

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

1.1. Product identifier

Product form	: Mixture
Product name	: UV INK ELS-170 BLACK
UFI	: HPV0-1N66-D80Q-30P5
Product code	: ELS170-K-BA
Product group	: Trade product

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

Relevant identified uses

Main use category : Professional use

Title	Use descriptors
UV INK ELS-170 BLACK	SU0, PC18, PROC0

Full text of use descriptors: see section 16

1.3. Details of the supplier of the safety data sheet

Supplier

Mimaki Europe B.V.
Stammerdijk 7E
1112 AA Diemen
Netherlands
T +31 20 4627640
reach@mimakieurope.com

1.4. Emergency telephone number

Emergency number : National Poisons Information Centre +31 (0)30 - 274 8888
(Only for the purpose of informing medical personnel in cases of accidental intoxications.
The emergency phone number is 24 hours/day available.)

Country/Area	Organisation/Company	Address	Emergency number	Comment
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER	+44 20 7188 7188	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 4	H302
Acute toxicity (dermal), Category 4	H312
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Skin sensitisation, Category 1	H317
Specific target organ toxicity – Repeated exposure, Category 1	H372
Hazardous to the aquatic environment – Chronic Hazard, Category 2	H411

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Causes damage to organs through prolonged or repeated exposure. Harmful in contact with skin. Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Toxic to aquatic life with long lasting effects.

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2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



Signal word (CLP)

: Danger

Contains

: (5-ethyl-1,3-dioxan-5-yl)methyl acrylate;1-vinylhexahydro-2H-azepin-2-one;2-(2-ethoxyethoxy)ethyl acrylate ;Propylidynetrimethanol, ethoxylated, esters with acrylic acid;phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide;Hexamethylene diacrylate;2,5-di-tert-butylhydroquinone

Hazard statements (CLP)

: H312 - Harmful in contact with skin.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H372 - Causes damage to organs through prolonged or repeated exposure.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP)

: P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P312 - Call a POISON CENTRE or doctor if you feel unwell.
P314 - Get medical advice/attention if you feel unwell.
P391 - Collect spillage.

Extra phrases

: Restricted to professional users.

2.3. Other hazards

Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Name	Product identifier	% w/w (% w/w)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
(5-ethyl-1,3-dioxan-5-yl)methyl acrylate	CAS-No.: 66492-51-1 EC-No.: 266-380-7 REACH-no: 01-2119976303-36	50 – 75	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1B, H317
1-vinylhexahydro-2H-azepin-2-one	CAS-No.: 2235-00-9 EC-No.: 218-787-6 REACH-no: 01-2119977109-27	10 – 20	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Eye Irrit. 2, H319 Skin Sens. 1B, H317 STOT RE 1, H372
2-(2-ethoxyethoxy)ethyl acrylate	CAS-No.: 7328-17-8 EC-No.: 230-811-7 REACH-no: 1-2120752384-53	10 – 20	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1A, H317 Aquatic Chronic 2, H411

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Name	Product identifier	% w/w (% w/w)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Propylidynetrimethanol, ethoxylated, esters with acrylic acid	CAS-No.: 28961-43-5 REACH-no: 01-2119489900-30	1 – 5	Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 3, H412
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	CAS-No.: 162881-26-7 EC-No.: 423-340-5 EC Index-No.: 015-189-00-5 REACH-no: 01-2119944153-43	1 – 5	Skin Sens. 1, H317 Aquatic Chronic 4, H413
2,5-di-tert-butylhydroquinone	CAS-No.: 88-58-4 EC-No.: 201-841-8	0,1 – 1	Acute Tox. 3 (Oral), H301 Skin Sens. 1B, H317 STOT SE 3, H335 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Hexamethylene diacrylate (Note D)	CAS-No.: 13048-33-4 EC-No.: 235-921-9 EC Index-No.: 607-109-00-8 REACH-no: 01-2119484737-22	0,1 – 1	Acute Tox. 2 (Inhalation:dust,mist), H330 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 2, H411

Note D: Certain substances which are susceptible to spontaneous polymerisation or decomposition are generally placed on the market in a stabilised form. It is in this form that they are listed in Part 3. However, such substances are sometimes placed on the market in a non-stabilised form. In this case, the supplier must state on the label the name of the substance followed by the words 'non-stabilised'.

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Call a poison center or a doctor if you feel unwell.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Rinse mouth. Call a poison center or a doctor if you feel unwell.
First-aid measures for first aider	: First aid workers will be equipped with suitable personal protective equipment.

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

Symptoms/effects after inhalation	: Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
Symptoms/effects after skin contact	: Irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Eye irritation.
Symptoms/effects after ingestion	: None under normal conditions.

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

Treat symptomatically.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

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| Suitable extinguishing media | : Water spray. Dry powder. Foam. Carbon dioxide. |
| Unsuitable extinguishing media | : Do not use a heavy water stream. |

5.2. Special hazards arising from the substance or mixture

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|--|--------------------------------|
| Fire hazard | : No fire hazard. |
| Explosion hazard | : No direct explosion hazard. |
| Hazardous decomposition products in case of fire | : Toxic fumes may be released. |

5.3. Advice for firefighters

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|--------------------------------|---|
| Firefighting instructions | : Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection. |
| Protection during firefighting | : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. |

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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| General measures | : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters.
Absorb spillage to prevent material damage. |
|------------------|--|

For non-emergency personnel

- | | |
|----------------------|---|
| Protective equipment | : Wear recommended personal protective equipment. |
| Emergency procedures | : Ventilate spillage area. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin, eyes and clothing. |

For emergency responders

- | | |
|----------------------|---|
| Protective equipment | : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection". |
| Emergency procedures | : Evacuate unnecessary personnel. Stop leak if safe to do so. |

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

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| For containment | : Collect spillage. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible. |
| Methods for cleaning up | : Take up liquid spill into absorbent material. |
| Other information | : Dispose of materials or solid residues at an authorized site. |

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

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|-----------------------------------|---|
| Additional hazards when processed | : Not expected to present a significant hazard under anticipated conditions of normal use. |
| Precautions for safe handling | : Ensure good ventilation of the work station. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. |
| Hygiene measures | : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. |

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7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Keep in a cool, well-ventilated place away from heat.
Storage conditions	: Keep cool. Protect from sunlight.
Packaging materials	: Store always product in container of same material as original container.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL and PNEC

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1)	
PNEC (Water)	
PNEC aqua (freshwater)	0,004 mg/l
PNEC aqua (marine water)	0,0004 mg/l
PNEC aqua (intermittent, freshwater)	0,04 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0,019 mg/kg dwt
PNEC sediment (marine water)	0,0019 mg/kg dwt
PNEC (Soil)	
PNEC soil	0,0014 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	30 mg/l
1-vinylhexahydro-2H-azepin-2-one (2235-00-9)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	0,7 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	4,9 mg/m ³
Long-term - local effects, inhalation	0,17 mg/m ³
DNEL/DMEL (General population)	
Long-term - systemic effects, oral	0,4 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	1,04 mg/m ³
Long-term - systemic effects, dermal	0,42 mg/kg bodyweight/day
Long-term - local effects, inhalation	0,04 mg/m ³
PNEC (Water)	
PNEC aqua (freshwater)	0,1 mg/l
PNEC aqua (marine water)	0,01 mg/l
PNEC aqua (intermittent, freshwater)	1 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0,829 mg/kg dwt
PNEC sediment (marine water)	0,0829 mg/kg dwt

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1-vinylhexahydro-2H-azepin-2-one (2235-00-9)	
PNEC (Soil)	
PNEC soil	0,107 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	262 mg/l
2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	0,083 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	2,6 mg/m ³
Long-term - local effects, inhalation	77 mg/m ³
PNEC (Water)	
PNEC aqua (freshwater)	3,2 µg/l
PNEC aqua (marine water)	0,32 µg/l
PNEC aqua (intermittent, freshwater)	32 µg/l
PNEC aqua (intermittent, marine water)	10 µg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0,004 mg/kg dwt
PNEC sediment (marine water)	0 mg/kg dwt
PNEC (Soil)	
PNEC soil	0,002 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	7,7 mg/l
Propylidynetrimethanol, ethoxylated, esters with acrylic acid (28961-43-5)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	10,5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	37 mg/m ³
DNEL/DMEL (General population)	
Long-term - systemic effects, oral	1,4 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	4,9 mg/m ³
Long-term - systemic effects, dermal	0,5 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0,00195 mg/l
PNEC aqua (marine water)	0,000195 mg/l
PNEC aqua (intermittent, freshwater)	0,0195 mg/l
PNEC aqua (intermittent, marine water)	0,00195 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0,038 mg/kg dwt
PNEC sediment (marine water)	0,0038 mg/kg dwt

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Propylidynetrimethanol, ethoxylated, esters with acrylic acid (28961-43-5)	
PNEC (Soil)	
PNEC soil	0,00644 mg/kg dwt
PNEC (Oral)	
PNEC oral (secondary poisoning)	5,6 mg/kg food
PNEC (STP)	
PNEC sewage treatment plant	10 mg/l
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	3,33 mg/kg bodyweight/day
Acute - systemic effects, inhalation	7,84 mg/m ³
Long-term - systemic effects, dermal	3,33 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	7,84 mg/m ³
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	1,67 mg/kg bodyweight/day
Acute - systemic effects, inhalation	3,92 mg/m ³
Acute - systemic effects, oral	1,67 mg/kg bodyweight/day
Long-term - systemic effects,oral	1,67 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	3,92 mg/m ³
Long-term - systemic effects, dermal	1,67 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0,8 µg/l
PNEC aqua (marine water)	0,8 µg/l
PNEC aqua (intermittent, freshwater)	0,8 µg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0,712 mg/kg dwt
PNEC sediment (marine water)	0,712 mg/kg dwt
PNEC (Soil)	
PNEC soil	20 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	1 mg/l
ε-caprolactam (105-60-2)	
DNEL/DMEL (Workers)	
Acute - local effects, inhalation	10 mg/m ³
Long-term - local effects, inhalation	5 mg/m ³
DNEL/DMEL (General population)	
Acute - local effects, inhalation	5 mg/m ³
Long-term - systemic effects,oral	8,55 mg/kg bodyweight/day
Long-term - local effects, inhalation	2,5 mg/m ³

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ε-caprolactam (105-60-2)	
PNEC (Water)	
PNEC aqua (freshwater)	2 mg/l
PNEC aqua (marine water)	0,2 mg/l
PNEC aqua (intermittent, freshwater)	1 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	18,7 mg/kg dwt
PNEC (Soil)	
PNEC soil	2,55 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	1737 mg/l
Hexamethylene diacrylate (13048-33-4)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	2,77 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	24,5 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects, oral	2,1 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	7,2 mg/m³
Long-term - systemic effects, dermal	1,66 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0,007 mg/l
PNEC aqua (marine water)	0,0001 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0,493 mg/kg dwt
PNEC sediment (marine water)	0,0493 mg/kg dwt
PNEC (Soil)	
PNEC soil	0,094 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	2,7 mg/l
2,5-di-tert-butylhydroquinone (88-58-4)	
DNEL/DMEL (Workers)	
Long-term - local effects, dermal	0,233 mg/kg bw/day
Long-term - systemic effects, inhalation	0,822 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects, oral	83,3 mg/kg bw/day
Long-term - systemic effects, inhalation	0,145 mg/m³
Long-term - local effects, dermal	83,3 mg/kg bw/day
PNEC (Water)	
PNEC aqua (freshwater)	0,4 µg/L

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2,5-di-tert-butylhydroquinone (88-58-4)

PNEC aqua (marine water)	0,4 µg/L
PNEC aqua (intermittent, freshwater)	4 µg/L

8.2. Exposure controls

Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Personal protection equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Personal protective equipment symbol(s):



Eye and face protection

Eye protection:

Safety glasses

Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Black.
Odour	: characteristic.
Odour threshold	: Not available
Melting point	: Not applicable
Freezing point	: Not available
Boiling point	: Not available
Flammability	: Non flammable.
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: $\geq 105\text{ }^{\circ}\text{C}$
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: 13636363,636 – 18000000 mm ² /s
Viscosity, dynamic	: 15 – 18 mPa·s @25°C
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available

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Vapour pressure at 50°C	: Not available
Density	: 1 – 1,1 g/m ³
Relative density	: Not available
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal)	: Harmful in contact with skin.
Acute toxicity (inhalation)	: Not classified

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ATE CLP (oral)	1667,905 mg/kg bodyweight
ATE CLP (dermal)	1619,858 mg/kg bodyweight
(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1)	
LD50 oral rat	> 2000 mg/kg Source: ECHA
LD50 dermal rat	> 2000 mg/kg Source: ECHA
1-vinylhexahydro-2H-azepin-2-one (2235-00-9)	
LD50 oral rat	1114 mg/kg
LD50 dermal rat	1700 mg/kg
LC50 Inhalation - Rat	1,6 mg/l (8h)
2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8)	
LD50 oral rat	900 – 1850 mg/kg bodyweight Animal: rat

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2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8)	
LD50 dermal rat	400 – 2000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal))
LD50 dermal rabbit	1000 – 2000 mg/kg
Propylidynetrimethanol, ethoxylated, esters with acrylic acid (28961-43-5)	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), Guideline: EU Method B.1 (Acute Toxicity (Oral))
LD50 dermal rabbit	> 13200 mg/kg bodyweight Animal: rabbit
LC50 Inhalation - Rat (Vapours)	0,5 – 1 mg/l
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: EU Method B.1 (Acute Toxicity (Oral))
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: other:92/69/EEC
Hexamethylene diacrylate (13048-33-4)	
LD50 oral rat	> 5000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method)
LD50 dermal rabbit	3650 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LC50 Inhalation - Rat	410 mg/m ³ (7 h)
2,5-di-tert-butylhydroquinone (88-58-4)	
LD50 oral rat	50 – 300 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 420 (Acute Oral Toxicity - Fixed Dose Method), Guideline: EU Method B.1 (Acute Toxicity (Oral))
LD50 dermal rat	> 2000 mg/kg bw/day
Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8)	
NOAEL (animal/female, F0/P)	300 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
STOT-single exposure	: Not classified
2,5-di-tert-butylhydroquinone (88-58-4)	
STOT-single exposure	May cause respiratory irritation.
STOT-repeated exposure	: Causes damage to organs through prolonged or repeated exposure.
(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1)	
NOAEL (oral, rat, 90 days)	≥ 100 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test), Guideline: other:

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1-vinylhexahydro-2H-azepin-2-one (2235-00-9)	
LOAEC (inhalation, rat, vapour, 90 days)	0,181 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study), Guideline: EU Method B.29 (Sub-Chronic Inhalation Toxicity:90-Day Study)
NOAEL (subacute, oral, animal/male, 28 days)	50 mg/kg bodyweight NOAEL (oral, rat)
NOAEL (subacute, oral, animal/female, 28 days)	50 mg/kg bodyweight NOAEL (oral, rat)
STOT-repeated exposure	Causes damage to organs (liver, respiratory tract) through prolonged or repeated exposure.
2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8)	
NOAEL (oral, rat, 90 days)	25 – 225 mg/kg bodyweight/day
Propylidynetrimethanol, ethoxylated, esters with acrylic acid (28961-43-5)	
NOAEL (oral, rat, 90 days)	250 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
NOAEL (oral, rat, 90 days)	> 1000 mg/kg bodyweight Animal: rat, Guideline: other:92/69/eec
NOAEL (dermal, rat/rabbit, 90 days)	1000 mg/kg bodyweight/day
Hexamethylene diacrylate (13048-33-4)	
NOAEL (oral, rat, 90 days)	250 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
NOAEL (dermal, rat/rabbit, 90 days)	20 – 200 mg/kg bodyweight/day
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
2,5-di-tert-butylhydroquinone (88-58-4)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified
UV INK ELS-170 BLACK	
Viscosity, kinematic	13636363,636 – 18000000 mm²/s
(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1)	
Viscosity, kinematic	7,02 – 16 mm²/s
1-vinylhexahydro-2H-azepin-2-one (2235-00-9)	
Viscosity, kinematic	3,5 – 6,16 mm²/s
2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8)	
Viscosity, kinematic	2,97 mm²/s
Hexamethylene diacrylate (13048-33-4)	
Viscosity, kinematic	3,85 – 6,75 mm²/s @ 20°C

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.

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Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Toxic to aquatic life with long lasting effects.

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1)	
LC50 - Fish [1]	4 mg/l Source: ECHA
EC50 - Crustacea [1]	20 mg/l Source: ECHA
EC50 72h - Algae [1]	34 mg/l Source: ECHA
1-vinylhexahydro-2H-azepin-2-one (2235-00-9)	
LC50 - Fish [1]	307 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 100 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
NOEC (chronic)	5,75 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	3,2 mg/l Test organisms (species): other:
NOEC chronic algae	25 mg/l (72h)
2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8)	
LC50 - Fish [1]	> 2,5 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
LC50 - Fish [2]	10 – 22 mg/l Test organisms (species): Leuciscus idus
EC50 - Crustacea [1]	90 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	3,2 – 10 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)
Propylidynetrimethanol, ethoxylated, esters with acrylic acid (28961-43-5)	
LC50 - Fish [1]	1,95 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	70,7 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	2,2 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
LC50 - Fish [1]	> 0,09 mg/l Test organisms (species): other: Zebra Fish Brachydanio rerio
EC50 - Crustacea [1]	> 1,175 mg/l Test organisms (species): other aquatic crustacea: Daphnia Magna
EC50 - Crustacea [2]	> 1175 mg/l Test organisms (species): Daphnia magna
EC50 - Other aquatic organisms [1]	> 1,175 mg/l Test organisms (species): other aquatic crustacea:
EC50 72h - Algae [1]	> 0,26 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
NOEC chronic crustacea	8,1 µg/L (21 d)
Hexamethylene diacrylate (13048-33-4)	
LC50 - Fish [1]	0,38 mg/l Test organisms (species): Oryzias latipes
EC50 - Crustacea [1]	2,7 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	1,09 mg/l Test organisms (species): other:
EC50 72h - Algae [2]	2,33 mg/l Test organisms (species): other:
LOEC (chronic)	0,24 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

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Hexamethylene diacrylate (13048-33-4)	
NOEC (chronic)	0,14 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	0,0723 mg/l Test organisms (species): Oryzias latipes Duration: '39 d'
NOEC chronic algae	0,9 mg/l 72 h

2,5-di-tert-butylhydroquinone (88-58-4)	
LC50 - Fish [1]	0,167 mg/l Source: Ecological Structure Activity Relationships
EC50 - Crustacea [1]	0,4 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	0,038 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)
EC50 96h - Algae [1]	0,398 mg/l Source: Ecological Structure Activity Relationships

12.2. Persistence and degradability

UV INK ELS-170 BLACK	
Persistence and degradability	Rapidly degradable

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1)	
Persistence and degradability	Rapidly degradable

1-vinylhexahydro-2H-azepin-2-one (2235-00-9)	
Persistence and degradability	Rapidly degradable

2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8)	
Persistence and degradability	Readily biodegradable.

Propylidynetrimethanol, ethoxylated, esters with acrylic acid (28961-43-5)	
Persistence and degradability	Rapidly degradable

phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
Persistence and degradability	Rapidly degradable

Hexamethylene diacrylate (13048-33-4)	
Persistence and degradability	Readily biodegradable.

2,5-di-tert-butylhydroquinone (88-58-4)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1)	
Partition coefficient n-octanol/water (Log Pow)	1,9 Source: ECHA

1-vinylhexahydro-2H-azepin-2-one (2235-00-9)	
Partition coefficient n-octanol/water (Log Pow)	1,2 – 1,242 @ 23 - 25 °C and pH 7.2

2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8)	
Partition coefficient n-octanol/water (Log Pow)	1,151 OECD 117 method

phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
Partition coefficient n-octanol/water (Log Pow)	4,65 – 5,8 @ 20 - 22 °C and pH 7 - 8.3

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Hexamethylene diacrylate (13048-33-4)

Partition coefficient n-octanol/water (Log Pow)	2,81 @ 25 °C
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2,5-di-tert-butylhydroquinone (88-58-4)

Partition coefficient n-octanol/water (Log Pow)	4,85 Source: Quantitative Structure Activity Relation
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12.4. Mobility in soil

2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8)

Surface tension	57,3 mN/m @ 20°C
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2,5-di-tert-butylhydroquinone (88-58-4)

Mobility in soil	8739 Source: EPI Suite
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Surface tension	71,3 mN/m @ 20°C
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12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Disposal must be done according to official regulations.
Additional information	: Do not re-use empty containers.
HP Code	: HP5 - "Specific Target Organ Toxicity (STOT)/Aspiration Toxicity:" waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration. HP6 - "Acute Toxicity:" waste which can cause acute toxic effects following oral or dermal administration, or inhalation exposure. HP4 - "Irritant – skin irritation and eye damage:" waste which on application can cause skin irritation or damage to the eye. HP13 - "Sensitising:" waste which contains one or more substances known to cause sensitising effects to the skin or the respiratory organs. HP14 - "Ecotoxic:" waste which presents or may present immediate or delayed risks for one or more sectors of the environment

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 3082	UN 3082	UN 3082	UN 3082	UN 3082

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Safety Data Sheet

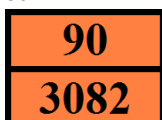
according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

ADR	IMDG	IATA	ADN	RID
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	Environmentally hazardous substance, liquid, n.o.s.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport document description				
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III, (-)	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III, MARINE POLLUTANT	UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III
14.3. Transport hazard class(es)				
9	9	9	9	9
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes EmS-No. (Fire): F-A EmS-No. (Spillage): S-F	Dangerous for the environment: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR) : M6
Special provisions (ADR) : 274, 335, 375, 601
Limited quantities (ADR) : 5I
Excepted quantities (ADR) : E1
Packing instructions (ADR) : P001, IBC03, LP01, R001
Special packing provisions (ADR) : PP1
Mixed packing provisions (ADR) : MP19
Portable tank and bulk container instructions (ADR) : T4
Portable tank and bulk container special provisions (ADR) : TP1, TP29
Tank code (ADR) : LGBV
Vehicle for tank carriage : AT
Transport category (ADR) : 3
Special provisions for carriage - Packages (ADR) : V12
Special provisions for carriage - Loading, unloading and handling (ADR) : CV13
Hazard identification number (Kemler No.) : 90
Orange plates :



Tunnel restriction code (ADR) : -
EAC code : •3Z

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Transport by sea

Special provisions (IMDG)	: 274, 335, 969
Limited quantities (IMDG)	: 5 L
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: LP01, P001
Special packing provisions (IMDG)	: PP1
IBC packing instructions (IMDG)	: IBC03
Tank instructions (IMDG)	: T4
Tank special provisions (IMDG)	: TP1, TP29
Stowage category (IMDG)	: A

Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y964
PCA limited quantity max net quantity (IATA)	: 30kgG
PCA packing instructions (IATA)	: 964
PCA max net quantity (IATA)	: 450L
CAO packing instructions (IATA)	: 964
CAO max net quantity (IATA)	: 450L
Special provisions (IATA)	: A97, A158, A197, A215
ERG code (IATA)	: 9L

Inland waterway transport

Classification code (ADN)	: M6
Special provisions (ADN)	: 274, 335, 375, 601
Limited quantities (ADN)	: 5 L
Excepted quantities (ADN)	: E1
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP
Number of blue cones/lights (ADN)	: 0

Rail transport

Classification code (RID)	: M6
Special provisions (RID)	: 274, 335, 375, 601
Limited quantities (RID)	: 5L
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P001, IBC03, LP01, R001
Special packing provisions (RID)	: PP1
Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T4
Portable tank and bulk container special provisions (RID)	: TP1, TP29
Tank codes for RID tanks (RID)	: LGBV
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W12
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW31
Colis express (express parcels) (RID)	: CE8
Hazard identification number (RID)	: 90

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

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SECTION 15: Regulatory information

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

EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)

Reference code	Applicable on	Entry title or description
3(b)	UV INK ELS-170 BLACK ; (5-ethyl-1,3-dioxan-5-yl)methyl acrylate ; 1-vinylhexahydro-2H-azepin-2-one ; 2-(2-ethoxyethoxy)ethyl acrylate ; Hexamethylene diacrylate	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10
3(c)	UV INK ELS-170 BLACK ; 2-(2-ethoxyethoxy)ethyl acrylate ; Hexamethylene diacrylate	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (2024/590)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)

Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.2. Chemical safety assessment

A chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

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
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor

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Abbreviations and acronyms:	
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disruptor

Other information : DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness.

Full text of H- and EUH-statements:	
Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4

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Full text of H- and EUH-statements:	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Aquatic Chronic 4	Hazardous to the aquatic environment – Chronic Hazard, Category 4
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
Skin Sens. 1A	Skin sensitisation, category 1A
Skin Sens. 1B	Skin sensitisation, category 1B
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
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.
H413	May cause long lasting harmful effects to aquatic life.

Full text of use descriptors	
PC18	Ink and Toners
PROC0	Other
SU0	Other

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Acute Tox. 4 (Oral)	H302	Calculation method
Acute Tox. 4 (Dermal)	H312	Calculation method
Skin Irrit. 2	H315	Calculation method

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Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Eye Irrit. 2	H319	Calculation method
Skin Sens. 1	H317	Calculation method
STOT RE 1	H372	Calculation method
Aquatic Chronic 2	H411	Calculation method

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.