



# Safety data sheet

According to regulations CLP No. 1272/2008 and REACH No. 1907/2006

TL SERIES: CYAN

## Section 1: Product Identification

### 1.1 Product identifier

<b>Product name</b>	TL SERIES: CYAN
<b>CAS number</b>	Not applicable
<b>Registration No.</b>	Not applicable

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

<b>Identified uses</b>	UV digital ink
<b>Uses advised against</b>	At present no contraindicated use has been identified

### 1.3 Details of the supplier of the safety data sheet

#### Supplier

Inkcups  
310 Andover Street  
Danvers, MA 01923

Tel.: 978-646-8980  
Fax: 978-646-8981  
Email: [info@inkcups.com](mailto:info@inkcups.com)

### 1.4 Emergency telephone numbers

European emergency phone number : 112

United-Kingdom  
National Chemical Emergency Centre Tel: 01865 407 333

Ireland  
National Poisons Information Centre (NPIC)  
01 809 2566 (24/7 for professionals)  
01 809 2166 (9am – 5pm, Mo-Fr for public)

## Section 2: Hazards Identification

### 2.1. Classification of the substance or mixture

#### Classification (EC No.1272/2008)

Acute Tox. 4 (cutané)	H312	STOT RE 1	H372
Skin Irrit. 2	H315	Aquatic Chronic 2	H411
Eye Irrit. 2	H319		
Skin Sens. 1A	H317		
Repr. 2	H361		

The full text for all hazard classes and categories and H hazard statements is displayed in Section 16.

### 2.2. Label elements

Labeling according to Regulation (EC) No.1272/2008

#### Hazard pictograms

#### Signal word

Danger



#### Hazard statements

H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H361	Suspected of damaging fertility or the unborn child .
H372	Causes damage to organs through prolonged or repeated exposure .
H411	Toxic to aquatic life with long lasting effects.

#### Precautionary statements

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P264	Wash ... thoroughly after handling.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P281	Use personal protective equipment as required.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P270	Do no eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P302+P352	IF ON SKIN: Wash with plenty of water/...
P312	Call a POISON CENTER/doctor/... if you feel unwell.
P321	Specific treatment (see ... on this label).
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P314	Get medical advice/attention if you feel unwell.
P391	Collect spillage.
P405	Store locked up.

### 2.3. Other hazards

Handle with care, not all the toxicological properties of this product are known.

UV inks: Exposure to direct sunlight or storage temperatures above 60°C may cause an uncontrolled exothermic polymerization.

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

**3.1 Substances** **Classification (EC No. 1272/2008)** **%**

Not applicable

**3.2 Mixtures**

**Hazardous ingredients** **Classification (EC No. 1272/2008)** **%**

<p><b>CAS :</b> 2235-00-9  <b>CE :</b> 218-787-6  <b>INDEX :</b>  <b>REACH:</b> 01-2119977109-27</p>	<p>1-vinylhexahydro-2H-azepin-2-one</p>	<p>Acute Tox. 4 (oral) - H302                  Acute Tox. 4 (cutané) - H312                  Eye Irrit. 2 - H319                  Skin Sens. 1B - H317                  STOT RE 1 - H372</p>	<p>10-20</p>
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<p><b>CAS :</b> 7328-17-8  <b>CE :</b> 230-811-7  <b>INDEX :</b>  <b>REACH:</b> 01-2120752384-53</p>	<p>2-(2-ethoxyethoxy)ethyl acrylate</p>	<p>Acute Tox. 3 (cutané) - H311                  Acute Tox. 4 (oral) - H302                  Skin Irrit. 2 - H315                  Eye Irrit. 2 - H319                  Skin Sens. 1B - H317                  Aquatic Chronic 2 - H411</p>	<p>10-20</p>
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<p><b>CAS :</b> 48145-04-6  <b>CE :</b> 256-360-6  <b>INDEX :</b>  <b>REACH:</b> 01-2119980532-35</p>	<p>2-phenoxyethyl acrylate</p>	<p>Skin Sens. 1A - H317                  Repr. 2 - H361                  Aquatic Chronic 2 - H411</p>	<p>5-15</p>
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<p><b>CAS :</b> 75980-60-8  <b>CE :</b> 278-355-8  <b>INDEX :</b> 015-203-00-X  <b>REACH:</b> 01-2119972295-29</p>	<p>Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide</p>	<p>Skin Sens. 1B - H317                  Repr. 2 - H361                  Aquatic Chronic 2 - H411</p>	<p>&lt; 5</p>
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## Section 4: First aid measures

### 4.1. Description of first aid measures

#### **First aid measures after inhalation**

- Remove the exposed person to fresh air.
- If breathing difficulties persist, seek medical advice.

#### **First aid measures after skin contact**

- If UV inks are splashed, remove contaminated clothing, avoid exposure to direct sunlight or any source of UV radiation.
- Rinse with lots of water for at least 10 minutes, do not use solvents or diluents, use a skin cleanser (soap etc.).
- Seek medical advice if necessary.

#### **First aid measures after eye contact**

- Avoid exposure to direct sunlight or any source of UV radiation.
- Remove contact lenses if present and easy to do, rinse with plenty of water for at least 10 minutes, holding the eyelids apart.
- Seek medical advice if necessary.

#### **First aid measures after ingestion**

- DO NOT INDUCE VOMITING.
- In the event of spontaneous vomiting, clear the airway and seek immediate medical attention.

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

The severity of the symptoms described will vary depending on the intensity and duration of exposure.

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

No specific first aid measures.

## Section 5: Firefighting measures

### 5.1. Extinguishing media

<b>Suitable</b>	Powders, foams and water spray
<b>Unsuitable</b>	Pressurized water

### 5.2. Specific hazards arising from the substance or mixture

- Some products may polymerize at high temperatures
  - The polymerization of this product is sufficiently exothermic to cause thermal decomposition or explosion of containers
  - Thermal decomposition may release irritating fumes, gases or flames, which can, in turn, cause health problems
- In case of fire, a dense, black, acrid smoke is produced

### 5.3. Advice for firefighters

- Firefighters are to be equipped with self-contained breathing apparatus.
- Spray any unopened drums exposed to fire shouldwith water to keep them cool.
- Keep run-off water out of sewers and waterways. In the event of spillage, notify the competent authorities.

## Section 6: Accidental release measures

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

Keep away from sources of ignition, do not breath vapour (see sections 7 and 8), avoid contact with skin and eyes, remove contaminated clothi

### 6.2. Environmental precautions

Do not discharge into drains or water courses; comply with current legislation.

### 6.3. Methods and materials for containment and cleaning up

Use absorbent materials (e.g. sand, diatomaceous earth), clean with a detergent, avoid the use of solvents, dispose of waste in accordance with

### 6.4. Reference to other sections

Refer to Section 8 for personal protective equipment and Section 13 for disposal considerations.

## Section 7: Handling and storage

### 7.1. Precautions for safe handling

- Before handling, refer to Sections 3, 8 and 11
- Anyone with a history of skin sensitization must handle the product with special care
- Avoid breathing vapour (see sections 7 and 8)
- Avoid contact with skin and eyes
- Follow relevant national occupational hygiene regulations
- Do not drink, eat or smoke in work areas
- Wash hands after use

### 7.2. Conditions for safe storage, including any incompatibilities

- Store in original containers at room temperature
- Opened containers must be tightly closed and kept upright to prevent leaks
- Keep away from sources of ignition, protect from direct sunlight
- Keep away from oxidizing agents, acids and bases

### 7.3. Specific end use(s)

Refer to Section 1.2.

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

*8.1. Control parameters*

**1-vinylhexahydro-2H-azepin-2-one**

**DNEL (derived no effect limits)** 4.9 mg/m<sup>3</sup> (Workers; Inhalation; Long term-systemic effects) - 0.17 mg/m<sup>3</sup> (Workers; Inhalation; LT-Local Effects) - 0. Dermal; LT-SE) - 1.04 mg/m<sup>3</sup> (Consumers; Inhalation; LT-SE) - 0.42 mg/kg (Consumers; Dermal; LT-SE)

**OEL (occupational exposure limits)**

**ELV (emission limit value)**

**PNEC (predicted no effect concentration)** 0.107 mg/kg (soil) - 0.1 mg/l (fresh water) - 0.01 mg/l (sea water) - 0.829 mg/kg (fresh water sediment) - 0.0829 mg/kg (marine sediment)

**2-(2-ethoxyethoxy)ethyl acrylate**

**DNEL** 2.6 mg/m<sup>3</sup> (Workers; Inhalation; Long Term - Systemic Effects) - 0.083 mg/kg (Workers; Dermal; LT-SE)

**OEL**

**ELV**

**PNEC** 0.0032 mg/l (fresh water) - 0.00032 mg/l (sea water) - 0.004 mg/kg (fresh water sediment) - 0.0004 mg/kg (marine sediment)

**2-phenoxyethyl acrylate**

**DNEL** 12 mg/m<sup>3</sup> (Workers; Inhalation; Long Term - Systemic Effects) - 77 mg/m<sup>3</sup> (Workers; Inhalation; LT - Local Effects) - 3.5 mg/kg (Consumers; Dermal; LT - SE)

**OEL**

**ELV**

**PNEC** 2 ug/l (fresh water) - 0.2 ug/l (sea water) - 0.02 mg/kg (fresh water sediment) - 0.002 mg/kg (marine sediment) - 0.006 mg/kg (soil)

**Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide**

**DNEL** Undetermined

**OEL**

**ELV**

**PNEC** 0.00353 mg/l (fresh water) - 0.00353 mg/l (sea water) - 0.29 mg/kg (fresh water sediment) - 0.0557 mg/kg (soil)

DNEL

OEL

ELV

PNEC

DNEL

OEL

ELV

PNEC

DNEL

OEL

ELV

PNEC

## 8.2. Exposure controls

### 8.2.1. Appropriate technical controls

Refer to Section 7.1.

### 8.2.2. Personal protective equipment

#### **Eye and face protection**

The use of safety goggles is recommended to protect against splashing.

#### **Hand protection**

It is possible to use special protective creams; these should not be applied after contamination.  
Do not use gloves made of natural rubber or PVC. It is possible to use disposable single-use gloves.

#### **Skin protection**

Wear suitable clothing, do not wear contaminated clothing.

#### **Respiratory protection**

In the case of frequent use or heavy exposure, respiratory protection may be necessary. Wear an appropriate mask.  
Vapor extraction or effective ventilation should be provided at workstations.

### 8.2.3. Environmental exposure controls

Do not discharge into drains or water courses.



## Section 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<b>Physical state</b>	Liquid
<b>Colour</b>	Undetermined
<b>Odour</b>	Undetermined
<b>Odour threshold</b>	Undetermined
<b>pH</b>	Undetermined
<b>Melting / freezing (°C) point</b>	Undetermined
<b>Initial boiling point and boiling range (° C)</b>	Undetermined
<b>Flash point (° C)</b>	> 100
<b>Evaporation rate</b>	Undetermined
<b>Flammability</b>	Undetermined
<b>Upper / lower flammability limits</b>	Undetermined
<b>Vapour pressure</b>	Undetermined
<b>Vapour density</b>	Undetermined
<b>Relative density</b>	Undetermined
<b>Solubility</b>	Undetermined
<b>n-octanol / water partition coefficient</b>	Undetermined
<b>Auto ignition temperature</b>	Undetermined
<b>Thermal decomposition temperature</b>	Undetermined
<b>Viscosity</b>	Undetermined

### 9.2. Other information

No additional information available

## Section 10: Stability and reactivity

### 10.1. Reactivity

Reacts with oxidizing agents, acids, bases.  
Solar radiation and heat can cause hazardous polymerization.

### 10.2. Chemical stability

The product is stable under the handling and storage conditions recommended in Section 7.

### 10.3. Possibility of hazardous reactions

UV-curable formulations contain chemicals that can become unstable (exothermic reactions) under the following conditions:

### 10.4. Conditions to avoid

Prolonged exposure to temperatures above 40 °C  
Prolonged exposure to light and UV radiation

### 10.5. Incompatible materials

Oxidizing agents, acids, bases.

### 10.6. Hazardous decomposition products

Thermal decomposition may release irritating fumes, which can, in turn, cause health problems



## Section 11: Toxicological Information

### 11.1. Information on toxicological effects

No experimental data is available for this product. This information was obtained from tests carried out by our suppliers. This product has been ar Regulation 1272/2008 and classified according to the toxicological hazards of its ingredients.

#### Acute toxicity

1-vinylhexahydro-2H-azepin-2-one(2235-00-9)

LD50 Oral rat = 1114 mg/kg - LD50 dermique lapin = 1700 mg/kg

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

LD50 Oral rat = 900 mg/kg - LD50 dermique lapin = 400 mg/kg

2-phenoxyethyl acrylate(48145-04-6)

LD50 Oral rat = 5000 mg/kg - LD50 dermique lapin > 2000 mg/kg

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

LD50 Oral rat > 5000 mg/kg - LD50 dermique lapin > 2000 mg/kg

#### Skin corrosion / irritation

2-phenoxyethyl acrylate ( 48145-04-6 ) : Negative (Rabbit - OECD 404)

2-(2-ethoxyethoxy)ethyl acrylate ( 7328-17-8 ) : Irritant (Rabbit; OECD 404)

Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide ( 75980-60-8 ) : Negative (rabbit) OECD 404

#### Serious eye damage / eye irritation

1-vinylhexahydro-2H-azepin-2-one ( 2235-00-9 ) : Irritant (Rabbit; OECD 405)

2-(2-ethoxyethoxy)ethyl acrylate ( 7328-17-8 ) : Irritant (Rabbit; OECD 405)

Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide ( 75980-60-8 ) : Negative (rabbit) OECD 405

#### Respiratory or skin sensitization

No specific data available

#### Germ cell mutagenicity

1-vinylhexahydro-2H-azepin-2-one ( 2235-00-9 ) : Negative (OECD 471, 476, 473)

2-phenoxyethyl acrylate ( 48145-04-6 ) : Negative( OECD 471-473-476)

2-(2-ethoxyethoxy)ethyl acrylate ( 7328-17-8 ) : Negative (OECD 471)

#### Carcinogenicity

Given available data, classification requirements have not been met.

#### Reproductive toxicity

2-phenoxyethyl acrylate ( 48145-04-6 ) : NOAEL: 300 mg/kg (Rat - Oral - OECD422)

Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide ( 75980-60-8 ) : Repr. 2

#### Specific target organ toxicity (single exposure)

No specific data available

#### Specific target organ toxicity (repeated exposure)

1-vinylhexahydro-2H-azepin-2-one ( 2235-00-9 ) : STOT RE 1

#### Aspiration hazard

No specific data available

#### Symptoms/injuries after inhalation

Prolonged contact may cause irritation to respiratory system.

Symptoms/injuries after ingestion

Ingestion may cause nausea, weakness and effects on the central nervous system.

Symptoms/injuries after skin contact

The acrylic components of UV-curable inks have irritant properties. Prolonged contact with skin or mucous membranes may cause allergic reactions (e.g. redness, itching, blistering)

Symptoms/injuries after eye contact

Contact with the eyes may cause irritation.

## Section 12: Ecological information

No experimental data is available for this product. The information presented below relates to the individual ingredients for this product. This information was obtained from tests carried out by our suppliers.

### 12.1. Toxicity

1-vinylhexahydro-2H-azepin-2-one (2235-00-9) :

CL50/LC50 : 318.00 mg/l - 96h Danio rerio - CE50/EC50 : 105.00 mg/l-48h Daphnia magna

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

CL50/LC50 : 2.60 mg/l - 96h Oncorhynchus mykiss - NOEC/NOEL : 1.00 mg/l Pseudokirchneriella subcapitata - CE50/EC50 : 90.00 mg/l-48h D

2-phenoxyethyl acrylate (48145-04-6) :

CL50/LC50 : 10.00 mg/l - 96h Leuciscus idus - CE50/EC50 : 1.21 mg/l-48h Daphnia magna

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

CE50/EC50 : 3.53 mg/l-48h Daphnia magna

### 12.2. Persistence and degradability

1-vinylhexahydro-2H-azepin-2-one (2235-00-9) : 30-40% (28 days - OECD 301A)

2-phenoxyethyl acrylate (48145-04-6) : 22.3 % (28days - OECD301D)

2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8) : 98% after 28 days (OECD 301B)

Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8) : 0-10% (28 days)

### 12.3. Bioaccumulative potential

1-vinylhexahydro-2H-azepin-2-one (2235-00-9) : log Pow : 1.2416

2-phenoxyethyl acrylate (48145-04-6) : log Kow: 2.58 (25Å°C - OECD117)

2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8) : log Kow: 1.151 (OECD 117)

Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (75980-60-8) : log Pow: 3.1

### 12.4. Mobility in soil

1-vinylhexahydro-2H-azepin-2-one (2235-00-9) : log Koc: 1.67

2-phenoxyethyl acrylate (48145-04-6) : log Koc: 2.2

2-(2-ethoxyethoxy)ethyl acrylate (7328-17-8) : log Koc: < 1.25 (OECD 121)

### 12.5. Results of PBT (persistent, bioaccumulative and toxic) and vPvB (very persistent and very bioaccumulative) assessment

This mixture does not contain any PBT or vPvB substances

### 12.6. Other adverse effects

No additional adverse effects

## Section 13: Disposal considerations

### 13.1. Waste treatment methods

Waste and empty containers must be handled in accordance with local regulations.

Waste should not be disposed of with household waste or discharged into drains or water courses.

### European Waste Catalogue

08 03 12 \*Ink waste containing hazardous substances

## Section 14: Transport information

### Roads ADR (European Agreement concerning the International Carriage of Dangerous Goods by Road)

UN number 3082  
Shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Hazard class 9  
Packing group III  
Labels 9  
Classification code M7  
Hazard identification number 90  
Tunnel restriction code 3(-)

### Railways RID (Regulations concerning the International Carriage of Dangerous Goods by Rail)

UN number 3082  
Shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Hazard class 9  
Packing group III  
Labels 9  
Classification code M7  
Hazard identification number 90

### Sea IMDG (International Maritime Dangerous Goods Code)

UN number 3082  
Shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Hazard class 9  
Packing group III  
Labels 9  
Classification code M7  
Hazard identification number

### Air OACI/IATA

UN number 3082  
Shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Hazard class 9  
Packing group III  
Labels 9  
Classification code M7  
Hazard identification number

**Pollutant** Yes

**Potentially hazardous products**

2-(2-ethoxyethoxy)ethyl acrylate  
2-phenoxyethyl acrylate

**Product eligible for exemption under special provisions A197 (IATA), 375 (ADR) and 2.10.2.7 (IMDG)**

**Special precautions to be taken by the user**

No particular precautions specified

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

Not applicable

**Section 15: Regulatory Information**

- This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006 of 18 December 2006 (known as REACH).
- The product is classified and labeled in accordance with Regulation (EC) No. 1272/2008 of 16 December 2008 (known as CLP).
- This safety data sheet complies with the requirements of GB/T16483-2008 Safety data sheet for chemical products - content and order of section
- The products is classified and labeled in accordance with GB15258-2009 general rules for preparation of precautionary label for chemicals.

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

**European Union**

Comply with Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.  
Follow Directive 94/33/EC on the protection of young people at work.

**China**

Follow law of the Peoples Republic of China on Prevention and Control of Occupational Diseases.

15.2. Chemical safety assessment

No chemical safety evaluation has been performed.

**Section 16: Other information**

**General information**

This product is intended for professional users. See technical data sheet for additional information on intended use.

The information contained in this safety data sheet is based on our knowledge at the date of publication, and relates to the product concerned and suppliers for the ingredients used in the product.

Users should be aware of the potential risks when a product is used for purposes other than those for which it was intended

**Revisions**

Revision date 15/11/19  
Revision 0  
SDS No. 5170  
Date 15/11/19

**Hazard statements in full**

- H312 : Harmful in contact with skin.
- H315 : Causes skin irritation.
- H317 : May cause an allergic skin reaction.
- H319 : Causes serious eye irritation.
- H361 : Suspected of damaging fertility or the unborn child .
- H372 : Causes damage to organs through prolonged or repeated exposure .
- H411 : Toxic to aquatic life with long lasting effects.

**Abbreviations and acronyms used**

- CAS Chemical Abstract Service
- EINECS European Inventory of Existing Commercial Chemical Substances
- REACH Registration, Evaluation, Authorisation of Chemicals

**Method of assessing information on hazards**

**Method used for classification**

Acute Tox. 4 (cutanÄ©)	H312	Calculation based method
Skin Irrit. 2	H315	Calculation based method
Skin Sens. 1A	H317	Calculation based method
Eye Irrit. 2	H319	Calculation based method
Repr. 2	H361	Calculation based method
STOT RE 1	H372	Calculation based method
Aquatic Chronic 2	H411	Calculation based method