



## K-OBIOL UL60

Version 8 / GB  
102000002618

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Revision Date: 03.02.2015  
Print Date: 04.02.2015

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

#### 1.1 Product identifier

Trade name K-OBIOL UL60  
Product code (UVP) 05939666

#### 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  
United Kingdom

Telephone 00800-1214 9451  
Telefax +44(0)1223 426240  
Responsible Department Email: [ukinfo@bayercropscience.com](mailto: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 in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.

Acute aquatic toxicity: Category 1  
H400 Very toxic to aquatic life.

Chronic aquatic toxicity: Category 1  
H410 Very toxic to aquatic life with long lasting effects.

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

N Dangerous for the environment, R50/53

#### 2.2 Label elements

Labelling in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.

Hazard label for supply/use required.

Hazardous components which must be listed on the label:

- Deltamethrin
- Piperonyl butoxide



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Revision Date: 03.02.2015  
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H410 Very toxic to aquatic life with long lasting effects.  
EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

**Precautionary statements**

P501 Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

**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**

Ultra-low volume (ULV) liquid (UL)  
Deltamethrin/Piperonyl Butoxide 6:54 g/l

**Hazardous components**

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

Name	CAS-No. / EC-No.	Classification		Conc. [%]
		EC Directive 67/548/EEC	Regulation (EC) No 1272/2008	
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	0.68
Piperonyl butoxide	51-03-6 200-076-7	N; R50/53	Aquatic Acute 1, H400 Aquatic Chronic 1, H410	6.10

**Further information**

Deltamethrin	52918-63-5	M-Factor: 1,000,000 (acute)
Piperonyl butoxide	51-03-6	M-Factor: 1 (acute)

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.



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<b>Skin contact</b>	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.
<b>Eye contact</b>	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.
<b>Ingestion</b>	Rinse out mouth and give water in small sips to drink. Do NOT induce vomiting. If swallowed, seek medical advice immediately and show this container or label.

### 4.2 Most important symptoms and effects, both acute and delayed

<b>Symptoms</b>	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
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### 4.3 Indication of any immediate medical attention and special treatment needed

<b>Risks</b>	This product contains a pyrethroid. Pyrethroid poisoning should not be confused with carbamate or organophosphate poisoning.
<b>Treatment</b>	Local treatment: Initial treatment: symptomatic.  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.

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## SECTION 5: FIREFIGHTING MEASURES

### 5.1 Extinguishing media

<b>Suitable</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<b>Unsuitable</b>	High volume water jet



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<b>5.2 Special hazards arising from the substance or mixture</b>	Dangerous gases are evolved in the event of a fire.
<b>5.3 Advice for firefighters</b>	
<b>Special protective equipment for fire-fighters</b>	In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.
<b>Further information</b>	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.

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

**Precautions** 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.

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## 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** No special precautions required.

**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.

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**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. Keep away from direct sunlight. Protect from freezing.

**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 <sup>3</sup> (TWA)		OES BCS*
Piperonyl butoxide	51-03-6	500 ppm (TWA)		OES BCS*

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

**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 (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 of 0,4 mm). Wash when contaminated and dispose of when contaminated inside, when perforated or when contamination on the outside cannot be removed. Wash hands frequently and 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 coveralls and Category 3 Type 6 suit. If there is a risk of significant exposure, consider a higher protective type 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.



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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

<b>Form</b>	Liquid, clear
<b>Colour</b>	colourless to light yellow
<b>Odour</b>	weak, characteristic
<b>Flash point</b>	> 137 °C
<b>Ignition temperature</b>	245 °C
<b>Density</b>	ca. 0.88 g/cm <sup>3</sup> at 20 °C
<b>Water solubility</b>	immiscible
<b>Partition coefficient: n-octanol/water</b>	Deltamethrin: log Pow: 6.4 at 25 °C Piperonyl butoxide: log Pow: 4.75
<b>Surface tension</b>	29.5 mN/m at 20 °C
<b>Explosivity</b>	Not explosive

**9.2 Other information** Further safety related physical-chemical data are not known.

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## SECTION 10: STABILITY AND REACTIVITY

### 10.1 Reactivity

**Thermal decomposition** Stable under normal conditions.

**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.

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## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

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

**Acute inhalation toxicity** LC50 (rat) > 5.04 mg/l  
Exposure time: 4 h

**Acute dermal toxicity** LD50 (rabbit) > 4,000 mg/kg

**Skin irritation** Slight irritant effect - does not require labelling. (rabbit)

**Eye irritation** No eye irritation (rabbit)

**Sensitisation** Non-sensitizing. (guinea pig)

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OECD Test Guideline 406, Magnusson & Kligman test  
Test conducted with a similar formulation.

**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. 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 dose levels 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).

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

LC50 (Oncorhynchus mykiss (rainbow trout)) 0.15 µg/l  
Exposure time: 96 h  
The value mentioned relates to the active ingredient deltamethrin.

LC50 (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 (Daphnia magna (Water flea)) 0.0131 µg/l  
Exposure time: 48 h  
The value mentioned relates to the active ingredient deltamethrin.

EC50 (Daphnia magna (Water flea)) 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**

Deltamethrin:  
not rapidly biodegradable



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Piperonyl butoxide:  
not rapidly biodegradable

**Koc** Deltamethrin: Koc: 10240000  
Piperonyl butoxide: Koc: 399 - 830

### 12.3 Bioaccumulative potential

**Bioaccumulation** Deltamethrin: Bioconcentration factor (BCF) 1,400  
Does not bioaccumulate.  
Piperonyl butoxide:  
Potential bioaccumulation

### 12.4 Mobility in soil

**Mobility in soil** Deltamethrin: Immobile in soil  
Piperonyl butoxide: Moderately mobile in soils

### 12.5 Results of PBT and vPvB assessment

**PBT and vPvB assessment** Deltamethrin: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).  
Piperonyl butoxide: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).

### 12.6 Other adverse effects

**Additional ecological information** No other effects to be mentioned.

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## 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** Empty remaining contents.  
Triple rinse containers.  
Do not use containers for other products.  
Rinsed packaging may be acceptable for landfill, otherwise incineration will be required in accordance with local regulations.  
Not completely emptied packagings should be disposed of as hazardous waste.

**Waste key for the unused product** **020108** agrochemical waste containing dangerous substances

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## SECTION 14: TRANSPORT INFORMATION

### ADR/RID/ADN

14.1 UN number

**3082**

14.2 Proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,  
N.O.S.  
(DELTAMETHRIN SOLUTION)





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14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environm. Hazardous Mark	YES
Hazard no.	90
Tunnel Code	E

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	<b>3082</b>
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DELTAMETHRIN SOLUTION)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Marine pollutant	YES

### IATA

14.1 UN number	<b>3082</b>
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DELTAMETHRIN SOLUTION )
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environm. Hazardous Mark	YES

### UK 'Carriage' Regulations

14.1 UN number	<b>3082</b>
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DELTAMETHRIN SOLUTION)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environm. Hazardous Mark	YES
Emergency action code	3Z

### 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.

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## SECTION 15: REGULATORY INFORMATION

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

#### UK and Northern Ireland Regulatory References

This material may be subject to some or all of the following regulations (and any subsequent amendments). Users must ensure that any uses and restrictions as indicated on the label and/or leaflet are followed.

#### Transport

Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No 1348)



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Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 (SI 1997 No 2367)  
Air Navigation Dangerous Goods Regulations 2002 (SI 2002 No 2786)

### Supply and Use

Chemical (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No 716)  
Chemical (Hazard Information and Packaging for Supply) (Northern Ireland) Regulations 2009  
Control of Substances Hazardous to Health Regulations 2002 (SI 2002 No 2677)  
EH40 Occupational Exposure Limits - Table 1 List of approved workplace exposure limits  
Control of Pesticide Regulations 1986  
Dangerous Substances and Explosive Atmospheres Regulations 2002

### Waste Treatment

Environmental Protection Act 1990, Part II  
Environmental Protection (Duty of Care) Regulations 1991  
The Waste Management Licensing Regulations 1994 (as amended)  
Hazardous Waste Regulations 2005 (Replacing Special Waste Regulations 1996 as amended)  
Landfill Directive  
Regulation on Substances That Deplete the Ozone Layer 1994 (EEC/3093/94)  
Water Resources Act 1991  
Anti-Pollution Works Regulations 1999

### Further information

WHO-classification: III (Slightly hazardous)

### 15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for this substance.

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## SECTION 16: OTHER INFORMATION

### Text of R-phrases mentioned in Section 3

R23/25 Toxic by inhalation and if swallowed.  
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### Text of the hazard statements mentioned in Section 3

H301 Toxic if swallowed.  
H331 Toxic if inhaled.  
H400 Very toxic to aquatic life.  
H410 Very toxic 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.