

BB Series UV Digital Ink- Varnish

Section 1: Product Identification1.1 Product identifier

Product name BB Series UV Digital Ink- Varnish

CAS number Not applicable

Registration No. Not applicable

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

Identified uses UV digital ink

Uses advised against At present no contraindicated use has been identified

1.3 Details of the supplier of the safety data sheet**Supplier**

Inkcups Now, Corp.
310 Andover Street
Danvers, MA 01923
USA

Tel.: 978.646.8980
Fax: 978.646.8981
Email: 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)

| | | | |
|------------------|------|-------------------|------|
| Skin Corr. 1C | H314 | Aquatic Acute 1 | H400 |
| Eye Dam. 1 | H318 | Aquatic Chronic 2 | H411 |
| Skin Sens. 1A | H317 | | |
| Repr. 1B | H360 | | |
| STOT SE 3 (resp) | H335 | | |

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

| | |
|------|--|
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |
| H317 | May cause an allergic skin reaction. |
| H360 | May damage fertility or the unborn child . |
| H335 | May cause respiratory irritation. |
| H400 | Very toxic to aquatic life. |
| H411 | Toxic to aquatic life with long lasting effects. |

Precautionary statements

| | |
|----------------|--|
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray. |
| P264 | Wash ... thoroughly after handling. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| 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. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P273 | Avoid release to the environment. |
| P301+P330+P331 | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. |
| P363 | Wash contaminated clothing before reuse. |
| P304+P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| P310 | Immediately call a POISON CENTER/doctor/... |
| P321 | Specific treatment (see ... on this label). |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P302+P352 | IF ON SKIN: Wash with plenty of water/... |
| P333+P313 | If skin irritation or rash occurs: Get medical advice/attention. |
| P362+P364 | Take off contaminated clothing and wash it before reuse. |
| P308+P313 | IF exposed or concerned: Get medical advice/attention. |
| P312 | Call a POISON CENTER/doctor/... if you feel unwell. |
| P391 | Collect spillage. |
| P405 | Store locked up. |
| P403+P233 | Store in a well-ventilated place. Keep container tightly closed. |

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)

%

| | | | |
|---|---|--|-------|
| CAS : 66492-51-1 CE : 266-380-7 INDEX : REACH: 01-2119976303-36 | (5-ethyl-1,3-dioxan-5-yl)methyl acrylate | Skin Irrit. 2 - H315 Skin Sens. 1B - H317 Aquatic Chronic 2 - H411 | 25-35 |
| CAS : 5888-33-5 CE : 227-561-6 INDEX : REACH: 01-2119957862-25 | Isobornyl acrylate | Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1B - H317 STOT SE 3 (resp) - H335 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410 | 20-25 |
| CAS : 2399-48-6 CE : 219-268-7 INDEX : / REACH: 01-2120738396-46 | Tetrahydrofurfuryl acrylate | Acute Tox. 4 (oral) - H302 Skin Corr. 1C - H314 Eye Dam. 1 - H318 Skin Sens. 1B - H317 Repr. 1B - H360 Aquatic Chronic 2 - H411 | 5-10 |
| CAS : 48145-04-6 CE : 256-360-6 INDEX : REACH: 01-2119980532-35 | 2-phenoxyethyl acrylate | Skin Sens. 1A - H317 Repr. 2 - H361 Aquatic Chronic 2 - H411 | 5-10 |
| CAS : 75980-60-8 CE : 278-355-8 INDEX : 015-203-00-X REACH: 01-2119972295-29 | Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide | Skin Sens. 1B - H317 Repr. 2 - H361 Aquatic Chronic 2 - H411 | < 5 |

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

| | |
|-------------------|--------------------------------|
| Suitable | Powders, foams and water spray |
| Unsuitable | 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 clothing immediately.

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 current legislation.

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

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate

DNEL (derived no effect limits) 0.0014 mg/kg (soil) - 0.004 mg/l (fresh water) - 0.019 mg/kg (fresh water sediment) - 0.0019 mg/kg (marine sediment)

OEL (occupational exposure limits)

ELV (emission limit value)

PNEC (predicted no effect concentration) Undetermined

Isobornyl acrylate

DNEL 1.39 mg/kg (Workers; Dermal; Long Term - Systemic Effects) - 0.83 mg/kg (Consumers; Oral; LT-SE) - 0.83 mg/kg (Consumers; Dermal; LT-SE)

OEL

ELV

PNEC 0.92 ug/l (fresh water) - 0.092 ug/l (sea water) - 0.145 mg/kg (fresh water sediment) - 0.0145 mg/kg (marine sediment) - 0.0285 mg/kg (soil)

Tetrahydrofurfuryl acrylate

DNEL 1.73 mg/m³ (Workers; Inhalation) - 4.9 mg/kg (Workers; Dermal) - 0.3 mg/m³ (Consumers; Inhalation) - 0.18 mg/kg (Consumers; Oral) - 1.75 mg/kg (Consumers; Dermal)

OEL

ELV

PNEC 3.92 ug/l (fresh water) - 0.392 ug/l (sea water) - 0.0206 mg/kg (fresh water sediment) - 0.0021 mg/kg (marine sediment) - 0.0018 mg/kg (soil)

2-phenoxyethyl acrylate

DNEL 12 mg/m³ (Workers; Inhalation; Long Term - Systemic Effects) - 77 mg/m³ (Workers; Inhalation; LT - Local Effects) - 3.5 mg/kg (Workers; 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

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

| | |
|--|--------------|
| Physical state | Liquid |
| Colour | Undetermined |
| Odour | Undetermined |
| Odour threshold | Undetermined |
| pH | Undetermined |
| Melting / freezing (°C) point | Undetermined |
| Initial boiling point and boiling range (° C) | Undetermined |
| Flash point (° C) | > 100 |
| Evaporation rate | Undetermined |
| Flammability | Undetermined |
| Upper / lower flammability limits | Undetermined |
| Vapour pressure | Undetermined |
| Vapour density | Undetermined |
| Relative density | Undetermined |
| Solubility | Undetermined |
| n-octanol / water partition coefficient | Undetermined |
| Auto ignition temperature | Undetermined |
| Thermal decomposition temperature | Undetermined |
| Viscosity | 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 analyzed according to EC Regulation 1272/2008 and classified according to the toxicological hazards of its ingredients.

Acute toxicity

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate(66492-51-1)

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

Isobornyl acrylate(5888-33-5)

LD50 Oral rat = 2300 mg/kg - LD50 dermique lapin = 3000 mg/kg

Tetrahydrofurfuryl acrylate(2399-48-6)

LD50 Oral rat = 882 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

Tetrahydrofurfuryl acrylate (2399-48-6) : Corrosive (Rabbit; OECD 404)

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

Isobornyl acrylate (5888-33-5) : 1.8 PII 0-8 (rabbit) OECD 404

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1) : Irritant (rabbit) OECD 404

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

Serious eye damage / eye irritation

Tetrahydrofurfuryl acrylate (2399-48-6) : Strong irritation (Rabbit; OECD 405)

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1) : 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

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

Isobornyl acrylate (5888-33-5) : Negative (OECD 471-476-473)

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)

No specific data available

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 (rash, dermatitis, 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

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1) :

CL50/LC50 : 4.00 mg/l - 96h Oncorhynchus mykiss - NOEC/NOEL : 9.00 mg/l Desmodemus subspicatus (72h) - CE50/EC50 : 20.00 mg/l-48h Daphnia magna

Isobornyl acrylate (5888-33-5) :

CL50/LC50 : 0.70 mg/l - 96h Danio rerio - NOEC/NOEL : 0.41 mg/l Pseudokirchneriella subcapitata (72h) - CE50/EC50 : 1.00 mg/l-48h Daphnia magna

Tetrahydrofurfuryl acrylate (2399-48-6) :

CL50/LC50 : 7.32 mg/l - 96h Danio rerio - CE50/EC50 : 37.70 mg/l-48h Daphnia magna

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

Tetrahydrofurfuryl acrylate (2399-48-6) : 77.7% (28 days; OECD 301F)

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

Isobornyl acrylate (5888-33-5) : 57% (after 28 days - OECD310)

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1) : 28% after 28 days (OECD 301B)

12.3. Bioaccumulative potential

Tetrahydrofurfuryl acrylate (2399-48-6) : log Kow: 0.81 (21.7Å°C; OECD 107)

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

Isobornyl acrylate (5888-33-5) : log Kow: 4.52 (OECD117)

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1) : 0.9 (log Kow)

12.4. Mobility in soil

Tetrahydrofurfuryl acrylate (2399-48-6) : log Koc: 1.21

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

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate (66492-51-1) : 1.06 (log Koc)

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 | 1760 |
| Shipping name | CORROSIVE LIQUID, N.O.S. |
| Hazard class | 8 |
| Packing group | III |
| Labels | 8 |
| Classification code | C9 |
| Hazard identification no. | 80 |
| Tunnel restriction code | 3(E) |

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

| | |
|---------------------------|--------------------------|
| UN number | 1760 |
| Shipping name | CORROSIVE LIQUID, N.O.S. |
| Hazard class | 8 |
| Packing group | III |
| Labels | 8 |
| Classification code | C9 |
| Hazard identification no. | 80 |

Sea IMDG (International Maritime Dangerous Goods Code)

| | |
|---------------------------|--------------------------|
| UN number | 1760 |
| Shipping name | CORROSIVE LIQUID, N.O.S. |
| Hazard class | 8 |
| Packing group | III |
| Labels | 8 |
| Classification code | C9 |
| Hazard identification no. | |

Air OACI/IATA

| | |
|---------------------------|--------------------------|
| UN number | 1760 |
| Shipping name | CORROSIVE LIQUID, N.O.S. |
| Hazard class | 8 |
| Packing group | III |
| Labels | 8 |
| Classification code | C9 |
| Hazard identification no. | |

Pollutant Yes

Potentially hazardous products

(5-ethyl-1,3-dioxan-5-yl)methyl acrylate
Isobornyl acrylate

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 sections.
- 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 information provided by our 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 26/07/19
Revision 2
SDS No. 3694
Date 21/06/17

Hazard statements in full

H314 : Causes severe skin burns and eye damage.

H317 : May cause an allergic skin reaction.

H318 : Causes serious eye damage.

H335 : May cause respiratory irritation.

H360 : May damage fertility or the unborn child .

H400 : Very toxic to aquatic life.

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**

| | | |
|-------------------|------|--------------------------|
| Skin Corr. 1C | H314 | Calculation based method |
| Skin Sens. 1A | H317 | Calculation based method |
| Eye Dam. 1 | H318 | Calculation based method |
| STOT SE 3 (resp) | H335 | Calculation based method |
| Repr. 1B | H360 | Calculation based method |
| Aquatic Acute 1 | H400 | Calculation based method |
| Aquatic Chronic 2 | H411 | Calculation based method |