

Safety Data Sheet

1. Product and Company Identification

Product name:

ECO-UV, EUV3-CY

Manufacture:

Roland DG Corporation

Address:

1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
Shizuoka-ken, 431-2103
JAPAN

Phone:

+ 81-53-484-1224

Fax:

+ 81-53-484-1226

Importer/Supplier:

Roland DGA Corporation

Address:

15363 Barranca Parkway Irvine, CA 92618-2201
U.S.A.

Phone:

949-727-2100

Fax:

949 727 2112

Emergency telephone:

949-727-2100

Use of the product:

Inkjet Printing

Date of issue:

30 August, 2017

2. Hazard Identification

2.1 Emergency Overview:

Appearance and odor:

Cyan liquid and characteristic odor

This product is classified as dangerous according to GHS.

Acute toxicity - oral

Category 4

Skin corrosion/irritation

Category 2

Eye damage/irritation

Category 2A

Sensitization - skin

Category 1

Toxic to reproduction

Category 2

Specific target organ toxicity
(Single exposure)

Category 3 (Respiratory tract irritation)

Specific target organ toxicity
(Repeated exposure)

Category 1

Hazardous to the aquatic

Category 2

environment - short-term hazard

Hazardous to the aquatic

Category 2

environment - long-term hazard

GHS label elements, including precautionary statements

Pictogram



Signal word(s)

Danger

Hazard statement(s)

Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child
May cause respiratory irritation.
Cause damage to organs through prolonged or repeated exposure.
Toxic to aquatic life.
Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention

Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapours/spray.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.

Response

IF ON SKIN: Wash with plenty of soap and water.
IF exposed or concerned: Get medical advice/attention.

2.2. OSHA regulatory status

This product is considered hazardous material by the OSHA Communication Standard (29 CFR 1910.1200)

2.3. Potential health effects

Likely route of exposure:

Eye, skin, inhalation or oral.

Eyes:

Causes severe eye injury which may persist for several days.

Skin:

Contact with skin may cause irritation, swelling or redness, allergy and/or sensitization.

Inhalation:

Exposure to vapors (mist) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.

Ingestion:

May cause injury of mouth ,throat, and stomach.

Chronic Health Hazards:

Repeated skin contact may cause a persistent irritation or dermatitis.

Carcinogenicity:

None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

See section 11 for more information.

This product contains two ingredients that are regulated under TSCA Significant New Use Rules (SNURs) issued by the U.S. Environmental Protection Agency.

See section 15 for details.

ROUTES OF EXPOSURE:

Inhalation, ingestion, eye contact, skin contact / absorption.

HUMAN HEALTH HAZARD STATEMENTS:

This product may cause (i) skin irritation, (iv) internal organ effects, (vi) reproductive effects, (ix) developmental effects.

HUMAN HEALTH HAZARD PRECAUTIONARY STATEMENTS:

When using this product (i) avoid skin contact, (ii) avoid breathing the substance, (iii) avoid ingestion, (iv) use skin protection.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/Information on Ingredients

Composition	CAS No.	% By Weight	Classification HCS
Pigment blue 15	147-14-8	1-5	Not classified as hazardous
2-(2-vinyloxyethoxy)ethyl acrylate	86273-46-3	15-24	Acute Tox. 4: H302 Skin Sens. 1: H317
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	5888-33-5	1-10	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT Single Exp. 3: H335
Benzyl acrylate	2495-35-4	40-50	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT SE 3: H335
1-Vinylazepan-2-one	2235-00-9	10-20	Acute Tox.(oral) 4 : H302 Eye Irrit. 2 : H319 Skin Sens. 1B : H317 STOT Rep. Exp. 1 : H372
Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	75980-60-8	1-10	Repr. 2: H361

4. First Aid Measures

4.1. First aid procedures

- Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.
- Skin:** In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Wash contaminated clothing before reuse. If swelling or redness occurs, call a physician.
- Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion: If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

4.2. Note to physicians

May cause skin and eye irritation. Excessive inhalation of mist will cause respiratory irritation.

5. Fire Fighting Measures

5.1. Flammable properties:

Hazardous decomposition products: Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

Flash Point: > 94deg.C

5.2. Extinguishing media

Suitable extinguishing media:

Carbon dioxide, dry chemical, foam.

Unsuitable extinguishing media:

No information

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

Toxic and irritating fume and/or gases may generate by combustion.

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Decontaminate or discard any clothing that may contain chemical residues.

Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental Release Measures

General:

Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.

6.1. Personal precautions

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.

6.2. Environmental precautions

Dike spill. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

6.5. Other information

No information

6.6. Spill or leak statements by type of chemical

Eliminate all ignition sources. Use appropriate personal protective equipment (PPE). Absorb and/or contain spill with inert sand, then place in suitable container. For large spills; use water spray to disperse vapors and dilute spill to a nonflammable mixture. Do not flush to sewer. Prevent run-off from entering drains, sewers or waterways.

7. Handling And Storage

7.1. Handling

Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink. Do not dismantle container. Make sure cartridge is dry before insertion into printer housing.

7.2. Storage

Keep containers tightly closed. Do not store the product in high or freezing temperatures. Keep the product out of direct sunlight. Do not store the product with metals, amines, free radical initiators, oxidising agents.

8. Exposure Controls/Personal Protection

8.1. Exposure Guidelines

Occupational Exposure Limits:

EU: DNEL

components	Long term exposure	Short term exposure
Pigment blue 15	4.0mg/m ³	-
2-(2-vinyloxyethoxy)ethyl acrylate	-	0.81mg/m ³
1-Vinylazepan-2-one	4.9mg/m ³	-
Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	3.5mg/m ³	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

8.2 Exposure controls:

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains two ingredients that are regulated under TSCA Significant New Use Rules (SNURs) issued by the U.S. Environmental Protection Agency.

Eye/face protection:	Employee must wear splash-proof or dust safety goggles and a faceshield to prevent contact with this product. The employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.
Hand protection:	Employee must wear appropriate protective impervious gloves to prevent contact with this substance. Recommended impervious gloves are North Butyl Black gloves or T-1 Dailove Ethylene Vinylalcohol Copolymer Laminated Blue gloves, both of which satisfy the dermal protection requirements of the SNUR.
Skin protection:	Employee must wear appropriate protective impervious clothing and equipment to prevent repeated or prolonged skin contact with this substance.
Respiratory protection:	In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory protection equipment. Use a half facepiece respirator (with goggles) or full face-piece respirator (without goggles) filtered with organic vapor cartridge. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self contained air supply. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
General hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.

9. Physical and chemical properties

Appearance:	Cyan Liquid
Odor:	Characteristic odor
Boiling point:	No data available
Melting point:	No data available
Flash point:	> 94deg.C
Auto-ignition temperature:	No data available
Viscosity:	No data available
Relative density:	Approx. 1.0
pH:	No data available
Solubility in Water:	Insoluble
Solid content:	No data available
Explosive properties:	No data available
Oxidizing properties:	No data available
Vapor pressure:	No data available
Evaporation rate:	No data available
Partition coefficient: n-octanol/water:	No data available
Decomposition Temperature:	No data available
Volatile organic compounds (VOC) content:	10 gram/liter (maximum value)

10. Stability and Reactivity

10.1. Reactivity:	High temperatures and UV light may cause rapid polymerization.
10.2. Possibility of hazardous reactions:	Not expected
10.3. Chemical stability:	Unstable. Polymerize under heat and/or light.
10.4. Conditions to avoid:	Elevated temperatures/heat, UV light, when not in use.
10.5. Incompatible materials:	Avoid contact with acids, amines, free radical initiators, oxidizing agents.
10.6. Hazardous decomposition products:	Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological Information

Acute toxicity:	
2-(2-vinyloxyethoxy)ethyl acrylate	
LD50 (oral-rat)	>1790 mg/kg
LD50 (skin-rat)	>2000 mg/kg
LC50 (skin-rat)	>5.82mg/L/4h
Serious eye damage/eye irritation:	No data available Causes serious eye irritation. (Acrylic esters)
Skin corrosion/irritation:	No data available Causes skin irritation.(Acrylic esters)
Respiratory or skin sensitisation:	No data available May cause an allergic skin reaction.(Acrylic esters)
Germ cell mutagenicity:	No data available
Reproductive toxicity:	No data available Suspected of damaging fertility or the unborn child.(Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide)
Carcinogenicity:	
None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)	

STOT-single exposure:	No data available May cause respiratory irritation. (Acrylic esters)
STOT-repeated exposure:	No data available Cause damage to organs through prolonged or repeated exposure. (Acrylic esters)
Aspiration hazard:	No data available

12. Ecological Information

Ecotoxicity:

The followings are according to the data on Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate.
 Toxic to aquatic life with long lasting effects.

Persistence/Degradability:	No data available
Bioaccumulation/Accumulation:	No data available
Mobility in environment media:	No data available
Other adverse effects:	No data available

13. Disposal Considerations

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

14. Transport information

14.1. UN Class/UN Number:	
ADR/ADG/DOT, IMDG, or IATA :	3082
14.2. UN proper shipping name:	
ADR/ADG/DOT, IMDG, or IATA :	Environmentally hazardous substance, liquid, n.o.s. (Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate)
14.3. Transport hazard class(es):	
ADR/ADG/DOT, IMDG, or IATA :	9
14.4. Packing group:	
ADR/ADG/DOT, IMDG, or IATA :	III
14.5. Environmental hazards:	
ADR/ADG/DOT, IMDG, or IATA :	Environmentally hazardous substance, liquid, n.o.s.
14.6. Special precautions for user:	Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:	Not applicable

15. Regulatory Information

EU information:

Chemical Safety Assessment according to (EC)1907/2006:

This product has not carried out any Chemical Safety Assessment yet.

US information:

Toxic Substances Control Act (TSCA):

All components of this product are listed on the TSCA Inventory.

This product contains two ingredients that are regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR 721.9664 and 10064.

These two SNURs designate specific requirements for releases to water, protection in the workplace, hazard communication and recordkeeping.

This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

California; Proposition 65: Not regulated

SARA TITLE III:

Section 313: Not regulated

Australia Information:

Hazardous statement: Classified as hazardous according to NOHSC criteria.

16. Other Information

NFPA 704: Hazard Rating System

Health - 2 , Flammable - 1 , Reactivity - 1

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

The information in this Safety Data Sheet (SDS) is believed to be correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is subject to revision as additional knowledge and experience is gained. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Safety Data Sheet

1. Product and Company Identification

Product name:

ECO-UV, EUV3-MG

Manufacture:

Roland DG Corporation

Address:

1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
Shizuoka-ken, 431-2103
JAPAN

Phone:

+ 81-53-484-1224

Fax:

+ 81-53-484-1226

Importer/Supplier:

Roland DGA Corporation

Address:

15363 Barranca Parkway Irvine, CA 92618-2201
U.S.A.

Phone:

949-727-2100

Fax:

949 727 2112

Emergency telephone:

949-727-2100

Use of the product:

Inkjet Printing

Date of issue:

30 August, 2017

2. Hazard Identification

2.1 Emergency Overview:

Appearance and odor:

Magenta liquid and characteristic odor

This product is classified as dangerous according to GHS.

Acute toxicity - oral

Category 4

Skin corrosion/irritation

Category 2

Eye damage/irritation

Category 2A

Sensitization - skin

Category 1

Toxic to reproduction

Category 2

Specific target organ toxicity

Category 3 (Respiratory tract irritation)

(Single exposure)

Specific target organ toxicity

Category 1

(Repeated exposure)

Hazardous to the aquatic

Category 2

environment - short-term hazard

Hazardous to the aquatic

Category 2

environment - long-term hazard

GHS label elements, including precautionary statements

Pictogram



Signal word(s)

Danger

Hazard statement(s)

Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child
May cause respiratory irritation.
Cause damage to organs through prolonged or repeated exposure.
Toxic to aquatic life.
Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention

Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapours/spray.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.

Response

IF ON SKIN: Wash with plenty of soap and water.
IF exposed or concerned: Get medical advice/attention.

2.2. OSHA regulatory status

This product is considered hazardous material by the OSHA Communication Standard (29 CFR 1910.1200)

2.3. Potential health effects

Likely route of exposure:

Eye, skin, inhalation or oral.

Eyes:

Causes severe eye injury which may persist for several days.

Skin:

Contact with skin may cause irritation, swelling or redness, allergy and/or sensitization.

Inhalation:

Exposure to vapors (mist) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.

Ingestion:

May cause injury of mouth ,throat, and stomach.

Chronic Health Hazards:

Repeated skin contact may cause a persistent irritation or dermatitis.

Carcinogenicity:

None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

See section 11 for more information.

This product contains two ingredients that are regulated under TSCA Significant New Use Rules (SNURs) issued by the U.S. Environmental Protection Agency.

See section 15 for details.

ROUTES OF EXPOSURE:

Inhalation, ingestion, eye contact, skin contact / absorption.

HUMAN HEALTH HAZARD STATEMENTS:

This product may cause (i) skin irritation, (iv) internal organ effects, (vi) reproductive effects, (ix) developmental effects.

HUMAN HEALTH HAZARD PRECAUTIONARY STATEMENTS:

When using this product (i) avoid skin contact, (ii) avoid breathing the substance, (iii) avoid ingestion, (iv) use skin protection.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/Information on Ingredients

Composition	CAS No.	% By Weight	Classification HCS
2-(2-vinyloxyethoxy)ethyl acrylate	86273-46-3	15-24	Acute Tox. 4: H302 Skin Sens. 1: H317
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	5888-33-5	10-20	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT Single Exp. 3: H335
Benzyl acrylate	2495-35-4	40-50	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT SE 3: H335
1-Vinylazepan-2-one	2235-00-9	10-20	Acute Tox.(oral) 4 : H302 Eye Irrit. 2 : H319 Skin Sens. 1B : H317 STOT Rep. Exp. 1 : H372
Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	75980-60-8	1-10	Repr. 2: H361

4. First Aid Measures

4.1. First aid procedures

- Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.
- Skin:** In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Wash contaminated clothing before reuse. If swelling or redness occurs, call a physician.
- Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- Ingestion:** If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

4.2. Note to physicians

May cause skin and eye irritation. Excessive inhalation of mist will cause respiratory irritation.

5. Fire Fighting Measures

5.1. Flammable properties:

Hazardous decomposition products: Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

Flash Point: > 94deg.C

5.2. Extinguishing media

Suitable extinguishing media:

Carbon dioxide, dry chemical, foam.

Unsuitable extinguishing media:

No information

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

Toxic and irritating fume and/or gases may generate by combustion.

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Decontaminate or discard any clothing that may contain chemical residues.

Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental Release Measures

General:

Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.

6.1. Personal precautions

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.

6.2. Environmental precautions

Dike spill. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

6.5. Other information

No information

6.6. Spill or leak statements by type of chemical

Eliminate all ignition sources. Use appropriate personal protective equipment (PPE). Absorb and/or contain spill with inert sand, then place in suitable container. For large spills; use water spray to disperse vapors and dilute spill to a nonflammable mixture. Do not flush to sewer. Prevent run-off from entering drains, sewers or waterways.

7. Handling And Storage

7.1. Handling

Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink. Do not dismantle container. Make sure cartridge is dry before insertion into printer housing.

7.2. Storage

Keep containers tightly closed. Do not store the product in high or freezing temperatures. Keep the product out of direct sunlight. Do not store the product with metals, amines, free radical initiators, oxidising agents.

8. Exposure Controls/Personal Protection

8.1. Exposure Guidelines

Occupational Exposure Limits:

EU: DNEL

components	Long term exposure	Short term exposure
2-(2-vinyloxyethoxy)ethyl acrylate	-	0.81mg/m ³
1-Vinylazepan-2-one	4.9mg/m ³	-
Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	3.5mg/m ³	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

8.2 Exposure controls:

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains two ingredients that are regulated under TSCA Significant New Use Rules (SNURs) issued by the U.S. Environmental Protection Agency.

- Eye/face protection: Employee must wear splash-proof or dust safety goggles and a faceshield to prevent contact with this product. The employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.
- Hand protection: Employee must wear appropriate protective impervious gloves to prevent contact with this substance.
Recommended impervious gloves are North Butyl Black gloves or T-1 Dailove Ethylene Vinylalcohol Copolymer Laminated Blue gloves, both of which satisfy the dermal protection requirements of the SNUR.
- Skin protection: Employee must wear appropriate protective impervious clothing and equipment to prevent repeated or prolonged skin contact with this substance.
- Respiratory protection: In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory protection equipment. Use a half facepiece respirator (with goggles) or full face-piece respirator (without goggles) filtered with organic vapor cartridge. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self contained air supply.
WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
- General hygiene measures: Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.

9. Physical and chemical properties

Appearance:	Magenta Liquid
Odor:	Characteristic odor
Boiling point:	No data available
Melting point:	No data available
Flash point:	> 94deg.C
Auto-ignition temperature:	No data available
Viscosity:	No data available
Relative density:	Approx. 1.0
pH:	No data available
Solubility in Water:	Insoluble
Solid content:	No data available
Explosive properties:	No data available
Oxidizing properties:	No data available
Vapor pressure:	No data available
Evaporation rate:	No data available
Partition coefficient: n-octanol/water:	No data available
Decomposition Temperature:	No data available
Volatile organic compounds (VOC) content:	10 gram/liter (maximum value)

10. Stability and Reactivity

10.1. Reactivity:	High temperatures and UV light may cause rapid polymerization.
10.2. Possibility of hazardous reactions:	Not expected
10.3. Chemical stability:	Unstable. Polymerize under heat and/or light.
10.4. Conditions to avoid:	Elevated temperatures/heat, UV light, when not in use.
10.5. Incompatible materials:	Avoid contact with acids, amines, free radical initiators, oxidizing agents.
10.6. Hazardous decomposition products:	Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological Information

Acute toxicity:	
2-(2-vinyloxyethoxy)ethyl acrylate	
LD50 (oral-rat)	>1790 mg/kg
LD50 (skin-rat)	>2000 mg/kg
LC50 (skin-rat)	>5.82mg/L/4h
Serious eye damage/eye irritation:	No data available Causes serious eye irritation. (Acrylic esters)
Skin corrosion/irritation:	No data available Causes skin irritation.(Acrylic esters)
Respiratory or skin sensitisation:	No data available May cause an allergic skin reaction.(Acrylic esters)
Germ cell mutagenicity:	No data available
Reproductive toxicity:	No data available Suspected of damaging fertility or the unborn child.(Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide)
Carcinogenicity:	
None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)	

STOT-single exposure:	No data available May cause respiratory irritation. (Acrylic esters)
STOT-repeated exposure:	No data available Cause damage to organs through prolonged or repeated exposure. (Acrylic esters)
Aspiration hazard:	No data available

12. Ecological Information

Ecotoxicity:

The followings are according to the data on Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate.
Toxic to aquatic life with long lasting effects.

Persistence/Degradability:	No data available
Bioaccumulation/Accumulation:	No data available
Mobility in environment media:	No data available
Other adverse effects:	No data available

13. Disposal Considerations

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

14. Transport information

14.1. UN Class/UN Number:	
ADR/ADG/DOT, IMDG, or IATA :	3082
14.2. UN proper shipping name:	
ADR/ADG/DOT, IMDG, or IATA :	Environmentally hazardous substance, liquid, n.o.s. (Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate)
14.3. Transport hazard class(es):	
ADR/ADG/DOT, IMDG, or IATA :	9
14.4. Packing group:	
ADR/ADG/DOT, IMDG, or IATA :	III
14.5. Environmental hazards:	
ADR/ADG/DOT, IMDG, or IATA :	Environmentally hazardous substance, liquid, n.o.s.
14.6. Special precautions for user:	Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:	Not applicable

15. Regulatory Information

EU information:

Chemical Safety Assessment according to (EC)1907/2006:

This product has not carried out any Chemical Safety Assessment yet.

US information:

Toxic Substances Control Act (TSCA):

All components of this product are listed on the TSCA Inventory.

This product contains two ingredients that are regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR 721.9664 and 10064.

These two SNURs designate specific requirements for releases to water, protection in the workplace, hazard communication and recordkeeping.

This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

California; Proposition 65: Not regulated

SARA TITLE III:

Section 313: Not regulated

Australia Information:

Hazardous statement: Classified as hazardous according to NOHSC criteria.

16. Other Information

NFPA 704: Hazard Rating System

Health - 2 , Flammable - 1 , Reactivity - 1

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

The information in this Safety Data Sheet (SDS) is believed to be correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is subject to revision as additional knowledge and experience is gained. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Safety Data Sheet

1. Product and Company Identification

Product name:

ECO-UV, EUV3-YE

Manufacture:

Roland DG Corporation

Address:

1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
Shizuoka-ken, 431-2103
JAPAN

Phone:

+ 81-53-484-1224

Fax:

+ 81-53-484-1226

Importer/Supplier:

Roland DGA Corporation

Address:

15363 Barranca Parkway Irvine, CA 92618-2201
U.S.A.

Phone:

949-727-2100

Fax:

949 727 2112

Emergency telephone:

949-727-2100

Use of the product:

Inkjet Printing

Date of issue:

30 August, 2017

2. Hazard Identification

2.1 Emergency Overview:

Appearance and odor:

Yellow liquid and characteristic odor

This product is classified as dangerous according to GHS.

Acute toxicity - oral

Category 4

Skin corrosion/irritation

Category 2

Eye damage/irritation

Category 2A

Sensitization - skin

Category 1

Toxic to reproduction

Category 2

Specific target organ toxicity
(Single exposure)

Category 3 (Respiratory tract irritation)

Specific target organ toxicity
(Repeated exposure)

Category 1

Hazardous to the aquatic

Category 2

environment - short-term hazard

Hazardous to the aquatic

Category 2

environment - long-term hazard

GHS label elements, including precautionary statements

Pictogram



Signal word(s)

Danger

Hazard statement(s)

Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child
May cause respiratory irritation.
Cause damage to organs through prolonged or repeated exposure.
Toxic to aquatic life.
Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention

Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapours/spray.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.

Response

IF ON SKIN: Wash with plenty of soap and water.
IF exposed or concerned: Get medical advice/attention.

2.2. OSHA regulatory status

This product is considered hazardous material by the OSHA Communication Standard (29 CFR 1910.1200)

2.3. Potential health effects

Likely route of exposure:

Eye, skin, inhalation or oral.

Eyes:

Causes severe eye injury which may persist for several days.

Skin:

Contact with skin may cause irritation, swelling or redness, allergy and/or sensitization.

Inhalation:

Exposure to vapors (mist) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.

Ingestion:

May cause injury of mouth ,throat, and stomach.

Chronic Health Hazards:

Repeated skin contact may cause a persistent irritation or dermatitis.

Carcinogenicity:

The product contains Nickel compounds.
IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).

See section 11 for more information.

This product contains two ingredients that are regulated under TSCA Significant New Use Rules (SNURs) issued by the U.S. Environmental Protection Agency.

See section 15 for details.

ROUTES OF EXPOSURE:

Inhalation, ingestion, eye contact, skin contact / absorption.

HUMAN HEALTH HAZARD STATEMENTS:

This product may cause (i) skin irritation, (iv) internal organ effects, (vi) reproductive effects, (ix) developmental effects.

HUMAN HEALTH HAZARD PRECAUTIONARY STATEMENTS:

When using this product (i) avoid skin contact, (ii) avoid breathing the substance, (iii) avoid ingestion, (iv) use skin protection.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/Information on Ingredients

Composition	CAS No.	% By Weight	Classification HCS
Pigment yellow 150	68511-62-6	1-5	Not classified as hazardous
2-(2-vinyloxyethoxy)ethyl acrylate	86273-46-3	15-24	Acute Tox. 4: H302 Skin Sens. 1: H317
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	5888-33-5	10-20	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT Single Exp. 3: H335
Benzyl acrylate	2495-35-4	40-50	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT SE 3: H335
1-Vinylazepan-2-one	2235-00-9	10-20	Acute Tox.(oral) 4 : H302 Eye Irrit. 2 : H319 Skin Sens. 1B : H317 STOT Rep. Exp. 1 : H372
Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	75980-60-8	1-10	Repr. 2: H361

4. First Aid Measures

4.1. First aid procedures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.

Skin: In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Wash contaminated clothing before reuse. If swelling or redness occurs, call a physician.

- Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- Ingestion: If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

4.2. Note to physicians

May cause skin and eye irritation. Excessive inhalation of mist will cause respiratory irritation.

5. Fire Fighting Measures

5.1. Flammable properties:

Hazardous decomposition products: Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

Flash Point: > 94deg.C

5.2. Extinguishing media

Suitable extinguishing media:

Carbon dioxide, dry chemical, foam.

Unsuitable extinguishing media:

No information

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

Toxic and irritating fume and/or gases may generate by combustion.

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Decontaminate or discard any clothing that may contain chemical residues.

Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental Release Measures

General:

Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.

6.1. Personal precautions

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.

6.2. Environmental precautions

Dike spill. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

6.5. Other information

No information

6.6. Spill or leak statements by type of chemical

Eliminate all ignition sources. Use appropriate personal protective equipment (PPE). Absorb and/or contain spill with inert sand, then place in suitable container. For large spills; use water spray to disperse vapors and dilute spill to a nonflammable mixture. Do not flush to sewer. Prevent run-off from entering drains, sewers or waterways.

7. Handling And Storage

7.1. Handling

Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink. Do not dismantle container. Make sure cartridge is dry before insertion into printer housing.

7.2. Storage

Keep containers tightly closed. Do not store the product in high or freezing temperatures. Keep the product out of direct sunlight. Do not store the product with metals, amines, free radical initiators, oxidising agents.

8. Exposure Controls/Personal Protection

8.1. Exposure Guidelines

Occupational Exposure Limits:

EU: DNEL

components	Long term exposure	Short term exposure
2-(2-vinyloxyethoxy)ethyl acrylate	-	0.81mg/m ³
1-Vinylazepan-2-one	4.9mg/m ³	-
Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	3.5mg/m ³	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

US:

components	OSHA:PEL	ACGIH:TLV
Nickel, metal and insoluble compounds (as Ni)	1mg/m ³	-

California OELs (California Code of Regulations, Title 8, Section 5155. Airborne Contaminants)

components	PEL
Nickel, insoluble compounds, as Ni	0.1mg/m ³

8.2 Exposure controls:

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains two ingredients that are regulated under TSCA Significant New Use Rules (SNURs) issued by the U.S. Environmental Protection Agency.

Eye/face protection:

Employee must wear splash-proof or dust safety goggles and a faceshield to prevent contact with this product. The employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.

Hand protection:

Employee must wear appropriate protective impervious gloves to prevent contact with this substance.
 Recommended impervious gloves are North Butyl Black gloves or T-1 Dailove Ethylene Vinylalcohol Copolymer Laminated Blue gloves, both of which satisfy the dermal protection requirements of the SNUR.

Skin protection:

Employee must wear appropriate protective impervious clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Respiratory protection:	In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory protection equipment. Use a half facepiece respirator (with goggles) or full face-piece respirator (without goggles) filtered with organic vapor cartridge. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self contained air supply. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
General hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.

9. Physical and chemical properties

Appearance:	Yellow Liquid
Odor:	Characteristic odor
Boiling point:	No data available
Melting point:	No data available
Flash point:	> 94deg.C
Auto-ignition temperature:	No data available
Viscosity:	No data available
Relative density:	Approx. 1.0
pH:	No data available
Solubility in Water:	Insoluble
Solid content:	No data available
Explosive properties:	No data available
Oxidizing properties:	No data available
Vapor pressure:	No data available
Evaporation rate:	No data available
Partition coefficient: n-octanol/water:	No data available
Decomposition Temperature:	No data available
Volatile organic compounds (VOC) content:	10 gram/liter (maximum value)

10. Stability and Reactivity

10.1. Reactivity:	High temperatures and UV light may cause rapid polymerization.
10.2. Possibility of hazardous reactions:	Not expected
10.3. Chemical stability:	Unstable. Polymerize under heat and/or light.
10.4. Conditions to avoid:	Elevated temperatures/heat, UV light, when not in use.
10.5. Incompatible materials:	Avoid contact with acids, amines, free radical initiators, oxidizing agents.
10.6. Hazardous decomposition products:	Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological Information

Acute toxicity:	
2-(2-vinyloxyethoxy)ethyl acrylate	
LD50 (oral-rat)	>1790 mg/kg
LD50 (skin-rat)	>2000 mg/kg
LC50 (skin-rat)	>5.82mg/L/4h
Serious eye damage/eye irritation:	No data available Causes serious eye irritation. (Acrylic esters)
Skin corrosion/irritation:	No data available Causes skin irritation.(Acrylic esters)

Respiratory or skin sensitisation:	No data available May cause an allergic skin reaction.(Acrylic esters)
Germ cell mutagenicity:	No data available
Reproductive toxicity:	No data available Suspected of damaging fertility or the unborn child.(Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide)
Carcinogenicity:	The product contains Nickel compounds. IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).
STOT-single exposure:	No data available May cause respiratory irritation. (Acrylic esters)
STOT-repeated exposure:	No data available Cause damage to organs through prolonged or repeated exposure. (Acrylic esters)
Aspiration hazard:	No data available

12. Ecological Information

Ecotoxicity:	The followings are according to the data on Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate. Toxic to aquatic life with long lasting effects.
Persistence/Degradability:	No data available
Bioaccumulation/Accumulation:	No data available
Mobility in environment media:	No data available
Other adverse effects:	No data available

13. Disposal Considerations

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

14. Transport information

14.1. UN Class/UN Number:	ADR/ADG/DOT, IMDG, or IATA :	3082
14.2. UN proper shipping name:	ADR/ADG/DOT, IMDG, or IATA :	Environmentally hazardous substance, liquid, n.o.s. (Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate)
14.3. Transport hazard class(es):	ADR/ADG/DOT, IMDG, or IATA :	9
14.4. Packing group:	ADR/ADG/DOT, IMDG, or IATA :	III
14.5. Environmental hazards:	ADR/ADG/DOT, IMDG, or IATA :	Environmentally hazardous substance, liquid, n.o.s.
14.6. Special precautions for user:		Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:		Not applicable

15. Regulatory Information

EU information:

Chemical Safety Assessment according to (EC)1907/2006:

This product has not carried out any Chemical Safety Assessment yet.

US information:

Toxic Substances Control Act (TSCA):


All components of this product are listed on the TSCA Inventory.

This product contains two ingredients that are regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR 721.9664 and 10064.

These two SNURs designate specific requirements for releases to water, protection in the workplace, hazard communication and recordkeeping.

This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

California; Proposition 65:

 **WARNING: Cancer** - www.P65Warnings.ca.gov.

SARA TITLE III:

Section 313: Pigment yellow 150 (Nickel compounds) (Category Code N495)

Australia Information:

Hazardous statement: Classified as hazardous according to NOHSC criteria.

16. Other Information

NFPA 704: Hazard Rating System

Health - 2 , Flammable - 1 , Reactivity - 1

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

The information in this Safety Data Sheet (SDS) is believed to be correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is subject to revision as additional knowledge and experience is gained. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Safety Data Sheet

1. Product and Company Identification

Product name:

ECO-UV, EUV3-BK

Manufacture:

Roland DG Corporation

Address:

1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
Shizuoka-ken, 431-2103
JAPAN

Phone:

+ 81-53-484-1224

Fax:

+ 81-53-484-1226

Importer/Supplier:

Roland DGA Corporation

Address:

15363 Barranca Parkway Irvine, CA 92618-2201
U.S.A.

Phone:

949-727-2100

Fax:

949 727 2112

Emergency telephone:

949-727-2100

Use of the product:

Inkjet Printing

Date of issue:

30 August, 2017

2. Hazard Identification

2.1 Emergency Overview:

Appearance and odor:

Black liquid and characteristic odor

This product is classified as dangerous according to GHS.

Acute toxicity - oral

Category 4

Skin corrosion/irritation

Category 2

Eye damage/irritation

Category 2A

Sensitization - skin

Category 1

Toxic to reproduction

Category 2

Specific target organ toxicity
(Single exposure)

Category 3 (Respiratory tract irritation)

Specific target organ toxicity
(Repeated exposure)

Category 1

Hazardous to the aquatic

Category 2

environment - short-term hazard

Hazardous to the aquatic

Category 2

environment - long-term hazard

GHS label elements, including precautionary statements

Pictogram



Signal word(s)

Danger

Hazard statement(s)

Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child
May cause respiratory irritation.
Cause damage to organs through prolonged or repeated exposure.
Toxic to aquatic life.
Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention

Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapours/spray.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.

Response

IF ON SKIN: Wash with plenty of soap and water.
IF exposed or concerned: Get medical advice/attention.

2.2. OSHA regulatory status

This product is considered hazardous material by the OSHA Communication Standard (29 CFR 1910.1200)

2.3. Potential health effects

Likely route of exposure:

Eye, skin, inhalation or oral.

Eyes:

Causes severe eye injury which may persist for several days.

Skin:

Contact with skin may cause irritation, swelling or redness, allergy and/or sensitization.

Inhalation:

Exposure to vapors (mist) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.

Ingestion:

May cause injury of mouth ,throat, and stomach.

Chronic Health Hazards:

Repeated skin contact may cause a persistent irritation or dermatitis.

Carcinogenicity:

The product contains Carbon black.
IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).

See section 11 for more information.

This product contains two ingredients that are regulated under TSCA Significant New Use Rules (SNURs) issued by the U.S. Environmental Protection Agency.

See section 15 for details.

ROUTES OF EXPOSURE:

Inhalation, ingestion, eye contact, skin contact / absorption.

HUMAN HEALTH HAZARD STATEMENTS:

This product may cause (i) skin irritation, (iv) internal organ effects, (vi) reproductive effects, (ix) developmental effects.

HUMAN HEALTH HAZARD PRECAUTIONARY STATEMENTS:

When using this product (i) avoid skin contact, (ii) avoid breathing the substance, (iii) avoid ingestion, (iv) use skin protection.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/Information on Ingredients

Composition	CAS No.	% By Weight	Classification HCS
Carbon black	1333-86-4	1-5	Not classified as hazardous
2-(2-vinyloxyethoxy)ethyl acrylate	86273-46-3	15-24	Acute Tox. 4: H302 Skin Sens. 1: H317
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	5888-33-5	1-10	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT Single Exp. 3: H335
Benzyl acrylate	2495-35-4	40-50	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT SE 3: H335
1-Vinylazepan-2-one	2235-00-9	10-20	Acute Tox.(oral) 4 : H302 Eye Irrit. 2 : H319 Skin Sens. 1B : H317 STOT Rep. Exp. 1 : H372
Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	75980-60-8	1-10	Repr. 2: H361

4. First Aid Measures

4.1. First aid procedures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.

Skin: In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Wash contaminated clothing before reuse. If swelling or redness occurs, call a physician.

- Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- Ingestion: If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

4.2. Note to physicians

May cause skin and eye irritation. Excessive inhalation of mist will cause respiratory irritation.

5. Fire Fighting Measures

5.1. Flammable properties:

Hazardous decomposition products: Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

Flash Point: > 94deg.C

5.2. Extinguishing media

Suitable extinguishing media:

Carbon dioxide, dry chemical, foam.

Unsuitable extinguishing media:

No information

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

Toxic and irritating fume and/or gases may generate by combustion.

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Decontaminate or discard any clothing that may contain chemical residues.

Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental Release Measures

General:

Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.

6.1. Personal precautions

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.

6.2. Environmental precautions

Dike spill. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

6.5. Other information

No information

6.6. Spill or leak statements by type of chemical

Eliminate all ignition sources. Use appropriate personal protective equipment (PPE). Absorb and/or contain spill with inert sand, then place in suitable container. For large spills; use water spray to disperse vapors and dilute spill to a nonflammable mixture. Do not flush to sewer. Prevent run-off from entering drains, sewers or waterways.

7. Handling And Storage

7.1. Handling

Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink. Do not dismantle container. Make sure cartridge is dry before insertion into printer housing.

7.2. Storage

Keep containers tightly closed. Do not store the product in high or freezing temperatures. Keep the product out of direct sunlight. Do not store the product with metals, amines, free radical initiators, oxidising agents.

8. Exposure Controls/Personal Protection

8.1. Exposure Guidelines

Occupational Exposure Limits:

EU: DNEL

components	Long term exposure	Short term exposure
Carbon black	2mg/m ³	-
2-(2-vinyloxyethoxy)ethyl acrylate	-	0.81mg/m ³
1-Vinylazepan-2-one	4.9mg/m ³	-
Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	3.5mg/m ³	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

US:

components	OSHA:PEL	ACGIH:TLV
Carbon black	3.5mg/m ³	3.5mg/m ³

California OELs (California Code of Regulations, Title 8, Section 5155. Airborne Contaminants)

components	PEL
Carbon black	3.5mg/m ³

Australia: OELs

components	TWA
Carbon black	3mg/m ³

8.2 Exposure controls:

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains two ingredients that are regulated under TSCA Significant New Use Rules (SNURs) issued by the U.S. Environmental Protection Agency.

Eye/face protection:	Employee must wear splash-proof or dust safety goggles and a faceshield to prevent contact with this product. The employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.
Hand protection:	Employee must wear appropriate protective impervious gloves to prevent contact with this substance. Recommended impervious gloves are North Butyl Black gloves or T-1 Dailove Ethylene Vinylalcohol Copolymer Laminated Blue gloves, both of which satisfy the dermal protection requirements of the SNUR.
Skin protection:	Employee must wear appropriate protective impervious clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Respiratory protection:	In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory protection equipment. Use a half facepiece respirator (with goggles) or full face-piece respirator (without goggles) filtered with organic vapor cartridge. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self contained air supply. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
General hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.

9. Physical and Chemical Properties

Appearance:	Black Liquid
Odor:	Characteristic odor
Boiling point:	No data available
Melting point:	No data available
Flash point:	> 94deg.C
Auto-ignition temperature:	No data available
Viscosity:	No data available
Relative density:	Approx. 1.1
pH:	No data available
Solubility in Water:	Insoluble
Solid content:	No data available
Explosive properties:	No data available
Oxidizing properties:	No data available
Vapor pressure:	No data available
Evaporation rate:	No data available
Partition coefficient: n-octanol/water:	No data available
Decomposition Temperature:	No data available
Volatile organic compounds (VOC) content:	11 gram/liter (maximum value)

10. Stability and Reactivity

10.1. Reactivity:	High temperatures and UV light may cause rapid polymerization.
10.2. Possibility of hazardous reactions:	Not expected
10.3. Chemical stability:	Unstable. Polymerize under heat and/or light.
10.4. Conditions to avoid:	Elevated temperatures/heat, UV light, when not in use.
10.5. Incompatible materials:	Avoid contact with acids, amines, free radical initiators, oxidizing agents.
10.6. Hazardous decomposition products:	Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological Information

Acute toxicity:	2-(2-vinyloxyethoxy)ethyl acrylate
LD50 (oral-rat)	>1790 mg/kg
LD50 (skin-rat)	>2000 mg/kg
LC50 (skin-rat)	>5.82mg/L/4h
Serious eye damage/eye irritation:	No data available Causes serious eye irritation. (Acrylic esters)
Skin corrosion/irritation:	No data available Causes skin irritation.(Acrylic esters)

Respiratory or skin sensitisation:	No data available May cause an allergic skin reaction.(Acrylic esters)
Germ cell mutagenicity:	No data available
Reproductive toxicity:	No data available Suspected of damaging fertility or the unborn child.(Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide)
Carcinogenicity:	The product contains Carbon black. IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).
STOT-single exposure:	No data available May cause respiratory irritation. (Acrylic esters)
STOT-repeated exposure:	No data available Cause damage to organs through prolonged or repeated exposure. (Acrylic esters)
Aspiration hazard:	No data available

12. Ecological Information

Ecotoxicity:	The followings are according to the data on Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate. Toxic to aquatic life with long lasting effects.
Persistence/Degradability:	No data available
Bioaccumulation/Accumulation:	No data available
Mobility in environment media:	No data available
Other adverse effects:	No data available

13. Disposal Considerations

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

14. Transport information

14.1. UN Class/UN Number:	ADR/ADG/DOT, IMDG, or IATA :	3082
14.2. UN proper shipping name:	ADR/ADG/DOT, IMDG, or IATA :	Environmentally hazardous substance, liquid, n.o.s. (Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate)
14.3. Transport hazard class(es):	ADR/ADG/DOT, IMDG, or IATA :	9
14.4. Packing group:	ADR/ADG/DOT, IMDG, or IATA :	III
14.5. Environmental hazards:	ADR/ADG/DOT, IMDG, or IATA :	Environmentally hazardous substance, liquid, n.o.s.
14.6. Special precautions for user:		Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:		Not applicable

15. Regulatory Information

EU information:

Chemical Safety Assessment according to (EC)1907/2006:

This product has not carried out any Chemical Safety Assessment yet.

US information:

Toxic Substances Control Act (TSCA):

All components of this product are listed on the TSCA Inventory.

This product contains two ingredients that are regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR 721.9664 and 10064.

These two SNURs designate specific requirements for releases to water, protection in the workplace, hazard communication and recordkeeping.

This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

California; Proposition 65: Not regulated

SARA TITLE III:

Section 313: Not regulated

Australia Information:

Hazardous statement: Classified as hazardous according to NOHSC criteria.

16. Other Information

NFPA 704: Hazard Rating System

Health - 2 , Flammable - 1 , Reactivity - 1

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

The information in this Safety Data Sheet (SDS) is believed to be correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is subject to revision as additional knowledge and experience is gained. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Safety Data Sheet

1. Product and Company Identification

Product name:

ECO-UV, EUV3-WH

Manufacture:

Roland DG Corporation

Address:

1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
 Shizuoka-ken, 431-2103
 JAPAN

Phone:

+ 81-53-484-1224

Fax:

+ 81-53-484-1226

Importer/Supplier:

Roland DGA Corporation

Address:

15363 Barranca Parkway Irvine, CA 92618-2201
 U.S.A.

Phone:

949-727-2100

Fax:

949 727 2112

Emergency telephone:

949-727-2100

Use of the product:

Inkjet Printing

Date of issue:

30 August, 2017

2. Hazard Identification

2.1 Emergency Overview:

Appearance and odor:

White liquid and characteristic odor

This product is classified as dangerous according to GHS.

Skin corrosion/irritation

Category 2

Eye damage/irritation

Category 2A

Sensitization - skin

Category 1

Toxic to reproduction

Category 2

Specific target organ toxicity

Category 3 (Respiratory tract irritation)

(Single exposure)

Hazardous to the aquatic

Category 2

environment - short-term hazard

Hazardous to the aquatic

Category 2

environment - long-term hazard

GHS label elements, including precautionary statements

Pictogram



Signal word(s)

Warning

Hazard statement(s)

Causes skin irritation.
 Causes serious eye irritation.
 May cause an allergic skin reaction.
 Suspected of damaging fertility or the unborn child
 May cause respiratory irritation.
 Toxic to aquatic life.
 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention

Do not handle until all safety precautions have been read and understood.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.

Response

IF ON SKIN: Wash with plenty of soap and water.
IF exposed or concerned: Get medical advice/attention.

2.2. OSHA regulatory status

This product is considered hazardous material by the OSHA Communication Standard (29 CFR 1910.1200)

2.3. Potential health effects

Likely route of exposure:

Eye, skin, inhalation or oral.

Eyes:

Causes severe eye injury which may persist for several days.

Skin:

Contact with skin may cause irritation, swelling or redness, allergy and/or sensitization.

Inhalation:

Exposure to vapors (mist) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.

Ingestion:

May cause injury of mouth ,throat, and stomach.

Chronic Health Hazards:

Repeated skin contact may cause a persistent irritation or dermatitis.

Carcinogenicity:

The product contains Titanium dioxide.
IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).

See section 11 for more information.

This product contains two ingredients that are regulated under TSCA Significant New Use Rules (SNURs) issued by the U.S. Environmental Protection Agency.

See section 15 for details.

ROUTES OF EXPOSURE:

Inhalation, ingestion, eye contact, skin contact / absorption.

HUMAN HEALTH HAZARD STATEMENTS:

This product may cause (i) skin irritation, (iv) internal organ effects, (vi) reproductive effects, (ix) developmental effects.

HUMAN HEALTH HAZARD PRECAUTIONARY STATEMENTS:

When using this product (i) avoid skin contact, (ii) avoid breathing the substance, (iii) avoid ingestion, (iv) use skin protection.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/Information on Ingredients

Composition	CAS No.	% By Weight	Classification HCS
Titanium dioxide	13463-67-7	10-20	Not classified as hazardous
2-(2-vinyloxyethoxy)ethyl acrylate	86273-46-3	15-24	Acute Tox. 4: H302 Skin Sens. 1: H317
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	5888-33-5	10-20	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT Single Exp. 3: H335
Benzyl acrylate	2495-35-4	30-40	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT SE 3: H335
Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	75980-60-8	1-10	Repr. 2: H361

4. First Aid Measures

4.1. First aid procedures

- Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.
- Skin:** In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Wash contaminated clothing before reuse. If swelling or redness occurs, call a physician.
- Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- Ingestion:** If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

4.2. Note to physicians

May cause skin and eye irritation. Excessive inhalation of mist will cause respiratory irritation.

5. Fire Fighting Measures

5.1. Flammable properties:

Hazardous decomposition products: Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.
 Flash Point: > 94deg.C

5.2. Extinguishing media

Suitable extinguishing media:
 Carbon dioxide, dry chemical, foam.

Unsuitable extinguishing media:
 No information

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

Toxic and irritating fume and/or gases may generate by combustion.

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Decontaminate or discard any clothing that may contain chemical residues.

Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental Release Measures

General:

Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.

6.1. Personal precautions

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.

6.2. Environmental precautions

Dike spill. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

6.5. Other information

No information

6.6. Spill or leak statements by type of chemical

Eliminate all ignition sources. Use appropriate personal protective equipment (PPE). Absorb and/or contain spill with inert sand, then place in suitable container. For large spills; use water spray to disperse vapors and dilute spill to a nonflammable mixture. Do not flush to sewer. Prevent run-off from entering drains, sewers or waterways.

7. Handling And Storage

7.1. Handling

Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink. Do not dismantle container. Make sure cartridge is dry before insertion into printer housing.

7.2. Storage

Keep containers tightly closed. Do not store the product in high or freezing temperatures. Keep the product out of direct sunlight. Do not store the product with metals, amines, free radical initiators, oxidising agents.

8. Exposure Controls/Personal Protection

8.1. Exposure Guidelines

Occupational Exposure Limits:

EU: DNEL

components	Long term exposure	Short term exposure
Titanium dioxide	10mg/m ³	-
2-(2-vinyloxyethoxy)ethyl acrylate	-	0.81mg/m ³
Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	3.5mg/m ³	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

US:

components	OSHA:PEL	ACGIH:TLV
Titanium dioxide	15mg/m ³ * *for total dust	10mg/m ³

Australia: OELs

components	TWA
Titanium dioxide	10mg/m ³

8.2 Exposure controls:

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains two ingredients that are regulated under TSCA Significant New Use Rules (SNURs) issued by the U.S. Environmental Protection Agency.

Eye/face protection: Employee must wear splash-proof or dust safety goggles and a faceshield to prevent contact with this product. The employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.

Hand protection: Employee must wear appropriate protective impervious gloves to prevent contact with this substance.
 Recommended impervious gloves are North Butyl Black gloves or T-1 Dailove Ethylene Vinylalcohol Copolymer Laminated Blue gloves, both of which satisfy the dermal protection requirements of the SNUR.

Skin protection: Employee must wear appropriate protective impervious clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Respiratory protection: In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory protection equipment. Use a half facepiece respirator (with goggles) or full face-piece respirator (without goggles) filtered with organic vapor cartridge. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self contained air supply.
WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

General hygiene measures: Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.

9. Physical and chemical properties

Appearance:	White Liquid
Odor:	Characteristic odor
Boiling point:	No data available
Melting point:	No data available
Flash point:	> 94deg.C
Auto-ignition temperature:	No data available
Viscosity:	No data available
Relative density:	Approx. 1.1
pH:	No data available
Solubility in Water:	Insoluble
Solid content:	No data available

Explosive properties:	No data available
Oxidizing properties:	No data available
Vapor pressure:	No data available
Evaporation rate:	No data available
Partition coefficient: n-octanol/water:	No data available
Decomposition Temperature:	No data available
Volatile organic compounds (VOC) content:	10 gram/liter (maximum value)

10. Stability and Reactivity

10.1. Reactivity:	High temperatures and UV light may cause rapid polymerization.
10.2. Possibility of hazardous reactions:	Not expected
10.3. Chemical stability:	Unstable. Polymerize under heat and/or light.
10.4. Conditions to avoid:	Elevated temperatures/heat, UV light, when not in use.
10.5. Incompatible materials:	Avoid contact with acids, amines, free radical initiators, oxidizing agents.
10.6. Hazardous decomposition products:	Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological Information

Acute toxicity:	
2-(2-vinyloxyethoxy)ethyl acrylate	
LD50 (oral-rat)	>1790 mg/kg
LD50 (skin-rat)	>2000 mg/kg
LC50 (skin-rat)	>5.82mg/L/4h
Serious eye damage/eye irritation:	No data available Causes serious eye irritation. (Acrylic esters)
Skin corrosion/irritation:	No data available Causes skin irritation.(Acrylic esters)
Respiratory or skin sensitisation:	No data available May cause an allergic skin reaction.(Acrylic esters)
Germ cell mutagenicity:	No data available
Reproductive toxicity:	No data available Suspected of damaging fertility or the unborn child.(Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide)
Carcinogenicity:	
The product contains Titanium dioxide.	
IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).	

STOT-single exposure:	No data available May cause respiratory irritation. (Acrylic esters)
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available

12. Ecological Information

Ecotoxicity:	
The followings are according to the data on Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate.	
Toxic to aquatic life with long lasting effects.	
Persistence/Degradability:	No data available
Bioaccumulation/Accumulation:	No data available
Mobility in environment media:	No data available
Other adverse effects:	No data available

13. Disposal Considerations

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

14. Transport information

- 14.1. UN Class/UN Number:
ADR/ADG/DOT, IMDG, or IATA : 3082
- 14.2. UN proper shipping name:
ADR/ADG/DOT, IMDG, or IATA : Environmentally hazardous substance, liquid, n.o.s. (Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate)
- 14.3. Transport hazard class(es):
ADR/ADG/DOT, IMDG, or IATA : 9
- 14.4. Packing group:
ADR/ADG/DOT, IMDG, or IATA : III
- 14.5. Environmental hazards:
ADR/ADG/DOT, IMDG, or IATA : Environmentally hazardous substance, liquid, n.o.s.
- 14.6. Special precautions for user: Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
- 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code: Not applicable

15. Regulatory Information

EU information:

Chemical Safety Assessment according to (EC)1907/2006:

This product has not carried out any Chemical Safety Assessment yet.

US information:

Toxic Substances Control Act (TSCA):

All components of this product are listed on the TSCA Inventory.

This product contains two ingredients that are regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR 721.9664 and 10064.

These two SNURs designate specific requirements for releases to water, protection in the workplace, hazard communication and recordkeeping.

This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

California; Proposition 65: Not regulated

SARA TITLE III:

Section 313: Not regulated

Australia Information:

Hazardous statement: Classified as hazardous according to NOHSC criteria.

16. Other Information

NFPA 704: Hazard Rating System

Health - 2 , Flammable - 1 , Reactivity - 1

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

The information in this Safety Data Sheet (SDS) is believed to be correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is subject to revision as additional knowledge and experience is gained. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Safety Data Sheet

1. Product and Company Identification

Product name:

ECO-UV, EUV3-GL

Manufacture:

Roland DG Corporation

Address:

1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
 Shizuoka-ken, 431-2103
 JAPAN

Phone:

+ 81-53-484-1224

Fax:

+ 81-53-484-1226

Importer/Supplier:

Roland DGA Corporation

Address:

15363 Barranca Parkway Irvine, CA 92618-2201
 U.S.A.

Phone:

949-727-2100

Fax:

949 727 2112

Emergency telephone:

949-727-2100

Use of the product:

Inkjet Printing

Date of issue:

30 August, 2017

2. Hazard Identification

2.1 Emergency Overview:

Appearance and odor:

Clear liquid and characteristic odor

This product is classified as dangerous according to GHS.

Acute toxicity - oral

Category 4

Skin corrosion/irritation

Category 2

Eye damage/irritation

Category 2A

Sensitization - skin

Category 1

Toxic to reproduction

Category 2

Specific target organ toxicity
 (Single exposure)

Category 3 (Respiratory tract irritation)

Specific target organ toxicity
 (Repeated exposure)

Category 1

Hazardous to the aquatic

Category 2

environment - short-term hazard

Hazardous to the aquatic

Category 2

environment - long-term hazard

GHS label elements, including precautionary statements

Pictogram



Signal word(s)

Danger

Hazard statement(s)

Harmful if swallowed.
 Causes skin irritation.
 Causes serious eye irritation.

May cause an allergic skin reaction.
 Suspected of damaging fertility or the unborn child
 May cause respiratory irritation.
 Cause damage to organs through prolonged or repeated exposure.
 Toxic to aquatic life.
 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention

Do not handle until all safety precautions have been read and understood.
 Do not breathe dust/fume/gas/mist/vapours/spray.
 Avoid release to the environment.
 Wear protective gloves/protective clothing/eye protection/face protection.

Response

IF ON SKIN: Wash with plenty of soap and water.
 IF exposed or concerned: Get medical advice/attention.

2.2. OSHA regulatory status

This product is considered hazardous material by the OSHA Communication Standard (29 CFR 1910.1200)

2.3. Potential health effects

Likely route of exposure:

Eye, skin, inhalation or oral.

Eyes:

Causes severe eye injury which may persist for several days.

Skin:

Contact with skin may cause irritation, swelling or redness, allergy and/or sensitization.

Inhalation:

Exposure to vapors (mist) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.

Ingestion:

May cause injury of mouth ,throat, and stomach.

Chronic Health Hazards:

Repeated skin contact may cause a persistent irritation or dermatitis.

Carcinogenicity:

None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

See section 11 for more information.

This product contains two ingredients that are regulated under TSCA Significant New Use Rules (SNURs) issued by the U.S. Environmental Protection Agency.

See section 15 for details.

ROUTES OF EXPOSURE:

Inhalation, ingestion, eye contact, skin contact / absorption.

HUMAN HEALTH HAZARD STATEMENTS:

This product may cause (i) skin irritation, (iv) internal organ effects, (vi) reproductive effects, (ix) developmental effects.

HUMAN HEALTH HAZARD PRECAUTIONARY STATEMENTS:

When using this product (i) avoid skin contact, (ii) avoid breathing the substance, (iii) avoid ingestion, (iv) use skin protection.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/Information on Ingredients

Composition	CAS No.	% By Weight	Classification HCS
2-(2-vinyloxyethoxy)ethyl acrylate	86273-46-3	15-24	Acute Tox. 4: H302 Skin Sens. 1: H317
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	5888-33-5	5-15	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT Single Exp. 3: H335
Benzyl acrylate	2495-35-4	40-50	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT SE 3: H335
1-Vinylazepan-2-one	2235-00-9	10-20	Acute Tox.(oral) 4 : H302 Eye Irrit. 2 : H319 Skin Sens. 1B : H317 STOT Rep. Exp. 1 : H372
Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	75980-60-8	1-10	Repr. 2: H361

4. First Aid Measures

4.1. First aid procedures

- Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.
- Skin:** In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Wash contaminated clothing before reuse. If swelling or redness occurs, call a physician.
- Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- Ingestion:** If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

4.2. Note to physicians

May cause skin and eye irritation. Excessive inhalation of mist will cause respiratory irritation.

5. Fire Fighting Measures

5.1. Flammable properties:

Hazardous decomposition products: Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.
 Flash Point: > 94deg.C

5.2. Extinguishing media

Suitable extinguishing media:
 Carbon dioxide, dry chemical, foam.
 Unsuitable extinguishing media:
 No information

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture
 Toxic and irritating fume and/or gases may generate by combustion.

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Decontaminate or discard any clothing that may contain chemical residues.

Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental Release Measures

General:

Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.

6.1. Personal precautions

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.

6.2. Environmental precautions

Dike spill. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

6.5. Other information

No information

6.6. Spill or leak statements by type of chemical

Eliminate all ignition sources. Use appropriate personal protective equipment (PPE). Absorb and/or contain spill with inert sand, then place in suitable container. For large spills; use water spray to disperse vapors and dilute spill to a nonflammable mixture. Do not flush to sewer. Prevent run-off from entering drains, sewers or waterways.

7. Handling And Storage

7.1. Handling

Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink. Do not dismantle container. Make sure cartridge is dry before insertion into printer housing.

7.2. Storage

Keep containers tightly closed. Do not store the product in high or freezing temperatures. Keep the product out of direct sunlight. Do not store the product with metals, amines, free radical initiators, oxidising agents.

8. Exposure Controls/Personal Protection

8.1. Exposure Guidelines

Occupational Exposure Limits:

EU: DNEL

components	Long term exposure	Short term exposure
2-(2-vinyloxyethoxy)ethyl acrylate	-	0.81mg/m ³
1-Vinylazepan-2-one	4.9mg/m ³	-
Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	3.5mg/m ³	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

8.2 Exposure controls:

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains two ingredients that are regulated under TSCA Significant New Use Rules (SNURs) issued by the U.S. Environmental Protection Agency.

Eye/face protection:	Employee must wear splash-proof or dust safety goggles and a faceshield to prevent contact with this product. The employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.
Hand protection:	Employee must wear appropriate protective impervious gloves to prevent contact with this substance. Recommended impervious gloves are North Butyl Black gloves or T-1 Dailove Ethylene Vinylalcohol Copolymer Laminated Blue gloves, both of which satisfy the dermal protection requirements of the SNUR.
Skin protection:	Employee must wear appropriate protective impervious clothing and equipment to prevent repeated or prolonged skin contact with this substance.
Respiratory protection:	In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory protection equipment. Use a half facepiece respirator (with goggles) or full face-piece respirator (without goggles) filtered with organic vapor cartridge. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self contained air supply. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
General hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.

9. Physical and chemical properties

Appearance:	Clear Liquid
Odor:	Characteristic odor
Boiling point:	No data available
Melting point:	No data available
Flash point:	> 94deg.C
Auto-ignition temperature:	No data available
Viscosity:	No data available
Relative density:	Approx. 1.0
pH:	No data available
Solubility in Water:	Insoluble
Solid content:	No data available
Explosive properties:	No data available
Oxidizing properties:	No data available
Vapor pressure:	No data available
Evaporation rate:	No data available
Partition coefficient: n-octanol/water:	No data available
Decomposition Temperature:	No data available
Volatile organic compounds (VOC) content:	23 gram/liter (maximum value)

10. Stability and Reactivity

10.1. Reactivity:	High temperatures and UV light may cause rapid polymerization.
10.2. Possibility of hazardous reactions:	Not expected
10.3. Chemical stability:	Unstable. Polymerize under heat and/or light.
10.4. Conditions to avoid:	Elevated temperatures/heat, UV light, when not in use.
10.5. Incompatible materials:	Avoid contact with acids, amines, free radical initiators, oxidizing agents.
10.6. Hazardous decomposition products:	Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological Information

Acute toxicity:

2-(2-vinyloxyethoxy)ethyl acrylate

LD50 (oral-rat) >1790 mg/kg

LD50 (skin-rat) >2000 mg/kg

LC50 (skin-rat) >5.82mg/L/4h

Serious eye damage/eye irritation: No data available

Causes serious eye irritation. (Acrylic esters)

Skin corrosion/irritation: No data available

Causes skin irritation.(Acrylic esters)

Respiratory or skin sensitisation: No data available

May cause an allergic skin reaction.(Acrylic esters)

Germ cell mutagenicity: No data available

Reproductive toxicity: No data available

Suspected of damaging fertility or the unborn child.(Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide)

Carcinogenicity:

None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

STOT-single exposure: No data available

May cause respiratory irritation. (Acrylic esters)

STOT-repeated exposure: No data available

Cause damage to organs through prolonged or repeated exposure. (Acrylic esters)

Aspiration hazard: No data available

12. Ecological Information

Ecotoxicity:

The followings are according to the data on Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate.

Toxic to aquatic life with long lasting effects.

Persistence/Degradability: No data available

Bioaccumulation/Accumulation: No data available

Mobility in environment media: No data available

Other adverse effects: No data available

13. Disposal Considerations

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

14. Transport information

- 14.1. UN Class/UN Number:
ADR/ADG/DOT, IMDG, or IATA : 3082
- 14.2. UN proper shipping name:
ADR/ADG/DOT, IMDG, or IATA : Environmentally hazardous substance, liquid, n.o.s. (Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate)
- 14.3. Transport hazard class(es):
ADR/ADG/DOT, IMDG, or IATA : 9
- 14.4. Packing group:
ADR/ADG/DOT, IMDG, or IATA : III
- 14.5. Environmental hazards:
ADR/ADG/DOT, IMDG, or IATA : Environmentally hazardous substance, liquid, n.o.s.
- 14.6. Special precautions for user: Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
- 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code: Not applicable

15. Regulatory Information

EU information:

Chemical Safety Assessment according to (EC)1907/2006:

This product has not carried out any Chemical Safety Assessment yet.

US information:

Toxic Substances Control Act (TSCA):

All components of this product are listed on the TSCA Inventory.

This product contains two ingredients that are regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR 721.9664 and 10064.

These two SNURs designate specific requirements for releases to water, protection in the workplace, hazard communication and recordkeeping.

This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

California; Proposition 65: Not regulated

SARA TITLE III:

Section 313: Not regulated

Australia Information:

Hazardous statement: Classified as hazardous according to NOHSC criteria.

16. Other Information

NFPA 704: Hazard Rating System

Health - 2 , Flammable - 1 , Reactivity - 1

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

The information in this Safety Data Sheet (SDS) is believed to be correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is subject to revision as additional knowledge and experience is gained. Roland DG does not warrant the completeness or accuracy of the information contained herein.