UV INK LUS-190 WHITE

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 23-7-2020 Revision date: 6-2-2025 Supersedes version of: 6-7-2023 Version: 2.2

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

1.1. Product identifier

Product form : Mixture
Product name : UV INK LUS-190 WHITE
Product code : LUS19-W-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 : Industrial use,Professional use

Title	Use descriptors
UV INK LUS-190 WHITE	SU0, PC18, PROC1

Full text of use descriptors: see section 16

1.3. Details of the supplier of the safety data sheet

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]

Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Skin sensitisation, Category 1	H317
Carcinogenicity Not classified	
Reproductive toxicity, Category 1B	H360
Hazardous to the aquatic environment – Acute Hazard, Category 1	H400
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

May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure. May cause an allergic skin reaction. Causes serious eye irritation. Very toxic to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS07 GHS08 GHS09

Signal word (CLP) : Danger

Contains : Hexamethylene diacrylate;4-(1-oxo-2-propenyl)-morpholine;diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

Hazard statements (CLP) : H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H360 - May damage fertility or the unborn child.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) : P201 - Obtain special instructions before use.
P261 - Avoid breathing mist, vapours, spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P391 - Collect spillage.

EUH-statements : EUH211 - Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.

Extra phrases : Restricted to professional users.

2.3. Other hazards

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

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)

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 %

Component	
Substance(s) not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is 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	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)

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]
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	30 – 50	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
titanium dioxide substance with national workplace exposure limit(s) (GB)	CAS-No.: 13463-67-7 EC-No.: 236-675-5 EC Index-No.: 022-006-00-2 REACH-no: 01-2119489379-17	30 – 50	Carc. 2, H351
Aliphatic urethane acrylate	-	20 – 30	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319
diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide substance listed on REACH Candidate List	CAS-No.: 75980-60-8 EC-No.: 278-355-8 EC Index-No.: 015-203-00-X REACH-no: 01-2119972295-29	5 – 10	Skin Sens. 1B, H317 Repr. 1B, H360Fd
4-(1-oxo-2-propenyl)-morpholine	CAS-No.: 5117-12-4 EC-No.: 418-140-1 EC Index-No.: 613-222-00-3 REACH-no: 01-2120102080-83	1 – 5	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT RE 2, H373

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 : Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. In case of accident by inhalation : remove casualty to fresh air and keep at rest. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash contaminated clothing before reuse. 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 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention. 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. Give water to drink. Get medical advice/attention if you feel unwell. Do not induce vomiting without medical advice. Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects : Suspected of damaging fertility. Causes damage to organs (liver, respiratory tract) through prolonged or repeated exposure.
Symptoms/effects after inhalation : May cause an allergic skin reaction. May cause respiratory irritation.
Symptoms/effects after skin contact : Causes skin irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact : Causes serious eye irritation. Eye irritation.
Symptoms/effects after ingestion : None under normal conditions.
Chronic symptoms : May damage fertility or the unborn child.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Carbon dioxide. Dry chemical. Foam. Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media : Heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : The product is not flammable.
Explosion hazard : No direct explosion hazard.
Hazardous decomposition products in case of fire : At high temperature may liberate toxic gases. Do not breathe fumes from fires or vapours from decomposition.

5.3. Advice for firefighters

Firefighting instructions : Move containers away from the fire area if this can be done without risk. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. 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

General measures : In the event of a significant spillage : Ventilate area. May be dangerously slippery if spilled. Advise local authorities if considered necessary. 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 : In the event of a significant spillage : Wear suitable protective clothing.
Emergency procedures : Evacuate unnecessary personnel. Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

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

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Stop leak if safe to do so. 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. Clean up any spills as soon as possible, using an absorbent material to collect it. The contaminated area should be cleaned up immediately with a suitable decontaminant. Place in a suitable container for disposal in accordance with the waste regulations (see Section 13). Store away from other materials. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

Concerning personal protective equipment to use, see section 8. Concerning disposal elimination after cleaning, see section 13. For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

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. Avoid inhalation of vapours. Wear suitable protective clothing, gloves and eye or face protection. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes.

Hygiene measures : Separate working clothes from town clothes. Launder separately. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.

Storage conditions : Keep container tightly closed. Store in a well-ventilated place. Keep cool. Protect from sunlight. Store locked up.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

Storage temperature : 5 – 35 °C

Information on mixed storage : Oxidizer. Strong alkalis.

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

National occupational exposure and biological limit values

titanium dioxide (13463-67-7)	
United Kingdom - Occupational Exposure Limits	
Local name	Titanium dioxide
WEL TWA (OEL TWA)	4 mg/m³ respirable 10 mg/m³ total inhalable
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

DNEL and PNEC

Hexamethylene diacrylate (13048-33-4)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	2,77 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	24,48 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	2,08 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	7,24 mg/m³
Long-term - systemic effects, dermal	1,66 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0,0015 mg/l
PNEC aqua (marine water)	0,00015 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0,0243 mg/kg dwt
PNEC sediment (marine water)	0,00243 mg/kg dwt
PNEC (Soil)	
PNEC soil	0,00397 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	2,7 mg/l

4-(1-oxo-2-propenyl)-morpholine (5117-12-4)	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	300 mg/kg bodyweight/day
Acute - systemic effects, inhalation	132,24 mg/m³
Long-term - systemic effects, dermal	300 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	132,24 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	0,012 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0,009428 mg/kg dwt
PNEC (Soil)	
PNEC soil	0,001442 mg/kg dwt

titanium dioxide (13463-67-7)	
DNEL/DMEL (Workers)	
Long-term - local effects, inhalation	10 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	700 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0,184 mg/l
PNEC aqua (marine water)	0,0184 mg/l
PNEC aqua (intermittent, freshwater)	0,193 mg/l

titanium dioxide (13463-67-7)	
PNEC (Sediment)	
PNEC sediment (freshwater)	1000 mg/kg dwt
PNEC sediment (marine water)	100 mg/kg dwt
PNEC (Soil)	
PNEC soil	100 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	100 mg/l

8.2. Exposure controls

Appropriate engineering controls

Appropriate engineering controls:
Provide local exhaust or general room ventilation to minimize vapour concentrations. Ensure good ventilation of the work station.

Personal protection equipment

Personal protective equipment:
Use personal protective equipment as required. Gloves. Safety glasses. Avoid all unnecessary exposure.
Personal protective equipment symbol(s):

Eye and face protection

Eye protection:
Avoid contact with eyes. Chemical goggles or safety glasses (acc. EN 166). Safety glasses

Skin protection

Skin and body protection:
No special clothing/skin protection equipment is recommended under normal conditions of use. Avoid contact with skin. In case of repeated or prolonged exposure : Wear suitable protective clothing. EN 13034

Hand protection:
Nitrile-rubber protective gloves. Butyl-rubber protective gloves. Layer thickness : 0.7 mm. Breakthrough time (EN 374-3:2003): 3 (> 60 minutes) (www.echa.europa.eu)

Respiratory protection

Respiratory protection:
Where excessive vapour may result, wear approved mask. Approved organic vapour respirator. Gas mask with filter type. A. EN 14387. [In case of inadequate ventilation] wear respiratory protection.

Environmental exposure controls

Environmental exposure controls:
Avoid release to the environment.
Other information:
Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Colour	:	white.
Odour	:	Ester.
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	:	> 100 °C (closed cup)
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
pH	:	Not available
Viscosity, kinematic	:	Not available
Viscosity, dynamic	:	18 – 20 mPa·s @ 25°C
Solubility	:	Water: insoluble in water Organic solvent:Soluble in organic solvents
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	Not available
Vapour pressure at 50°C	:	Not available
Density	:	Not available
Relative density	:	Not available
Relative vapour density at 20°C	:	Not available
Particle characteristics	:	Not applicable

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)	
Flash point	121 °C
Auto-ignition temperature	380 °C
Vapour pressure	0 kPa @ 20°C

9.2. Other information

Other safety characteristics

VOC content : < 30 %

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. < 40°C.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Heat. Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Oxidizing agent. Strong bases. metals. Strong acids.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

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

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified

Acute toxicity (inhalation) : Not classified

Hexamethylene diacrylate (13048-33-4)	
LD50 oral rat	> 5000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LD50 dermal rabbit	3650 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)

4-(1-oxo-2-propenyl)-morpholine (5117-12-4)	
LD50 oral rat	588 mg/kg bodyweight Animal: other:rat, Sprague-Dawley, Guideline: other:EG B.1 teil B /OECD 401, 95% CL: 527 - 701
LD50 oral	588 mg/kg bodyweight Animal: other:, Guideline: other:, 95% CL: 524 - 701
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LC50 Inhalation - Rat	1 mg/l/4h

titanium dioxide (13463-67-7)	
LD50 oral rat	> 5000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 425 (Acute Oral Toxicity: Up-and-Down Procedure), Guideline: EPA OPPTS 870.1100 (Acute Oral Toxicity)

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)	
LD50 oral rat	> 5000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal)), Guideline: EPA OPPTS 870.1200 (Acute Dermal Toxicity), Guideline: other:

Skin corrosion/irritation : Causes skin irritation.

titanium dioxide (13463-67-7)	
pH	7

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)	
pH	4 – 7

Serious eye damage/irritation : Causes serious eye irritation.

titanium dioxide (13463-67-7)	
pH	7

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)	
pH	4 – 7

Respiratory or skin sensitisation : May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified
Additional information : Based on available data, the classification criteria are not met
Carcinogenicity : Not classified.
Additional information : Based on available data, the classification criteria are not met
Reproductive toxicity : May damage fertility or the unborn child.
STOT-single exposure : Not classified
Additional information : Based on available data, the classification criteria are not met

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)	
LOAEL (oral, rat)	250 – 300 mg/kg bodyweight
NOAEL (oral, rat)	50 – 100 mg/kg bodyweight/day

STOT-repeated exposure : Not classified
Additional information : Based on available data, the classification criteria are not met

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

4-(1-oxo-2-propenyl)-morpholine (5117-12-4)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)	
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)

Aspiration hazard : Not classified
Additional information : Based on available data, the classification criteria are not met

Hexamethylene diacrylate (13048-33-4)	
Viscosity, kinematic	3,85 – 6,75 mm²/s

11.2. Information on other hazards

Other information

Potential adverse human health effects and symptoms : Based on available data, the classification criteria are not met

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Very toxic to aquatic life with long lasting effects.
Ecology - water : Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short–term (acute) : Very toxic to aquatic life.
Hazardous to the aquatic environment, long–term (chronic) : Toxic to aquatic life with long lasting effects.

Hexamethylene diacrylate (13048-33-4)	
LC50 - Fish [1]	10 mg/l Test organisms (species): Leuciscus idus
EC50 - Crustacea [1]	2,6 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	1,5 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
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'
NOEC (chronic)	0,14 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	72,3 µg/L (39 d)
NOEC chronic crustacea	140 µg/L (21 d)

4-(1-oxo-2-propenyl)-morpholine (5117-12-4)	
LC50 - Fish [1]	220 mg/l (4 d)
LC50 - Other aquatic organisms [1]	220 mg/l (72 h)
EC50 - Crustacea [1]	120 mg/l 48 h
EC50 - Crustacea [2]	230 mg/l 24 h
EC50 - Other aquatic organisms [1]	120 mg/l Test organisms (species): other aquatic arthropod:DM

4-(1-oxo-2-propenyl)-morpholine (5117-12-4)	
EC50 72h - Algae [1]	> 120 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
NOEC (acute)	120 mg/l 72 h

titanium dioxide (13463-67-7)	
LC50 - Fish [1]	155 mg/l Test organisms (species): other:Japanese Medaka
EC50 - Crustacea [1]	19,3 mg/l Test organisms (species): Daphnia magna
EC50 - Crustacea [2]	27,8 mg/l Test organisms (species): Daphnia magna
EC50 - Other aquatic organisms [1]	> 100 mg/l Test organisms (species):
EC50 72h - Algae [1]	> 100 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)
LOEC (chronic)	5 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC (chronic)	≥ 2,92 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)	
LC50 - Fish [1]	1,4 mg/l Test organisms (species): Cyprinus carpio
LC50 - Fish [2]	6,53 mg/l (48h)
EC50 - Crustacea [1]	3,53 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 2,01 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)
EC50 96h - Algae [1]	3,829 mg/l Source: Ecological Structure Activity Relationships

12.2. Persistence and degradability

UV INK LUS-190 WHITE	
Persistence and degradability	May cause long-term adverse effects in the environment.

Hexamethylene diacrylate (13048-33-4)	
Persistence and degradability	Rapidly degradable
Biodegradation	100 %

4-(1-oxo-2-propenyl)-morpholine (5117-12-4)	
Persistence and degradability	Rapidly degradable

Aliphatic urethane acrylate	
Persistence and degradability	Rapidly degradable

titanium dioxide (13463-67-7)	
Persistence and degradability	Rapidly degradable

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

UV INK LUS-190 WHITE	
Bioaccumulative potential	Not established.

Hexamethylene diacrylate (13048-33-4)	
Partition coefficient n-octanol/water (Log Pow)	2,81 @ 25 °C

4-(1-oxo-2-propenyl)-morpholine (5117-12-4)	
Partition coefficient n-octanol/water (Log Pow)	-0,46 @ 21°C

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)	
Partition coefficient n-octanol/water (Log Pow)	3,1 – 3,87 @ 23 °C and pH 6.4

12.4. Mobility in soil

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)	
Mobility in soil	784,8 Source: Quantitative Structure Activity Relation

12.5. Results of PBT and vPvB assessment

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8)

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

UV INK LUS-190 WHITE	
Other information	Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation : Disposal must be done according to official regulations.

Waste treatment methods : Preferred disposal for this product is through combustion. Small amounts: Dilute directly spill with plenty of water and drain to sewer. 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 : Dispose in a safe manner in accordance with local/national regulations. Disposal must be done according to official regulations.

Additional information : Empty containers can be dumped according to local legislation. Do not re-use empty containers.

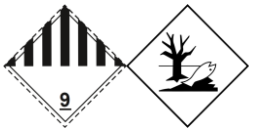
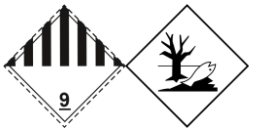
Ecological waste information : Avoid release to the environment.

European List of Waste (LoW, EC 2000/532) : 08 03 12* - waste ink containing dangerous substances

HP Code : HP7 - "Carcinogenic:" waste which induces cancer or increases its incidence
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
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. (Hexamethylene diacrylate), 9, III, (-)	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Hexamethylene diacrylate), 9, III, MARINE POLLUTANT	UN 3082 Environmentally hazardous substance, liquid, n.o.s. (Hexamethylene diacrylate), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Hexamethylene diacrylate), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Hexamethylene diacrylate), 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)	:	5l
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

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) : TP2, 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
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

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 LUS-190 WHITE ; Hexamethylene diacrylate ; 4-(1-oxo-2-propenyl)-morpholine	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 LUS-190 WHITE ; 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 substance(s) listed on the REACH Candidate List in concentrations ≥ 0.1 % or SCL: diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (EC 278-355-8, CAS 75980-60-8)

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

VOC Directive (2004/42)

VOC content : < 30 %

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

No chemical safety assessment has been carried out for the substance or the mixture by the supplier
A chemical safety assessment has been carried out
For the following substances of this mixture a chemical safety assessment has been carried out:
diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

SECTION 16: Other information

Indication of changes		
Section	**Changed item**	**Comments**
	Revision date	**Modified**
	Supersedes	**Modified**
15		**Added**

Abbreviations and acronyms:	
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
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
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

Data sources	:	REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.
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. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Carc. 2	Carcinogenicity, Category 2
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Repr. 1B	Reproductive toxicity, Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
Skin Sens. 1B	Skin sensitisation, category 1B
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
EUH211	Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.

Full text of use descriptors	
PC18	Ink and Toners
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
SU0	Other

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Skin Irrit. 2	H315	Calculation method
Eye Irrit. 2	H319	Calculation method
Skin Sens. 1	H317	Calculation method
Carc. Not classified		Expert judgement
Repr. 1B	H360	Calculation method
Aquatic Acute 1	H400	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.