eye damage/irritation .....

May cause mild, short-lasting discomfort to eyes (method similar to OECD 405). \*

Material group	3765	Page 15 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

Respiratory or skin sensitisation ... Not expected to cause allergic reactions (method similar to OECD 406). \*

Aspiration hazard ..... Aromatic hydrocarbons present an aspiration hazard.

#### Cyclohexanone

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. \*

#### Acetophenone

Acute toxicity ..... The substance is classified as harmful by ingestion. The acute toxicity is measured as:

Route(s) of entry	- ingestion	LD <sub>50</sub> , oral, rat: 2081 mg/kg (method OECD 401)
	- skin	LD <sub>50</sub> , dermal, rat: 3300 mg/kg (method OECD 402)
	- inhalation	LC <sub>50</sub> , inhalation, rat: not available

Skin corrosion/irritation ..... Slightly irritating to rabbit skin (method OECD 404). \*

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

Respiratory or skin sensitisation ... To our knowledge, no indications of allergenic properties have been recorded. \*

#### Maleic anhydride

Toxicokinetics, metabolism and distribution

After oral intake, maleic anhydride is readily absorbed and widely distributed in the body. It is extensively metabolised to natural body constituents and partially taken up in the organism.

Material group	3765	Page 16 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

Acute toxicity .....	The substance is harmful by ingestion. The acute toxicity is measured as:
Route(s) of entry	- ingestion LD <sub>50</sub> , oral, rat: 1090 mg/kg (method OECD 401)
	- skin LD <sub>50</sub> , dermal, rabbit: 2620 mg/kg (method OECD 402) *
	- inhalation LC <sub>50</sub> , inhalation, rat: no reliable data available
Skin corrosion/irritation .....	The substance is corrosive (method similar to OECD 404).
Serious eye damage/irritation .....	The substance is corrosive.
Respiratory or skin sensitisation ...	Allergenic properties have been observed in humans.
11.2. <b>Information on other hazards</b> ....	No more relevant information is available.

## ♣ SECTION 12: ECOLOGICAL INFORMATION

12.1. <b>Toxicity</b> .....	The product is toxic to aquatic invertebrates and highly toxic to insects. It may be harmful to fish, birds and earthworms. It is non-toxic to aquatic plants and soil macro- and microorganisms.
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The following has been measured on the active ingredient **dimethoate**:

- Fish	Rainbow trout ( <i>Salmo gairdneri</i> ) .....	96-h LC <sub>50</sub> : 30.2 mg/l 21-day NOEC: 0.4 mg/l
- Invertebrates	Daphnids ( <i>Daphnia magna</i> ) .....	48-h EC <sub>50</sub> : 2.0 mg/l 21-day NOEC: 0.04 mg/l
- Algae	Green algae ( <i>Selenastrum capricornutum</i> ) .....	72-h IC <sub>50</sub> : 90.4 mg/l
- Birds	Mallard duck ( <i>Anas platyrhynchos</i> ) .....	LD <sub>50</sub> : 42 mg/kg
	Bobwhite quail ( <i>Colinus virginianus</i> ) .....	LD <sub>50</sub> : 10.5 mg/kg
- Earthworms	<i>Eisenia foetida foetida</i> .....	14-day LC <sub>50</sub> : 31 mg/kg dry soil
- Bees	Honeybees ( <i>Apis mellifera</i> ) .....	LD <sub>50</sub> , acute oral: 0.15 µg/bee LD <sub>50</sub> , contact: 0.12 µg/bee

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



Material group	3765	Page 17 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

**Cyclohexanone,  $\gamma$ -butyrolactone and acetophenone** are readily biodegradable.

**Aromatic hydrocarbons** are not readily biodegradable. However, they are expected to be degraded in the environment at a moderate rate. A BOD<sub>5</sub>/COD ratio of 0.43 was measured. When evaporated, the mixture is expected to degrade rapidly in the air.

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

#### 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,  $\gamma$ -butyrolactone and acetophenone** are not expected to bioaccumulate.

**Aromatic hydrocarbons** have a moderate potential to bioaccumulate if continuous exposure is maintained. Most components can be metabolised by many organisms, bacteria, fungi, etc. Bioaccumulation factors (BCFs) of some of the main components are 300 - 400 (by model calculation).

#### 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 and  $\gamma$ -butyrolactone** have high mobility in the environment. They will rapidly evaporate.

**Acetophenone and aromatic hydrocarbons** are not mobile in the environment, but they are highly volatile and will rapidly evaporate to the air if released onto water or on the surface of soil. They float and can migrate to sediment.

#### 12.5. Results of PBT and vPvB assessment .....

None of the ingredients meets the criteria for being PBT or vPvB.

#### 12.6. Endocrine disrupting properties

None of the ingredients is known to have endocrine disrupting properties.

#### 12.7. 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.

Material group	3765	Page 18 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

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 possible, 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. Reuse is prohibited except by the registration 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 .....   | 3229  |
| 14.2. UN proper shipping name .....                           | Self-reactive liquid Type F (dimethoate)  |
| 14.3. Transport hazard class(es) .....                        | 4.1   |
| 14.4. Packing group .....                                     | Not applicable  |
| 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. Maritime transport in bulk according to IMO instruments | The product is not transported in bulk by ship.   |

Material group	3765	Page 19 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

## ♣ SECTION 15: REGULATORY INFORMATION

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

Seveso category (Dir. 2012/18/EU): toxic  
 Second Seveso category: flammable  
 Third Seveso category: dangerous for the environment

Young people under the age of 18 are not allowed to work with the 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 .....

ACGIH	American Conference of Governmental Industrial Hygienists
AOEL	Acceptable Operator Exposure Level
BAT	Biologische Arbeitsstoff-Toleranzwert
BEI	Biological Exposure Index
BMGV	Biological Monitoring Guidance Value
BOD <sub>5</sub>	Biological Oxygen Demand within 5 days
CAS	Chemical Abstracts Service
COD	Chemical Oxygen Demand
Dir.	Directive
DNEL	Derived No Effect Level
EC	Emulsifiable Concentrate, or European Community
EC <sub>50</sub>	50% Effect Concentration
EINECS	European INventory of Existing Commercial Chemical Substances
EFSA	European Food Safety Authority
EKA	Expositionsäquivalent für Krebserzeugende Arbeitsstoffe
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
GHS	Globally Harmonized classification and labelling System of chemicals, Seventh revised edition 2017
HSE	Health & Safety Executive, UK
IMO	International Maritime Organisation
IBC	International Bulk Chemical code
IC <sub>50</sub>	50% Inhibition Concentration
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

Material group	3765	Page 20 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

MAK	Maximale Arbeitsplatz-Konzentration
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 similar products 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  
 Self-reactive mixture: test data  
 Acute oral toxicity: read-across  
 Inhalation toxicity: read-across  
 Sensitisation – skin: read-across  
 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.  
 H301 Toxic if swallowed.  
 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.  
 H317 May cause an allergic skin reaction.  
 H318 Causes serious eye damage.  
 H319 Causes serious eye irritation.  
 H332 Harmful if inhaled.  
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
 H335 May cause respiratory irritation.  
 H336 May cause drowsiness or dizziness.  
 H372 Causes damage to respiratory system through prolonged or repeated exposure if inhaled.  
 H410 Very toxic to aquatic life with long lasting effects.  
 H411 Toxic to aquatic life with long lasting effects.  
 EUH066 Repeated exposure may cause skin dryness and cracking.  
 EUH071 Corrosive to the respiratory tract.

**FMC Agricultural Solutions A/S**

Thyborønvej 78  
DK-7673 Harbøre  
Denmark  
+45 9690 9690  
[www.fmc.com](http://www.fmc.com)  
CVR No. DK 12 76 00 43

Material group	3765	Page 21 of 21
Product name	<b>Dimethoate 44% w/w (~ 497 g/l) EC, Stabilized (BASF)</b>	January 2021

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 Agricultural Solutions A/S / GHB