

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 29.06.2018

Version 1.4

GB:IE:MT / EN

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

**1.1 Product identifier** : INK-1801  
 Trade name : LED UV Curable INK

**1.2 Relevant identified uses of the substance or mixture and uses advised against**  
 Use of the Sub- : Digital Printing  
 stance/Mixture

**1.3 Details of the supplier of the safety data sheet**  
 Company : MUTOH Europe nv  
 Archimedesstraat 13, 8400 Oostende, Belgium  
 Telephone : +32 (0) 59 56 14 00  
 E-mail address : sds@mutoh.eu  
 Further information : sds@mutoh.co.jp  
 obtainable from

**1.4 Emergency telephone number**  
 +32 (0) 59 56 14 00 During normal opening times

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008)**

Acute toxicity, Category 4	H302: Harmful if swallowed.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Reproductive toxicity, Category 1B	H360: May damage fertility or the unborn child.
Chronic aquatic toxicity, Category 3	H412: Harmful to aquatic life with long lasting effects.

### 2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**

Hazard pictograms : 

Signal word : Danger

- Hazard statements : H302 Harmful if swallowed.  
 H317 May cause an allergic skin reaction.  
 H360 May damage fertility or the unborn child.  
 H412 Harmful to aquatic life with long lasting effects.
- Precautionary statements : **Prevention:**  
 P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 P273 Avoid release to the environment.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- Response:**  
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

Hazardous components which must be listed on the label:

- 2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester
- Propoxylated neopentyl glycol diacrylate esters
- Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide
- Propylidynetrimethanol, propoxylated, esters with acrylic acid
- Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide
- 2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one
- Glycerol, propoxylated, esters with acrylic acid

**2.3 Other hazards**

None known.

**SECTION 3: Composition/information on ingredients**

**3.1 Mixtures**

**Hazardous components**

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester	86273-46-3 451-690-9	Acute Tox. 4; H302 Skin Sens. 1; H317 Aquatic Chronic 3; H412	>= 80 - < 90
Propoxylated neopentyl glycol diacrylate esters	84170-74-1	Skin Sens. 1B; H317 Aquatic Chronic 2; H411	>= 2.5 - < 10
Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide	75980-60-8 278-355-8	Skin Sens. 1B; H317 Repr. 2; H361 Aquatic Chronic 2; H411	>= 3 - < 10
Propylidynetrimethanol, propoxylated, esters with acrylic acid	53879-54-2 500-123-4	Skin Sens. 1B; H317	>= 1 - < 10
Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide	162881-26-7 423-340-5	Skin Sens. 1; H317 Aquatic Chronic 4; H413	>= 2.5 - < 10

2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	71868-10-5 400-600-6	Acute Tox. 4; H302 Repr. 1B; H360Df Aquatic Chronic 2; H411	>= 0.3 - < 1
Glycerol, propoxylated, esters with acrylic acid	52408-84-1 500-114-5	Eye Irrit. 2; H319 Skin Sens. 1; H317	>= 0.1 - < 1

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
When symptoms persist or in all cases of doubt seek medical advice.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.
- If inhaled : If inhaled, remove to fresh air.  
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.  
Remove contaminated clothing and shoes.  
Get medical attention.  
Wash clothing before reuse.  
Thoroughly clean shoes before reuse.
- In case of eye contact : Flush eyes with water as a precaution.  
Get medical attention if irritation develops and persists.
- If swallowed : If swallowed, DO NOT induce vomiting.  
Get medical attention.  
Rinse mouth thoroughly with water.  
Never give anything by mouth to an unconscious person.

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

- Risks : Harmful if swallowed.  
May cause an allergic skin reaction.  
May damage fertility or the unborn child.

### 4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically and supportively.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical
- Unsuitable extinguishing media : None known.

## 5.2 Special hazards arising from the substance or mixture

- Specific hazards during fire-fighting : Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides  
Oxides of phosphorus

## 5.3 Advice for firefighters

- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

## SECTION 6: Accidental release measures

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

- Personal precautions : Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

### 6.2 Environmental precautions

- Environmental precautions : Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

### 6.3 Methods and material for containment and cleaning up

- Methods for cleaning up : Soak up with inert absorbent material. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

### 6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : Use with local exhaust ventilation.
- Advice on safe handling : Do not get on skin or clothing.  
Do not breathe vapours or spray mist.  
Do not swallow.  
Avoid contact with eyes.  
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment  
Keep container tightly closed.  
Take care to prevent spills, waste and minimize release to the environment.  
  
Avoid inhalation of vapour or mist.
- Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

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

- Requirements for storage areas and containers : Keep in properly labelled containers. Store locked up. Keep tightly closed. Store in accordance with the particular national regulations.
- Advice on common storage : Do not store with the following product types:  
Strong oxidizing agents  
Organic peroxides  
Explosives

**7.3 Specific end use(s)**

- Specific use(s) : No data available

**SECTION 8: Exposure controls/personal protection**

**8.1 Control parameters**

**8.1.1 Occupational Exposure Limits**

**8.1.1.1 Great Britain**

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Carbon black	1333-86-4	TWA	3.5 mg/m3	GB EH40
		STEL	7 mg/m3	GB EH40

**8.1.1.2 Ireland**

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Carbon black	1333-86-4	OELV - 8 hrs (TWA) (inhalable fraction)	3 mg/m3	IE OEL
Further information	Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit value should be used			

**8.1.1.3 Malta**

Contains no substances with occupational exposure limit values.

**8.1.2 Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:**

Substance name	End Use	Exposure routes	Potential health effects	Value
2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester	Workers	Inhalation	Acute systemic effects	0.81 mg/m <sup>3</sup>
	Workers	Skin contact	Acute systemic effects	400 mg/kg bw/day
	Consumers	Inhalation	Acute systemic effects	0.005 mg/m <sup>3</sup>
Propoxylated neopentyl glycol diacrylate esters	Consumers	Skin contact	Acute systemic effects	20 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0.5 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	11.75 mg/m <sup>3</sup>
	Workers	Skin contact	Long-term systemic effects	3.33 mg/kg bw/day
	Workers	Skin contact	Acute local effects	0.117 mg/kg bw/day
Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide	Consumers	Inhalation	Long-term systemic effects	2.9 mg/m <sup>3</sup>
	Consumers	Skin contact	Long-term systemic effects	1.67 mg/kg bw/day
	Consumers	Skin contact	Acute local effects	0.117 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	1.67 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	3.5 mg/m <sup>3</sup>
Carbon black	Workers	Skin contact	Long-term systemic effects	1 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0.06 mg/m <sup>3</sup>
	Workers	Inhalation	Long-term systemic effects	1 mg/m <sup>3</sup>
Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide	Workers	Inhalation	Long-term systemic effects	21 mg/m <sup>3</sup>
	Workers	Skin contact	Long-term systemic effects	3 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	5.2 mg/m <sup>3</sup>
	Consumers	Skin contact	Long-term systemic effects	1.5 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	1.5 mg/kg bw/day
2-Methyl-1-(4-methylthiophenyl)-2-	Workers	Inhalation	Long-term systemic effects	0.32 mg/m <sup>3</sup>
	Workers	Skin contact	Long-term systemic effects	0.1 mg/kg bw/day

	Consumers	Inhalation	Long-term systemic effects	0.16 mg/m3
	Consumers	Skin contact	Long-term systemic effects	0.1 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0.05 mg/kg bw/day
Glycerol, propoxylated, esters with acrylic	Workers	Inhalation	Long-term systemic effects	16.22 mg/m3
	Workers	Skin contact	Long-term systemic effects	1.92 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	4.87 mg/m3
	Consumers	Skin contact	Long-term systemic effects	1.15 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	1.39 mg/kg bw/day

**8.1.3 Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:**

Substance name	Environmental Compartment	Value
2-Propenoic acid, 2-[2-(ethenoxy)ethoxy]ethyl ester	Fresh water	0.0078 mg/l
	Marine water	0.00078 mg/l
	Intermittent use/release	0.068 mg/l
	Sewage treatment plant	7.41 mg/l
	Fresh water sediment	0.012 mg/kg
	Soil	0.0057 mg/kg
Propoxylated neopentyl glycol diacrylate esters	Fresh water	0.0027 mg/l
	Marine water	0.00027 mg/l
	Intermittent use/release	0.027 mg/l
	Sewage treatment plant	0.2 mg/l
	Fresh water sediment	0.1881 mg/kg
	Marine sediment	0.01881 mg/kg
Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide	Fresh water	0.00353 mg/l
	Marine water	0.000353 mg/l
	Intermittent use/release	0.0353 mg/l
	Fresh water sediment	0.29 mg/kg
	Marine sediment	0.029 mg/kg
	Soil	0.0557 mg/kg
Carbon black	Fresh water	50 mg/l
Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide	Fresh water	0.001 mg/l
	Marine water	0.001 mg/l
	Intermittent use/release	0.001 mg/l
	Sewage treatment plant	1 mg/l
	Fresh water sediment	0.712 mg/kg
	Marine sediment	0.712 mg/kg
	Soil	20 mg/kg
2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	Fresh water	0.0012 mg/l
	Marine water	0.00012 mg/l
	Intermittent use/release	0.012 mg/l

	Sewage treatment plant	1 mg/l
	Fresh water sediment	0.0174 mg/kg
	Marine sediment	0.00174 mg/kg
	Soil	0.0135 mg/kg
	Oral (Secondary Poisoning)	2.22 mg/kg food
Glycerol, propoxylated, esters with acrylic acid	Fresh water	0.00574 mg/l
	Marine water	0.000574 mg/l
	Intermittent use/release	0.0574 mg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	0.01697 mg/kg
	Marine sediment	0.001697 mg/kg
	Soil	0.00111 mg/kg
	Oral (Secondary Poisoning)	5.6 mg/kg food

**8.2 Exposure controls**

**Engineering measures**

Minimize workplace exposure concentrations.

Use with local exhaust ventilation.

**Personal protective equipment**

Eye protection : Wear the following personal protective equipment:  
Safety glasses

Hand protection  
Material : Chemical-resistant gloves

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.  
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type : Combined particulates and organic vapour type (A-P)

**SECTION 9: Physical and chemical properties**

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

Appearance : liquid

Colour : black, cyan, magenta, yellow, clear

Odour : mild

Odour Threshold : No data available



pH	:	No data available
Melting point/freezing point	:	-71 °C
Initial boiling point and boiling range	:	94 °C (1,013.000 hPa)
Flash point	:	119 °C Method: Seta closed cup Other information: No data available
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	> 3
Density	:	1.03 - 1.06 g/cm <sup>3</sup> (20 °C)
Solubility(ies)		
Water solubility	:	18 g/l
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	2 - 10 mPa.s
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

## 9.2 Other information

Particle size	:	Not applicable
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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Not classified as a reactivity hazard.

### 10.2 Chemical stability

Stable under normal conditions.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : Can react with strong oxidizing agents.

#### 10.4 Conditions to avoid

Conditions to avoid : None known.

#### 10.5 Incompatible materials

Materials to avoid : Oxidizing agents

#### 10.6 Hazardous decomposition products

No hazardous decomposition products are known.

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation  
Skin contact  
Ingestion  
Eye contact

#### Acute toxicity

Harmful if swallowed.

#### Product:

Acute oral toxicity : Acute toxicity estimate: 1,989 mg/kg  
Method: Calculation method

#### Components:

##### **2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Acute oral toxicity : LD50 (Rat): 1,790 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5.04 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity

##### **Propoxylated neopentyl glycol diacrylate esters:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 2 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity

##### **Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Method: OECD Test Guideline 401

Assessment: The substance or mixture has no acute oral toxicity

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
 Method: OECD Test Guideline 402  
 Assessment: The substance or mixture has no acute dermal toxicity

**Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
 Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
 Method: OECD Test Guideline 402  
 Assessment: The substance or mixture has no acute dermal toxicity

**Propylidynetrimehanol, propoxylated, esters with acrylic acid:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
 Method: OECD Test Guideline 423  
 Remarks: Based on data from similar materials

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Acute oral toxicity : LD50 (Rat): 1,984 mg/kg  
 Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
 Method: OECD Test Guideline 402  
 Assessment: The substance or mixture has no acute dermal toxicity

**Glycerol, propoxylated, esters with acrylic acid:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
 Method: OECD Test Guideline 401  
 Assessment: The substance or mixture has no acute oral toxicity

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg  
 Assessment: The substance or mixture has no acute dermal toxicity

**Skin corrosion/irritation**

Not classified based on available information.

**Components:**

**2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Species: Rabbit  
 Method: OECD Test Guideline 404  
 Result: No skin irritation

**Propoxylated neopentyl glycol diacrylate esters:**

Species: Rabbit  
 Result: No skin irritation

**Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide:**

Species: Rabbit

Result: No skin irritation

**Propylidynetrimethanol, propoxylated, esters with acrylic acid:**

Method: OECD Test Guideline 439

Result: No skin irritation

Remarks: Based on data from similar materials

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Species: Rabbit

Method: OECD Test Guideline 404

Result: No skin irritation

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Species: Rabbit

Method: OECD Test Guideline 404

Result: No skin irritation

**Glycerol, propoxylated, esters with acrylic acid:**

Species: Rabbit

Method: OECD Test Guideline 404

Result: No skin irritation

**Serious eye damage/eye irritation**

Not classified based on available information.

**Components:****2-Propenoic acid, 2-[2-(ethenoxy)ethoxy]ethyl ester:**

Species: Rabbit

Method: OECD Test Guideline 405

Result: No eye irritation

**Propoxylated neopentyl glycol diacrylate esters:**

Species: Rabbit

Result: No eye irritation

**Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide:**

Species: Rabbit

Result: No eye irritation

**Propylidynetrimethanol, propoxylated, esters with acrylic acid:**

Method: OECD Test Guideline 437

Result: No eye irritation

Remarks: Based on data from similar materials

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Species: Rabbit

Method: OECD Test Guideline 405

Result: No eye irritation

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Species: Rabbit  
Method: OECD Test Guideline 405  
Result: No eye irritation

**Glycerol, propoxylated, esters with acrylic acid:**

Species: Rabbit  
Method: OECD Test Guideline 405  
Result: Irritation to eyes, reversing within 21 days

**Respiratory or skin sensitisation**

Not classified based on available information.

**Components:**

**2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Test Type: Local lymph node assay (LLNA)  
Exposure routes: Skin contact  
Species: Mouse  
Method: OECD Test Guideline 429  
Result: positive

Assessment: Probability or evidence of skin sensitisation in humans

**Propoxylated neopentyl glycol diacrylate esters:**

Test Type: Local lymph node assay (LLNA)  
Exposure routes: Skin contact  
Species: Mouse  
Method: OECD Test Guideline 429  
Result: positive

Assessment: Probability or evidence of low to moderate skin sensitisation rate in humans

**Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide:**

Test Type: Local lymph node assay (LLNA)  
Exposure routes: Skin contact  
Species: Mouse  
Method: OECD Test Guideline 429  
Result: positive

Assessment: Probability or evidence of low to moderate skin sensitisation rate in humans

**Propylidynetrimethanol, propoxylated, esters with acrylic acid:**

Test Type: Buehler Test  
Exposure routes: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: positive  
Remarks: Based on data from similar materials

Assessment: Probability or evidence of low to moderate skin sensitisation rate in humans

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Test Type: Maximisation Test  
Exposure routes: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406

Result: positive

Assessment: Probability or evidence of skin sensitisation in humans

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Test Type: Maximisation Test

Exposure routes: Skin contact

Species: Guinea pig

Result: negative

**Glycerol, propoxylated, esters with acrylic acid:**

Test Type: Local lymph node assay (LLNA)

Exposure routes: Skin contact

Species: Mouse

Method: OECD Test Guideline 429

Result: positive

Assessment: Probability or evidence of skin sensitisation in humans

**Germ cell mutagenicity**

Not classified based on available information.

**Components:**

**2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Method: OECD Test Guideline 474  
Result: negative

**Propoxylated neopentyl glycol diacrylate esters:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Method: OECD Test Guideline 474  
Result: negative  
Remarks: Based on data from similar materials

**Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Test Type: Chromosome aberration test in vitro

Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

Test Type: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

**Glycerol, propoxylated, esters with acrylic acid:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative  
Test Type: Chromosome aberration test in vitro  
Result: negative

**Carcinogenicity**

Not classified based on available information.

**Reproductive toxicity**

May damage fertility or the unborn child.

**Components:**

**2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 422  
Result: negative

**Propoxylated neopentyl glycol diacrylate esters:**

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 421  
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

**Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide:**

Effects on fertility : Test Type: Fertility  
Species: Rat  
Application Route: Ingestion  
Result: positive

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Effects on foetal development : Test Type: Fertility/early embryonic development  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: negative

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Effects on fertility : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: positive

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: positive

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, based on animal experiments.  
Clear evidence of adverse effects on development, based on animal experiments.

**Glycerol, propoxylated, esters with acrylic acid:**

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

**STOT - single exposure**

Not classified based on available information.

**STOT - repeated exposure**

Not classified based on available information.

**Repeated dose toxicity****Components:****2-Propenoic acid, 2-[2-(ethenoxy)ethoxy]ethyl ester:**

Species: Rat  
NOAEL: 160 mg/kg  
Application Route: Ingestion  
Exposure time: 28 Days  
Method: OECD Test Guideline 407



**Propoxylated neopentyl glycol diacrylate esters:**

Species: Rat  
 NOAEL: 1,000 mg/kg  
 Application Route: Ingestion  
 Exposure time: 28 Days  
 Method: OECD Test Guideline 407

**Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide:**

Species: Rat  
 NOAEL: 100 mg/kg  
 LOAEL: 300 mg/kg  
 Application Route: Ingestion  
 Exposure time: 90 Days

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Species: Rat  
 NOAEL: 1,000 mg/kg  
 Application Route: Ingestion  
 Exposure time: 90 Days  
 Method: OECD Test Guideline 408

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Species: Rat  
 NOAEL: 75 mg/kg  
 LOAEL: 220 mg/kg  
 Application Route: Ingestion  
 Exposure time: 90 Days  
 Method: OECD Test Guideline 408

**Glycerol, propoxylated, esters with acrylic acid:**

Species: Rat  
 NOAEL: 250 mg/kg  
 LOAEL: 750 mg/kg  
 Application Route: Ingestion  
 Exposure time: 28 Days  
 Method: OECD Test Guideline 422  
 Remarks: Based on data from similar materials

**Aspiration toxicity**

Not classified based on available information.

**SECTION 12: Ecological information**

**12.1 Toxicity**

**Components:**

**2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 6.8 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 55 mg/l  
 Exposure time: 48 h  
 Method: OECD Test Guideline 202

- Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 10 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201
- NOEC (Desmodesmus subspicatus (green algae)): 0.78 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201
- Toxicity to microorganisms : EC50 : 741 mg/l  
 Exposure time: 3 h  
 Method: OECD Test Guideline 209
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.26 mg/l  
 Exposure time: 21 d  
 Species: Daphnia magna (Water flea)  
 Method: OECD Test Guideline 211

**Propoxylated neopentyl glycol diacrylate esters:**

- Toxicity to fish : LC50 (Danio rerio (zebra fish)): 2.7 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 37 mg/l  
 Exposure time: 48 h  
 Method: OECD Test Guideline 202
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 11 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201
- NOEC (Pseudokirchneriella subcapitata (green algae)): 1 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201
- Toxicity to microorganisms : NOEC : 2 mg/l  
 Exposure time: 28 d

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

- Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 90 µg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 203  
 Remarks: No toxicity at the limit of solubility
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1.18 mg/l  
 Exposure time: 48 h  
 Method: OECD Test Guideline 202  
 Remarks: No toxicity at the limit of solubility
- Toxicity to algae : NOEC (Desmodesmus subspicatus (green algae)): 260 µg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201  
 Remarks: No toxicity at the limit of solubility
- Toxicity to microorganisms : EC50 : > 100 mg/l  
 Exposure time: 3 h  
 Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 8.1 µg/l  
 Exposure time: 21 d  
 Species: Daphnia magna (Water flea)  
 Method: OECD Test Guideline 211  
 Remarks: No toxicity at the limit of solubility

**Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 1 - 10 mg/l  
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3.53 mg/l  
 Exposure time: 48 h  
 Method: OECD Test Guideline 202

Toxicity to algae : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 2.01 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201

EC10 (Pseudokirchneriella subcapitata (green algae)): 1.56 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 : > 1,000 mg/l  
 Exposure time: 3 h  
 Method: OECD Test Guideline 209

**Propylidynetrimehanol, propoxylated, esters with acrylic acid:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 1 - 10 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 203  
 Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : (Daphnia magna (Water flea)): > 10 - 100 mg/l  
 Exposure time: 48 h  
 Method: OECD Test Guideline 202  
 Remarks: Based on data from similar materials

Toxicity to algae : ErC50 (Desmodesmus subspicatus (green algae)): > 10 - 100 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201

EC10 (Desmodesmus subspicatus (green algae)): > 1 - 10 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Toxicity to fish : LC50 (Zebrafish): 9 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 15.3 mg/l  
 Exposure time: 24 h  
 Method: OECD Test Guideline 202

Toxicity to algae : ErC50 (Desmodesmus subspicatus (green algae)): 1.6 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): 0.39 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201

Toxicity to microorganisms : IC50 : > 100 mg/l  
 Exposure time: 3 h

**Glycerol, propoxylated, esters with acrylic acid:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 5.74 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 91.4 mg/l  
 Exposure time: 48 h  
 Method: OECD Test Guideline 202

Toxicity to algae : ErC50 (Desmodesmus subspicatus (green algae)): 12.2 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201

EC10 (Desmodesmus subspicatus (green algae)): 2.06 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 : > 1,000 mg/l  
 Exposure time: 3 h  
 Method: OECD Test Guideline 209

**12.2 Persistence and degradability**

**Components:**

**2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Biodegradability : Result: Readily biodegradable.  
 Biodegradation: 84.4 %  
 Exposure time: 28 d

**Propoxylated neopentyl glycol diacrylate esters:**

Biodegradability : Result: Not readily biodegradable.  
 Biodegradation: 51 %  
 Exposure time: 28 d  
 Method: OECD Test Guideline 301D

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Biodegradability : Result: Not readily biodegradable.  
 Biodegradation: 1 %  
 Exposure time: 28 d  
 Method: OECD Test Guideline 301B

**Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide:**

Biodegradability : Result: Not readily biodegradable.  
 Biodegradation: 0 - 10 %  
 Exposure time: 28 d

Method: OECD Test Guideline 301F

**Propylidynetrimethanol, propoxylated, esters with acrylic acid:**

Biodegradability : Result: Readily biodegradable.  
 Biodegradation: 65 %  
 Exposure time: 28 d  
 Method: OECD Test Guideline 301B  
 Remarks: Based on data from similar materials

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Biodegradability : Result: Not readily biodegradable.  
 Biodegradation: 1 %  
 Exposure time: 28 d  
 Method: OECD Test Guideline 301E

**Glycerol, propoxylated, esters with acrylic acid:**

Biodegradability : Result: Readily biodegradable.  
 Biodegradation: 72 - 85 %  
 Exposure time: 28 d  
 Method: OECD Test Guideline 301B

**12.3 Bioaccumulative potential**

**Compone nts:**

**2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Partition coefficient: n- : log Pow: 1.7  
 octanol/water

**Propoxylated neopentyl glycol diacrylate esters:**

Partition coefficient: n- : log Pow: 2.41 - 3.87  
 octanol/water

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Partition coefficient: n- : log Pow: 5.8  
 octanol/water

**Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide:**

Bioaccumulation : Species: Cyprinus carpio (Carp)  
 Bioconcentration factor (BCF): 18 - 72

Partition coefficient: n- : log Pow: 3.1 - 3.8  
 octanol/water

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Bioaccumulation : Bioconcentration factor (BCF): 13

Partition coefficient: n- : log Pow: 3.09  
 octanol/water

Partition coefficient: n- : log Pow: 6.488  
 octanol/water

**Glycerol, propoxylated, esters with acrylic acid:**

Partition coefficient: n- : log Pow: 2.52  
 octanol/water

#### 12.4 Mobility in soil

No data available

#### 12.5 Results of PBT and vPvB assessment

Not relevant

#### 12.6 Other adverse effects

No data available

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

### SECTION 14: Transport information

#### 14.1 UN number

Not regulated as a dangerous good

#### 14.2 UN proper shipping name

Not regulated as a dangerous good

#### 14.3 Transport hazard class(es)

Not regulated as a dangerous good

#### 14.4 Packing group

Not regulated as a dangerous good

#### 14.5 Environmental hazards

Not regulated as a dangerous good

#### 14.6 Special precautions for user

Not applicable

#### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Remarks : Not applicable for product as supplied.

### SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

### Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

## 15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

## SECTION 16: Other information

### Full text of H-Statements

H226	: Flammable liquid and vapour.
H302	: Harmful if swallowed.
H317	: May cause an allergic skin reaction.
H319	: Causes serious eye irritation.
H360Df	: May damage the unborn child. Suspected of damaging fertility.
H361	: Suspected of damaging fertility or the unborn child.
H361f	: Suspected of damaging fertility.
H411	: Toxic to aquatic life with long lasting effects.
H412	: Harmful to aquatic life with long lasting effects.
H413	: May cause long lasting harmful effects to aquatic life.

### Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Chronic	: Chronic aquatic toxicity
Eye Irrit.	: Eye irritation
Flam. Liq.	: Flammable liquids
Repr.	: Reproductive toxicity
Skin Sens.	: Skin sensitisation
GB EH40	: UK. EH40 WEL - Workplace Exposure Limits
GB EH40 / TWA	: Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL	: Short-term exposure limit (15-minute reference period)
IE OEL	: Ireland. List of Chemical Agents and Occupational Exposure Limit Values - Schedule 1
IE OEL / OELV - 8 hrs (TWA)	: Occupational exposure limit value (8-hour reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society

for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

**Further information**

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

**Classification of the mixture:**

Acute Tox. 4	H302
Skin Sens. 1	H317
Repr. 1B	H360
Aquatic Chronic 3	H412

**Classification procedure:**

Calculation method
Calculation method
Calculation method
Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.