



K-OBIOL EC 25, K-OBIOL EC 25

Version 4 / GB
102000002608

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Revision Date: 26.07.2012
Print Date: 02.08.2012

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

1.1 Product identifier

Trade name K-OBIOL EC 25, K-OBIOL EC 25

Product code (UVP) 05939488

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

Use Insecticide

1.3 Details of the supplier of the safety data sheet

Supplier Bayer Environmental Science
230 Cambridge Science Park
Milton Road
Cambridge
Cambridgeshire CB4 0WB
Great Britain

Telephone 00800-1214 9451

Telefax +44(0)1223 426240

Responsible Department Email: ukinfo@bayercropscience.com

1.4 Emergency telephone no.

Emergency telephone no. 0800-220876 (UK 24 hr)

+44(0)1635-563000 (Overseas 24 hr)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to EU Directives 67/548/EEC or 1999/45/EC

R10

Xn Harmful, R20/22

Xi Irritant, R37

Xi Irritant, R41

N Dangerous for the environment, R50/53

Xn Harmful, R65

R66

2.2 Label elements

Labelling according to specific UK regulations:

The labelling information below is that which has been approved under 'The Control of Pesticides Regulations 1986' and/or 'Part III of the Food and Environment Protection Act 1985' and/or 'Plant Protection Product Regulations 1999' and any subsequent amendments and may differ from that indicated by any toxicological and/or other testing otherwise indicated in this 'Safety Data Sheet'. Hazard label for supply/use required.



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Hazardous components which must be listed on the label:

- Deltamethrin
- Piperonyl butoxide
- Solvent Naphtha (petroleum), light aromatic

Symbol(s)

Xn Harmful
N Dangerous for the environment

R-phrases(s)

R10 Flammable.
R20/22 Harmful by inhalation and if swallowed.
R37 Irritating to respiratory system.
R41 Risk of serious damage to eyes.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65 Harmful: may cause lung damage if swallowed.
R66 Repeated exposure may cause skin dryness or cracking.

To avoid risks to man and the environment, comply with the instructions for use.

S-phrases(s)

S2 Keep out of the reach of children.
S13 Keep away from food, drink and animal feedingstuffs.
S20/21 When using do not eat, drink or smoke.
S23 Do not breathe spray.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S35 This material and its container must be disposed of in a safe way.
S39 Wear eye/face protection.
S57 Use appropriate container to avoid environmental contamination.
S62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

2.3 Other hazards

Cutaneous sensations may occur, such as burning or stinging on the face and mucosae. However, these sensations cause no lesions and are of a transitory nature (max. 24 hours).

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical nature

Emulsifiable concentrate (EC)
Deltamethrin/Piperonyl butoxide 25:225 g/l

Hazardous components

R-phrases(s) according to EC directive 67/548/EEC
Hazard statements according to Regulation (EC) No. 1907/2006

Name	CAS-No. / EC-No.	Classification		Concentration [%]
		EC Directive 67/548/EEC	Regulation (EC) No 1272/2008	

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Deltamethrin	52918-63-5 258-256-6	T; R23/25 N; R50/53	Acute Tox. 3, H331 Acute Tox. 3, H301 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	2.70
Piperonyl butoxide	51-03-6 200-076-7	N; R50/53	Aquatic Acute, Aquatic Chronic 1, H400, H410	23.90
Tetrapropylene benzene sulfonate, calcium salt	11117-11-6 234-360-7	Xn; R21 Xi; R38, R41 R52/53	Acute Tox. 4, H312 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 3, H412	> 1.00 - < 25.00
2-Methylpropan-1- ol	78-83-1 201-148-0	R10 Xi; R37/38, R41 R67	Flam. Liq. 3, H226 STOT SE 3, H335 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H336	> 1.00 - < 5.00
Solvent Naphtha (petroleum), light aromatic	64742-95-6 265-199-0	R10 Xi; R37 Xn; R65 R66 R67 N; R51/53	Flam. Liq. 3, H226 STOT SE 3, H336 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	> 25.00

Further information

Deltamethrin	52918-63-5	M-Factor: 1,000,000 (acute)
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For the full text of the R-phrases/ Hazard statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES**4.1 Description of first aid measures****General advice**

Remove contaminated clothing immediately and dispose of safely.

Inhalation

Move the victim to fresh air and keep at rest. Call a physician or poison control center immediately.

Skin contact

In case of skin contact, immediately wash with plenty of soap and water for at least 15 minutes. Warm water may increase the subjective severity of the irritation/paresthesia. This is not a sign of systemic poisoning. In case of skin irritation, application of oils or lotions containing vitamin E may be considered. If symptoms persist, call a physician.

Eye contact



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Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Warm water may increase the subjective severity of the irritation/paresthesia. This is not a sign of systemic poisoning. Apply soothing eye drops, if needed anaesthetic eye drops. Get medical attention if irritation develops and persists.

Ingestion

Keep at rest. Rinse mouth. Do NOT induce vomiting. Risk of product entering the lungs on vomiting after ingestion. Call a physician or poison control center immediately.

4.2 Most important symptoms and effects, both acute and delayed

Local: Skin and eye paraesthesia which may be severe, Usually transient with resolution within 24 hours, Skin, eye and mucous membrane irritation, Cough, Sneezing
Systemic: Discomfort in the chest, Tachycardia, Hypotension, Nausea, Abdominal pain, Diarrhoea, Vomiting, Dizziness, Blurred vision, Headache, Anorexia, Somnolence, Coma, Convulsions, Tremors, Prostration, Airway hyperreaction, Pulmonary oedema, Palpitation, Muscular fasciculation, Apathy

4.3 Indication of any immediate medical attention and special treatment needed

Risks

This product contains a pyrethroid.
Pyrethroid poisoning should not be confused with carbamate or organophosphate poisoning.

Treatment

Local treatment:
Initial treatment: symptomatic.

Treatment

Systemic treatment:
Initial treatment: symptomatic.
Monitor: respiratory and cardiac functions.
In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable.
Keep respiratory tract clear.
Oxygen or artificial respiration if needed.
In case of convulsions, a benzodiazepine (e.g. diazepam) should be given according to standard regimens.
If not effective, phenobarbital may be used.
Contraindication: atropine.
Contraindication: derivatives of adrenaline.
There is no specific antidote.
Recovery is spontaneous and without sequelae.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media

High volume water jet

5.2 Special hazards arising from the substance or mixture

Dangerous gases are evolved in the event of a fire.



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5.3 Advice for firefighters

Special protective equipment for fire-fighters

In the event of fire, wear self-contained breathing apparatus.

Further information

Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat.

Whenever possible, contain fire-fighting water by diking area with sand or earth.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Keep people away from and upwind of spill/leak.

Avoid contact with spilled product or contaminated surfaces.

When dealing with a spillage do not eat, drink or smoke.

6.2 Environmental precautions

Do not allow to get into surface water, drains and ground water.

If spillage enters drains leading to sewage works inform local water company immediately.

If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060).

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Keep in suitable, closed containers for disposal.

Clean floors and contaminated objects with plenty of water.

Additional advice

Check also for any local site procedures.

6.4 Reference to other sections

Information regarding safe handling, see section 7.

Information regarding personal protective equipment, see section 8.

Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling

No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice.

Ensure adequate ventilation.

Advice on protection against fire and explosion

Keep away from heat and sources of ignition.

Vapours may form explosive mixture with air.

Take measures to prevent the build up of electrostatic charge.

Use only explosion-proof equipment.

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Hygiene measures

When using, do not eat, drink or smoke.

Remove soiled clothing immediately and clean thoroughly before using again.

Contaminated work clothing should not be allowed out of the workplace.

Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

Wash hands immediately after work, if necessary take a shower.

7.2 Conditions for safe storage, including any incompatibilities**Requirements for storage areas and containers**

Store in a place accessible by authorized persons only.

Keep containers tightly closed in a dry, cool and well-ventilated place.

Protect from freezing.

Keep away from direct sunlight.

Advice on common storage

Keep away from food, drink and animal feedingstuffs.

Suitable materials

Coex EVOH (1000L IBC)

7.3 Specific end uses

Refer to the label and/or leaflet.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 Control parameters**

Components	CAS-No.	Control parameters	Update	Basis
Deltamethrin	52918-63-5	0.02 mg/m ³ (TWA)		OES BCS*
Piperonyl butoxide	51-03-6	500 ppm (TWA)		OES BCS*
2-Methylpropan-1-ol	78-83-1	231 mg/m ³ / 75 ppm (STEL)	12 2011	EH40 WEL
2-Methylpropan-1-ol	78-83-1	154 mg/m ³ / 50 ppm (TWA)	12 2011	EH40 WEL

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

Additional adviceObserve: Exposure Limits In Air, Group 3: 100 mg/m³/ 20 ppm. (aromatic-rich hydrocarbon mixes with > 25% aromatics TRGS 901, No. 72).**8.2 Exposure controls**

Refer to COSHH assessment (Control of Substances Hazardous to Health (Amendment) Regulations 2004). Engineering controls should be used in preference to personal protective equipment wherever practicable. Refer also to COSHH Essentials.

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection

Wear respirator with an organic vapours and gas filter mask

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	(protection factor 10) conforming to EN140 type A or equivalent. Respiratory protection should only be used to control residual risk of short duration activities, when all reasonably practicable steps have been taken to reduce exposure at source e.g. containment and/or local extract ventilation. Always follow respirator manufacturer's instructions regarding wearing and maintenance.
Hand protection	Wear CE Marked (or equivalent) nitrile rubber gloves (minimum thickness 0,40 mm). Wash when contaminated. Dispose of when contaminated inside, when perforated or when contamination outside cannot be removed. Wash hands always before eating, drinking, smoking or using the toilet.
Eye protection	Wear goggles conforming to EN166 (Field of Use 5 or equivalent).
Skin and body protection	Wear standard coverall and type 6 suit. Wear two layers of clothing wherever possible. Polyester/cotton or cotton overalls should be worn under chemical protection suit and should be professionally laundered frequently. If chemical protection suit is splashed, sprayed or significantly contaminated, decontaminate as far as possible, then carefully remove and dispose of as advised by manufacturer.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

Form	liquid, clear
Colour	yellow
pH	4.5 - 7.0 at 1 % (23 °C) (deionized water)
Flash point	44 °C
Ignition temperature	> 450 °C The data refer to solvent naphtha petroleum.
Upper explosion limit	7.00 %(V) The data refer to solvent naphtha petroleum.
Lower explosion limit	0.8 %(V) The data refer to solvent naphtha petroleum.
Relative vapour density	1.00 The data refer to solvent naphtha petroleum.
Density	ca. 0.94 g/cm ³ at 20 °C
Water solubility	miscible
Surface tension	ca. 27.7 mN/m at 40 °C



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9.2 Other information

Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions when stored and handled according to prescribed instructions.

10.4 Conditions to avoid

Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Store only in the original container.

10.6 Hazardous decomposition products

No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity LD50 (rat) 710 mg/kg

Acute inhalation toxicity LC50 (rat) 2.69 mg/l
Exposure time: 4 h
Irritating to respiratory system.
Test conducted with a similar formulation.

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

Skin irritation No skin irritation (rabbit)

Eye irritation Severe eye irritation. (rabbit)

Assessment repeated dose toxicity

Deltamethrin caused neurobehavioral effects and/or neuropathological changes in animal studies. The toxic effects of Deltamethrin are related to transient hyperactivity typical for pyrethroid neurotoxicity.

Piperonyl butoxide did not cause specific target organ toxicity in experimental animal studies.

Assessment Mutagenicity

Deltamethrin was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Piperonyl butoxide was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment Carcinogenicity

Deltamethrin was not carcinogenic in lifetime feeding studies in rats and mice.

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Piperonyl butoxide was not carcinogenic in lifetime feeding studies in rats and mice.

Assessment Toxicity to Reproduction

Deltamethrin did not cause reproductive toxicity in a two-generation study in rats.

Piperonyl butoxide did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Deltamethrin caused developmental toxicity only at doses toxic to the dams. The developmental effects seen with Deltamethrin are related to maternal toxicity.

Piperonyl butoxide did not cause developmental toxicity in rats and rabbits.

Further information

Cutaneous sensations may occur, such as burning or stinging on the face and mucosae.

However, these sensations cause no lesions and are of a transitory nature (max. 24 hours).

SECTION 12: ECOLOGICAL INFORMATION**12.1 Toxicity****Toxicity to fish**

LC50 (Rainbow trout (*Oncorhynchus mykiss*)) 0.00091 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient deltamethrin.

(*Cyprinodon variegatus* (sheepshead minnow)) 3.94 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient piperonyl butoxide.

Toxicity to aquatic invertebrates

EC50 (Water flea (*Daphnia magna*)) 0.00056 mg/l

Exposure time: 48 h

The value mentioned relates to the active ingredient deltamethrin.

EC50 (Water flea (*Daphnia magna*)) 0.51 mg/l

Exposure time: 48 h

The value mentioned relates to the active ingredient piperonyl butoxide.

Toxicity to aquatic plants

EC50 (Algae) > 9.1 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient deltamethrin.

12.2 Persistence and degradability**Biodegradability**

Not applicable for this mixture.

12.3 Bioaccumulative potential**Bioaccumulation**

Lepomis macrochirus (Bluegill sunfish)

Bioconcentration factor (BCF): 1,400

The value mentioned relates to the active ingredient deltamethrin.

Lepomis macrochirus (Bluegill sunfish)

Bioconcentration factor (BCF): 260

The value mentioned relates to the active ingredient piperonyl butoxide.

12.4 Mobility in soil

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Stability in water no data available

Stability in soil Not applicable for this mixture.

12.5 Results of PBT and vPvB assessment

Not relevant as no chemical safety report is necessary.

12.6 Other adverse effects

Additional ecological information

No other effects to be mentioned.

SECTION 13: DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods****Product**

In accordance with current regulations and, if necessary, after consultation with the site operator and/or with the responsible authority, the product may be taken to a waste disposal site or incineration plant.

Advice may be obtained from the local waste regulation authority (part of the Environment Agency in the UK).

Contaminated packaging

Small containers (< 10 l or < 10 kg) should be rinsed thoroughly using an integrated pressure rinsing device, or, by manually rinsing three times.

Add washings to sprayer at time of filling.

Dispose of empty and cleaned packaging safely.

Large containers (> 25 l or > 25 kg) should not be rinsed or re-used for any other purpose.

Return large containers to supplier.

Follow advice on product label and/or leaflet.

Waste key for the unused product

020108 agrochemical waste containing dangerous substances

SECTION 14: TRANSPORT INFORMATION**ADR/RID/ADN**

14.1 UN number	1993
14.2 Proper shipping name	FLAMMABLE LIQUID, N.O.S. (DELTAMETHRIN, SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC SOLUTION)
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environm. Hazardous Mark	YES
Hazard no.	30
Tunnel Code	D/E
Special Provision	640E

This classification is in principle not valid for carriage by tank vessel on inland waterways. Please refer to the manufacturer for further information.

IMDG

14.1 UN number	1993
14.2 Proper shipping name	FLAMMABLE LIQUID, N.O.S.

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	(DELTAMETHRIN, SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC SOLUTION)
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Marine pollutant	YES

IATA

14.1 UN number	1993
14.2 Proper shipping name	FLAMMABLE LIQUID, N.O.S. (DELTAMETHRIN, SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC SOLUTION)
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environm. Hazardous Mark	NO

UK 'Carriage' Regulations

14.1 UN number	1993
14.2 Proper shipping name	FLAMMABLE LIQUID, N.O.S. (DELTAMETHRIN, SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC SOLUTION)
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environm. Hazardous Mark	YES
Emergency action code	3Y

14.6 Special precautions for user

See sections 6 to 8 of this Safety Data Sheet.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No transport in bulk according to the IBC Code.

SECTION 15: REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

Further information

WHO-classification: II (Moderately hazardous)

15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for this substance.

SECTION 16: OTHER INFORMATION

Text of R-phrases mentioned in Section 3

R10	Flammable.
R21	Harmful in contact with skin.
R23/25	Toxic by inhalation and if swallowed.
R37	Irritating to respiratory system.
R37/38	Irritating to respiratory system and skin.
R38	Irritating to skin.
R41	Risk of serious damage to eyes.



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R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53 R52/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65	Harmful: may cause lung damage if swallowed.
R66	Repeated exposure may cause skin dryness or cracking.
R67	Vapours may cause drowsiness and dizziness.

Text of the hazard statements mentioned in Section 3

H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

The above information is intended to give general health and safety guidance on the storage and transport of the product.

It is not intended to apply to the use of the product for which purposes the product label and any appropriate technical usage literature available should be consulted and any relevant licenses, consents or approvals complied with.

The requirements or recommendations of any relevant site or working procedure, system or policy in force or arising from any risk assessment involving the substance or product should take precedence over any of the guidance contained in this safety data sheet where there is a difference in the information given.

The information provided in this safety data sheet is accurate at the date of publication and will be updated as and when appropriate.

No liability will be accepted for any injury, loss or damage resulting from any failure to take account of information or advice contained in this safety data sheet.

|| Reason for Revision: Safety Data Sheet according to Regulation (EU) No. 453/2010.

Bayer Environmental Science

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006



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Changes since the last version are highlighted in the margin. This version replaces all previous versions.