Safety Data Sheet

1. Product and Company Identification

Product name: ECO-UV, EUV5-5CY

Use of the product: Inkjet Printing

Manufacturer:

Manufacture's name:	Roland DG Corporation
Address:	1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103
Phone:	+ 81-53-484-1224
FAX:	+ 81-53-484-1226

Importer/Supplier:

Supplier's name:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	+1-949-727-2100
FAX:	+1-949-727-2112
E-mail:	

Emergency telephone: +1-949-727-2100

Date of issue: Dec-8-2020

2. Hazard identification

2.1 Emergency Overview:

Appearance and odor: Cyan Liquid and Characteristic odour

Classification according to GHS.

Acute toxicity (oral)	Category 4
Acute toxicity (dermal)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Sensitization (Skin)	Category 1A
Reproductive toxicity	Category 2
Specific target organ toxicity (Repeated exposure)	Category 2
Hazardous to the aquatic environment (AcuteHazard)	Category 1
Hazardous to the aquatic environment (Chronic Hazard)	Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal Word: Danger

Hazard Statement:

Harmful if swallowed.
Harmful in contact with skin.
Causes skin irritation.
Causes serious eye damage.
May cause an allergic skin reaction.

Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary statements — 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.

Precautionary statements — 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 by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

2.3. Other hazards

Potential Health Effects:

Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic 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)
Others:	No information.

See section 11 for more information.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/information on ingredients

Chenical nature: mixture

Composition	CAS No.	% By Weight	Classification (HCS) Hazard Communication Standard
Phthalocyanine blue	147-14-8	1-5	Not classified as hazardous
Benzyl acrylate	2495-35-4	20-30	Skin Irrit. 2: H315 Skin Sens. 1B: H317 Aquatic Acute 1: H400 Aquatic Chronic 1: H410
Hexamethylene Diacrylate	13048-33-4	20-30	Skin Irrit. 2: H315 Skin Sens. 1: H317 Eye Irrit. 2: H319
Morpholine, 4-(1-oxo-2-propenyl)	5117-12-4	10-20	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Dam. 1: H318 STOT RE 2 : H373
2-Propenoic acid, 2-phenoxyethyl ester	48145-04-6	5-10	Skin Sens. 1A: H317 Repr. 2: H361 Aquatic Chronic 2: H411
2-Propenamide, N,N-dimethyl-	2680-03-7	5-10	Acute Tox. 3: H301 Acute Tox. 3: H311 Eye Damage 1: H318
2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester	7328-17-8	5-10	Acute Tox. 4: H302 Acute Tox. 3: H311 Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1A: H317 Aquatic Chronic 2: H411
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	84434-11-7	1-5	Skin Sens. 1B: H317 Aquatic Chronic 2: H411
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	162881-26-7	5-10	Skin Sens. 1A: H317 Aquatic Chronic 4: H413
4-Methoxyphenol	150-76-5	<1	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Irrit. 2: H319
2,4-Diethyl-9H-thioxanthen-9-one	82799-44-8	<1	Not classified as hazardous

4. First aid measures

4.1. First aid procedures

Eyes: In case of contact, immediately flush eyes with plenty of water for several 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. Firefighting measures

5.1. Flammable properties:

Incombustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: > 201.2deg.F

5.2. Extinguishing media

Suitable extinguishing media: Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.
Unsuitable extinguishing media: Water, High-pressure water jet

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

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

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus(SCBA).
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

Wipe off spillage. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Sweep up material and dispose as waste following local regulations.

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 vapers and dilute spill to a non-flamable 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.

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:

4-Methoxyphenol (CAS 150-76-5):

[NIOSH] REL TWA: 5 mg/m3

OSHA PEL: none

[California Code of Regulations, Title 8] PEL: -- ppm (5mg/m3)

8.2. Engineering controls

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains the substance 2-propen-1-one, 1-(4-morpholinyl)- (CASRN 5117-12-4), which is regulated under a TSCA Significant New Use Rule (SNUR) codified at 40 C.F.R. § 721.5185.

Eye protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear safety glasses or chemical splash goggles.

Hand protection:

Employee must wear appropriate protective impervious gloves to prevent contact with the ink. Recommended impervious gloves are 4/4H EVOH/PE laminate, Ansell Edmont Neoprene number 865, and Solvex Nitrile Rubber number 275 gloves which satisfy the dermal protection requirements of the SNUR.

Skin protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear protective clothing.

Respiratory protection:

In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory 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 odour

odor threshold:	Not defined
pH:	Not applicable
melting point/freezing point:	No data available
initial boiling point and boiling range:	No data available
flash point:	> 201.2deg.F
evaporation rate:	No data available
flammability (solid, gas):	Not applicable
vapor pressure:	No data available
vapor density:	No data available
specific gravity or relative density:	1.0-1.1
solubility in water:	Slightly soluble
partition coefficient: n-octanol/water:	No data available
auto-ignition temperature:	No data available
decomposition temperature:	No data available
volatile organic compounds (VOC) content:	No data available

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:

Stable under normal temperature.

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:

Morpholine, 4-(1-oxo-2-propenyl)
LD50（oral）: 588mg/kgbw, LD50 (dermal): >2000mg/kgbw, LD50 (Inhal.): no data available

2-Propenamide, N,N-dimethyl-
LD50（oral）: >215-<464mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
LD50（oral）: ca.1106mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

4-Methoxyphenol
LD50（oral）: no data available, LD50 (dermal): no data available, LD50 (Inhal.): no data available

Serious eye damage/eye irritation:

Causes serious eye damage.

- Morpholine, 4-(1-oxo-2-propenyl)
- 2-Propenamide, N,N-dimethyl-

Causes serious eye irritation.

- Hexamethylene Diacrylate
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
- 4-Methoxyphenol

Skin corrosion/irritation:

Causes skin irritation.

- Benzyl acrylate
- Hexamethylene Diacrylate
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

Respiratory or skin sensitisation:

May cause an allergic skin reaction.

- Benzyl acrylate
- Hexamethylene Diacrylate
- Morpholine, 4-(1-oxo-2-propenyl)
- 2-Propenoic acid, 2-phenoxyethyl ester
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
- Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate
- Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide
- 4-Methoxyphenol

Germ cell mutagenicity:

no data available.

Reproductive toxicity:

Suspected of damaging fertility or the unborn child.

- 2-Propenoic acid, 2-phenoxyethyl ester

Carcinogenicity:

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

Specific target organ toxicity - single exposure, (STOT-SE):

no data available.

Specific target organ toxicity - repeat exposure, (STOT-RE):

May cause damage to organs through prolonged or repeated exposure.

- Morpholine, 4-(1-oxo-2-propenyl)

Aspiration hazard:

no data available.

12. Ecological information

Ecotoxicity:

Very toxic to aquatic life.

- Benzyl acrylate

Very toxic to aquatic life with long lasting effects.

- Benzyl acrylate

Toxic to aquatic life with long lasting effects.

- 2-Propenoic acid, 2-phenoxyethyl ester
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
- Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate

May cause long lasting harmful effects to aquatic life.

• Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide

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 : Environmentall hazardous substance, liquid, n.o.s.

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
ADR/ADG/DOT, IMDG, or IATA : 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 regulated

15. Regulatory Information

Federal Regulations

Toxic Substance 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 §721.5185 and 9664. These SNURs designate specific requirements for protection in the workplace, hazard communication, releases to water and Recordkeeping.
This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

SARA Title III Rules

Section 313/312 Hazard Classes

- ☐ Explosive
- ☐ Flammable (gases, aerosols, liquids, or solids)
- ☐ Oxidizer (liquid, solid, or gas)
- ☐ Self-reactive
- ☐ Pyrophoric (liquid or solid)
- ☐ Pyrophoric Gas
- ☐ Self-heating
- ☐ Organic peroxide
- ☐ Corrosive to metal
- ☐ Gas under pressure (compressed gas)
- ☐ In contact with water emits flammable gas
- ☐ Combustible Dust
- ☐ Hazard not otherwise classified
- ☑ Acute toxicity (any route of exposure)
- ☑ Skin corrosion or irritation
- ☑ Serious eye damage or eye irritation
- ☑ Respiratory or skin sensitization
- ☐ Germ cell mutagenicity
- ☐ Carcinogenicity
- ☑ Reproductive toxicity
- ☑ Specific target organ toxicity (single or repeated exposure)
- ☐ Aspiration hazard
- ☐ Simple Asphyxiant
- ☐ Hazard not otherwise classified

Section 302 Extreamly Hazardous Substances (EHS)

None of the ingredients are listed.

Section 313 Toxic Chemicals

Glycol Ethers (N230)

CERCLA Hazardous Substances

Glycol Ethers (N230) RQ†

† - There is no RQ assigned to this broad class, although the class is a CERCLA hazardous substances. Refer to 50 Federal Register 13456 (April 4, 1985).

RCRA (Hazardous waste code)

None Assigned

State Regulations

California Propostion 65:

None of the ingredients are listed.

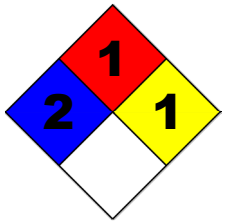
16. Other information

NFPA Rating (NFPA 704):

NFPA Health Hazard: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA Flammability: 1 - Must be preheated before ignition can occur.

NFPA Instability: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.



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, EUV5-5MG

Use of the product: Inkjet Printing

Manufacturer:

Manufacture's name:	Roland DG Corporation
Address:	1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103
Phone:	+ 81-53-484-1224
FAX:	+ 81-53-484-1226

Importer/Supplier:

Supplier's name:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	+1-949-727-2100
FAX:	+1-949-727-2112
E-mail:	

Emergency telephone: +1-949-727-2100

Date of issue: Dec-8-2020

2. Hazard identification

2.1 Emergency Overview:

Appearance and odor: Magenta Liquid and Characteristic odour

Classification according to GHS.

Acute toxicity (oral)	Category 4
Acute toxicity (dermal)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Sensitization (Skin)	Category 1A
Reproductive toxicity	Category 2
Specific target organ toxicity (Repeated exposure)	Category 2
Hazardous to the aquatic environment (AcuteHazard)	Category 1
Hazardous to the aquatic environment (Chronic Hazard)	Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal Word: Danger

Hazard Statement:

Harmful if swallowed.
Harmful in contact with skin.
Causes skin irritation.
Causes serious eye damage.
May cause an allergic skin reaction.

Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary statements — 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.

Precautionary statements — 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 by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

2.3. Other hazards

Potential Health Effects:

Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic 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)
Others:	No information.

See section 11 for more information.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/information on ingredients

Chenical nature: mixture

Composition	CAS No.	% By Weight	Classification (HCS) Hazard Communication Standard
Benzyl acrylate	2495-35-4	20-30	Skin Irrit. 2: H315 Skin Sens. 1B: H317 Aquatic Acute 1: H400 Aquatic Chronic 1: H410
Hexamethylene Diacrylate	13048-33-4	20-30	Skin Irrit. 2: H315 Skin Sens. 1: H317 Eye Irrit. 2: H319
Morpholine, 4-(1-oxo-2-propenyl)	5117-12-4	10-20	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Dam. 1: H318 STOT RE 2 : H373
2-Propenoic acid, 2-phenoxyethyl ester	48145-04-6	5-10	Skin Sens. 1A: H317 Repr. 2: H361 Aquatic Chronic 2: H411
2-Propenamide, N,N-dimethyl-	2680-03-7	5-10	Acute Tox. 3: H301 Acute Tox. 3: H311 Eye Damage 1: H318
2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester	7328-17-8	5-10	Acute Tox. 4: H302 Acute Tox. 3: H311 Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1A: H317 Aquatic Chronic 2: H411
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	84434-11-7	1-5	Skin Sens. 1B: H317 Aquatic Chronic 2: H411
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	162881-26-7	1-5	Skin Sens. 1A: H317 Aquatic Chronic 4: H413
4-Methoxyphenol	150-76-5	<1	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Irrit. 2: H319
2,4-Diethyl-9H-thioxanthen-9-one	82799-44-8	<1	Not classified as hazardous

4. First aid measures

4.1. First aid procedures

Eyes: In case of contact, immediately flush eyes with plenty of water for several 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. Firefighting measures

5.1. Flammable properties:

Incombustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: > 201.2deg.F

5.2. Extinguishing media

Suitable extinguishing media: Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.
Unsuitable extinguishing media: Water, High-pressure water jet

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

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

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus(SCBA).
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

Wipe off spillage. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Sweep up material and dispose as waste following local regulations.

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 vapers and dilute spill to a non-flamable 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.

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:

4-Methoxyphenol (CAS 150-76-5):

[NIOSH] REL TWA: 5 mg/m3

OSHA PEL: none

[California Code of Regulations, Title 8] PEL: -- ppm (5mg/m3)

8.2. Engineering controls

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains the substance 2-propen-1-one, 1-(4-morpholinyl)- (CASRN 5117-12-4), which is regulated under a TSCA Significant New Use Rule (SNUR) codified at 40 C.F.R. § 721.5185.

Eye protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear safety glasses or chemical splash goggles.

Hand protection:

Employee must wear appropriate protective impervious gloves to prevent contact with the ink. Recommended impervious gloves are 4/4H EVOH/PE laminate, Ansell Edmont Neoprene number 865, and Solvex Nitrile Rubber number 275 gloves which satisfy the dermal protection requirements of the SNUR.

Skin protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear protective clothing.

Respiratory protection:

In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory 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 odour
odor threshold:	Not defined

pH:	Not applicable
melting point/freezing point:	No data available
initial boiling point and boiling range:	No data available
flash point:	> 201.2deg.F
evaporation rate:	No data available
flammability (solid, gas):	Not applicable
vapor pressure:	No data available
vapor density:	No data available
specific gravity or relative density:	1.0-1.1
solubility in water:	Slightly soluble
partition coefficient: n-octanol/water:	No data available
auto-ignition temperature:	No data available
decomposition temperature:	No data available
volatile organic compounds (VOC) content:	No data available

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:

Stable under normal temperature.

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:

Morpholine, 4-(1-oxo-2-propenyl)

LD50（oral）: 588mg/kgbw, LD50 (dermal): >2000mg/kgbw, LD50 (Inhal.): no data available

2-Propenamide, N,N-dimethyl-

LD50（oral）: >215-<464mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

LD50（oral）: ca.1106mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

4-Methoxyphenol

LD50（oral）: no data available, LD50 (dermal): no data available, LD50 (Inhal.): no data available

Serious eye damage/eye irritation:

Causes serious eye damage.

- Morpholine, 4-(1-oxo-2-propenyl)
- 2-Propenamide, N,N-dimethyl-

Causes serious eye irritation.

- Hexamethylene Diacrylate

• 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
• 4-Methoxyphenol

Skin corrosion/irritation:
Causes skin irritation.
• Benzyl acrylate
• Hexamethylene Diacrylate
• 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

Respiratory or skin sensitisation:
May cause an allergic skin reaction.
• Benzyl acrylate
• Hexamethylene Diacrylate
• Morpholine, 4-(1-oxo-2-propenyl)
• 2-Propenoic acid, 2-phenoxyethyl ester
• 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
• Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate
• Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide
• 4-Methoxyphenol

Germ cell mutagenicity:
no data available.

Reproductive toxicity:
Suspected of damaging fertility or the unborn child.
• 2-Propenoic acid, 2-phenoxyethyl ester

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

Specific target organ toxicity - single exposure, (STOT-SE):
no data available.

Specific target organ toxicity - repeat exposure, (STOT-RE):
May cause damage to organs through prolonged or repeated exposure.
• Morpholine, 4-(1-oxo-2-propenyl)

Aspiration hazard:
no data available.

12. Ecological information

Ecotoxicity:
Very toxic to aquatic life.
• Benzyl acrylate
Very toxic to aquatic life with long lasting effects.
• Benzyl acrylate
Toxic to aquatic life with long lasting effects.
• 2-Propenoic acid, 2-phenoxyethyl ester
• 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
• Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate
May cause long lasting harmful effects to aquatic life.
• Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide

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 : Environmentall hazardous substance, liquid, n.o.s.

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
ADR/ADG/DOT, IMDG, or IATA : 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 regulated

15. Regulatory Information

Federal Regulations

Toxic Substance 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 §721.5185 and 9664. These SNURs designate specific requirements for protection in the workplace, hazard communication, releases to water and Recordkeeping.
This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

SARA Title III Rules

Section 313/312 Hazard Classes

- ☐ Explosive
- ☐ Flammable (gases, aerosols, liquids, or solids)
- ☐ Oxidizer (liquid, solid, or gas)
- ☐ Self-reactive
- ☐ Pyrophoric (liquid or solid)
- ☐ Pyrophoric Gas
- ☐ Self-heating
- ☐ Organic peroxide
- ☐ Corrosive to metal
- ☐ Gas under pressure (compressed gas)
- ☐ In contact with water emits flammable gas
- ☐ Combustible Dust
- ☐ Hazard not otherwise classified
- ☑ Acute toxicity (any route of exposure)
- ☑ Skin corrosion or irritation
- ☑ Serious eye damage or eye irritation
- ☑ Respiratory or skin sensitization
- ☐ Germ cell mutagenicity
- ☐ Carcinogenicity
- ☑ Reproductive toxicity
- ☑ Specific target organ toxicity (single or repeated exposure)
- ☐ Aspiration hazard
- ☐ Simple Asphyxiant
- ☐ Hazard not otherwise classified

Section 302 Extreamly Hazardous Substances (EHS)

None of the ingredients are listed.

Section 313 Toxic Chemicals

Glycol Ethers (N230)

CERCLA Hazardous Substances

Glycol Ethers (N230) RQ†

† - There is no RQ assigned to this broad class, although the class is a CERCLA hazardous substances. Refer to 50 Federal Register 13456 (April 4, 1985).

RCRA (Hazardous waste code)

None Assigned

State Regulations

California Propostion 65:

None of the ingredients are listed.

16. Other information

NFPA Rating (NFPA 704):

NFPA Health Hazard: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA Flammability: 1 - Must be preheated before ignition can occur.

NFPA Instability: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

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, EUV5-5YE

Use of the product: Inkjet Printing

Manufacturer:

Manufacture's name:	Roland DG Corporation
Address:	1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103
Phone:	+ 81-53-484-1224
FAX:	+ 81-53-484-1226

Importer/Supplier:

Supplier's name:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	+1-949-727-2100
FAX:	+1-949-727-2112
E-mail:	

Emergency telephone: +1-949-727-2100

Date of issue: Dec-8-2020

2. Hazard identification

2.1 Emergency Overview:

Appearance and odor: Yellow Liquid and Characteristic odour

Classification according to GHS.

Acute toxicity (oral)	Category 4
Acute toxicity (dermal)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Sensitization (Skin)	Category 1A
Reproductive toxicity	Category 2
Specific target organ toxicity (Repeated exposure)	Category 2
Hazardous to the aquatic environment (AcuteHazard)	Category 1
Hazardous to the aquatic environment (Chronic Hazard)	Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal Word: Danger

Hazard Statement:

Harmful if swallowed.
Harmful in contact with skin.
Causes skin irritation.
Causes serious eye damage.
May cause an allergic skin reaction.

Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary statements — 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.

Precautionary statements — 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 by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

2.3. Other hazards

Potential Health Effects:

Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic 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)
Others:	No information.

See section 11 for more information.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/information on ingredients

Chenical nature: mixture

Composition	CAS No.	% By Weight	Classification (HCS) Hazard Communication Standard
Benzyl acrylate	2495-35-4	20-30	Skin Irrit. 2: H315 Skin Sens. 1B: H317 Aquatic Acute 1: H400 Aquatic Chronic 1: H410
Hexamethylene Diacrylate	13048-33-4	20-30	Skin Irrit. 2: H315 Skin Sens. 1: H317 Eye Irrit. 2: H319
Morpholine, 4-(1-oxo-2-propenyl)	5117-12-4	10-20	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Dam. 1: H318 STOT RE 2 : H373
2-Propenoic acid, 2-phenoxyethyl ester	48145-04-6	5-10	Skin Sens. 1A: H317 Repr. 2: H361 Aquatic Chronic 2: H411
2-Propenamide, N,N-dimethyl-	2680-03-7	5-10	Acute Tox. 3: H301 Acute Tox. 3: H311 Eye Damage 1: H318
2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester	7328-17-8	5-10	Acute Tox. 4: H302 Acute Tox. 3: H311 Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1A: H317 Aquatic Chronic 2: H411
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	84434-11-7	1-5	Skin Sens. 1B: H317 Aquatic Chronic 2: H411
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	162881-26-7	1-5	Skin Sens. 1A: H317 Aquatic Chronic 4: H413
4-Methoxyphenol	150-76-5	<1	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Irrit. 2: H319
2,4-Diethyl-9H-thioxanthen-9-one	82799-44-8	1-5	Not classified as hazardous

4. First aid measures

4.1. First aid procedures

Eyes: In case of contact, immediately flush eyes with plenty of water for several 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. Firefighting measures

5.1. Flammable properties:

Incombustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: > 201.2deg.F

5.2. Extinguishing media

Suitable extinguishing media: Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.
Unsuitable extinguishing media: Water, High-pressure water jet

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

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

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus(SCBA).
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

Wipe off spillage. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Sweep up material and dispose as waste following local regulations.

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 vapers and dilute spill to a non-flamable 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.

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:

4-Methoxyphenol (CAS 150-76-5):

[NIOSH] REL TWA: 5 mg/m3

OSHA PEL: none

[California Code of Regulations, Title 8] PEL: -- ppm (5mg/m3)

8.2. Engineering controls

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains the substance 2-propen-1-one, 1-(4-morpholinyl)- (CASRN 5117-12-4), which is regulated under a TSCA Significant New Use Rule (SNUR) codified at 40 C.F.R. § 721.5185.

Eye protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear safety glasses or chemical splash goggles.

Hand protection:

Employee must wear appropriate protective impervious gloves to prevent contact with the ink. Recommended impervious gloves are 4/4H EVOH/PE laminate, Ansell Edmont Neoprene number 865, and Solvex Nitrile Rubber number 275 gloves which satisfy the dermal protection requirements of the SNUR.

Skin protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear protective clothing.

Respiratory protection:

In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory 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 odour
odor threshold:	Not defined

pH:	Not applicable
melting point/freezing point:	No data available
initial boiling point and boiling range:	No data available
flash point:	> 201.2deg.F
evaporation rate:	No data available
flammability (solid, gas):	Not applicable
vapor pressure:	No data available
vapor density:	No data available
specific gravity or relative density:	1.0-1.1
solubility in water:	Slightly soluble
partition coefficient: n-octanol/water:	No data available
auto-ignition temperature:	No data available
decomposition temperature:	No data available
volatile organic compounds (VOC) content:	No data available

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:

Stable under normal temperature.

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:

Morpholine, 4-(1-oxo-2-propenyl)

LD50（oral）: 588mg/kgbw, LD50 (dermal): >2000mg/kgbw, LD50 (Inhal.): no data available

2-Propenamide, N,N-dimethyl-

LD50（oral）: >215-<464mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

LD50（oral）: ca.1106mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

4-Methoxyphenol

LD50（oral）: no data available, LD50 (dermal): no data available, LD50 (Inhal.): no data available

Serious eye damage/eye irritation:

Causes serious eye damage.

- Morpholine, 4-(1-oxo-2-propenyl)
- 2-Propenamide, N,N-dimethyl-

Causes serious eye irritation.

- Hexamethylene Diacrylate

• 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
• 4-Methoxyphenol

Skin corrosion/irritation:
Causes skin irritation.
• Benzyl acrylate
• Hexamethylene Diacrylate
• 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

Respiratory or skin sensitisation:
May cause an allergic skin reaction.
• Benzyl acrylate
• Hexamethylene Diacrylate
• Morpholine, 4-(1-oxo-2-propenyl)
• 2-Propenoic acid, 2-phenoxyethyl ester
• 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
• Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate
• Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide
• 4-Methoxyphenol

Germ cell mutagenicity:
no data available.

Reproductive toxicity:
Suspected of damaging fertility or the unborn child.
• 2-Propenoic acid, 2-phenoxyethyl ester

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

Specific target organ toxicity - single exposure, (STOT-SE):
no data available.

Specific target organ toxicity - repeat exposure, (STOT-RE):
May cause damage to organs through prolonged or repeated exposure.
• Morpholine, 4-(1-oxo-2-propenyl)

Aspiration hazard:
no data available.

12. Ecological information

Ecotoxicity:
Very toxic to aquatic life.
• Benzyl acrylate
Very toxic to aquatic life with long lasting effects.
• Benzyl acrylate
Toxic to aquatic life with long lasting effects.
• 2-Propenoic acid, 2-phenoxyethyl ester
• 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
• Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate
May cause long lasting harmful effects to aquatic life.
• Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide

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 : Environmentall hazardous substance, liquid, n.o.s.

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
ADR/ADG/DOT, IMDG, or IATA : 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 regulated

15. Regulatory Information

Federal Regulations

Toxic Substance 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 §721.5185 and 9664. These SNURs designate specific requirements for protection in the workplace, hazard communication, releases to water and Recordkeeping.
This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

SARA Title III Rules

Section 313/312 Hazard Classes

- ☐ Explosive
- ☐ Flammable (gases, aerosols, liquids, or solids)
- ☐ Oxidizer (liquid, solid, or gas)
- ☐ Self-reactive
- ☐ Pyrophoric (liquid or solid)
- ☐ Pyrophoric Gas
- ☐ Self-heating
- ☐ Organic peroxide
- ☐ Corrosive to metal
- ☐ Gas under pressure (compressed gas)
- ☐ In contact with water emits flammable gas
- ☐ Combustible Dust
- ☐ Hazard not otherwise classified
- ☑ Acute toxicity (any route of exposure)
- ☑ Skin corrosion or irritation
- ☑ Serious eye damage or eye irritation
- ☑ Respiratory or skin sensitization
- ☐ Germ cell mutagenicity
- ☐ Carcinogenicity
- ☑ Reproductive toxicity
- ☑ Specific target organ toxicity (single or repeated exposure)
- ☐ Aspiration hazard
- ☐ Simple Asphyxiant
- ☐ Hazard not otherwise classified

Section 302 Extreamly Hazardous Substances (EHS)

None of the ingredients are listed.

Section 313 Toxic Chemicals

Glycol Ethers (N230)

CERCLA Hazardous Substances

Glycol Ethers (N230) RQ†

† - There is no RQ assigned to this broad class, although the class is a CERCLA hazardous substances. Refer to 50 Federal Register 13456 (April 4, 1985).

RCRA (Hazardous waste code)

None Assigned

State Regulations

California Propostion 65:

None of the ingredients are listed.

16. Other information

NFPA Rating (NFPA 704):

NFPA Health Hazard: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA Flammability: 1 - Must be preheated before ignition can occur.

NFPA Instability: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

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, EUV5-5BK

Use of the product: Inkjet Printing

Manufacturer:

Manufacture's name:	Roland DG Corporation
Address:	1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103
Phone:	+ 81-53-484-1224
FAX:	+ 81-53-484-1226

Importer/Supplier:

Supplier's name:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	+1-949-727-2100
FAX:	+1-949-727-2112
E-mail:	

Emergency telephone: +1-949-727-2100

Date of issue: Dec-8-2020

2. Hazard identification

2.1 Emergency Overview:

Appearance and odor: Black Liquid and Characteristic odour

Classification according to GHS.

Acute toxicity (oral)	Category 4
Acute toxicity (dermal)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Sensitization (Skin)	Category 1A
Reproductive toxicity	Category 2
Specific target organ toxicity (Repeated exposure)	Category 2
Hazardous to the aquatic environment (AcuteHazard)	Category 1
Hazardous to the aquatic environment (Chronic Hazard)	Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal Word: Danger

Hazard Statement:

Harmful if swallowed.
Harmful in contact with skin.
Causes skin irritation.
Causes serious eye damage.
May cause an allergic skin reaction.

Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary statements — 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.

Precautionary statements — 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 by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

2.3. Other hazards

Potential Health Effects:

Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic 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:	This product contains Carbon black.IARC evaluated printing ink as a Group 3.(IARC Group 3: Not t classifiable as to carcinogenicity to humans)
Others:	No information.

See section 11 for more information.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/information on ingredients

Chenical nature: mixture

Composition	CAS No.	% By Weight	Classification (HCS) Hazard Communication Standard
Carbon Black	1333-86-4	1-5	Not classified as hazardous
Benzyl acrylate	2495-35-4	20-30	Skin Irrit. 2: H315 Skin Sens. 1B: H317 Aquatic Acute 1: H400 Aquatic Chronic 1: H410
Hexamethylene Diacrylate	13048-33-4	20-30	Skin Irrit. 2: H315 Skin Sens. 1: H317 Eye Irrit. 2: H319
Morpholine, 4-(1-oxo-2-propenyl)	5117-12-4	10-20	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Dam. 1: H318 STOT RE 2 : H373
2-Propenoic acid, 2-phenoxyethyl ester	48145-04-6	5-10	Skin Sens. 1A: H317 Repr. 2: H361 Aquatic Chronic 2: H411
2-Propenamide, N,N-dimethyl-	2680-03-7	5-10	Acute Tox. 3: H301 Acute Tox. 3: H311 Eye Damage 1: H318
2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester	7328-17-8	5-10	Acute Tox. 4: H302 Acute Tox. 3: H311 Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1A: H317 Aquatic Chronic 2: H411
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	84434-11-7	1-5	Skin Sens. 1B: H317 Aquatic Chronic 2: H411
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	162881-26-7	5-10	Skin Sens. 1A: H317 Aquatic Chronic 4: H413
4-Methoxyphenol	150-76-5	<1	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Irrit. 2: H319
2,4-Diethyl-9H-thioxanthen-9-one	82799-44-8	1-5	Not classified as hazardous

4. First aid measures

4.1. First aid procedures

Eyes: In case of contact, immediately flush eyes with plenty of water for several 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. Firefighting measures

5.1. Flammable properties:

Incombustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: > 201.2deg.F

5.2. Extinguishing media

Suitable extinguishing media: Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.
Unsuitable extinguishing media: Water, High-pressure water jet

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

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

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus(SCBA).
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

Wipe off spillage. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Sweep up material and dispose as waste following local regulations.

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 vapers and dilute spill to a non-flamable 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.

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:

Carbon Black (CAS 1333-86-4):

[NIOSH] REL TWA: 3.5 mg/m3 TWA 0.1 mg PAHs/m3 [Carbon black in presence of polycyclic aromatic hydrocarbons (PAHs)]

[OSHA] PEL TWA: 3.5 mg/m3

[California Code of Regulations, Title 8] PEL: -- ppm (3.5mg/m3)

4-Methoxyphenol (CAS 150-76-5):

[NIOSH] REL TWA: 5 mg/m3

OSHA PEL: none

[California Code of Regulations, Title 8] PEL: -- ppm (5mg/m3)

8.2. Engineering controls

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains the substance 2-propen-1-one, 1-(4-morpholinyl)- (CASRN 5117-12-4), which is regulated under a TSCA Significant New Use Rule (SNUR) codified at 40 C.F.R. § 721.5185.

Eye protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear safety glasses or chemical splash goggles.

Hand protection:

Employee must wear appropriate protective impervious gloves to prevent contact with the ink. Recommended impervious gloves are 4/4H EVOH/PE laminate, Ansell Edmont Neoprene number 865, and Solvex Nitrile Rubber number 275 gloves which satisfy the dermal protection requirements of the SNUR.

Skin protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear protective clothing.

Respiratory protection:

In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory 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 odour
odor threshold:	Not defined
pH:	Not applicable
melting point/freezing point:	No data available
initial boiling point and boiling range:	No data available
flash point:	> 201.2deg.F
evaporation rate:	No data available
flammability (solid, gas):	Not applicable
vapor pressure:	No data available
vapor density:	No data available
specific gravity or relative density:	1.0-1.1
solubility in water:	Slightly soluble
partition coefficient: n-octanol/water:	No data available
auto-ignition temperature:	No data available
decomposition temperature:	No data available
volatile organic compounds (VOC) content:	No data available

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:

Stable under normal temperature.

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:

Morpholine, 4-(1-oxo-2-propenyl)

LD50（oral）: 588mg/kgbw, LD50 (dermal): >2000mg/kgbw, LD50 (Inhal.): no data available

2-Propenamide, N,N-dimethyl-

LD50（oral）: >215-<464mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

LD50（oral）: ca.1106mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

4-Methoxyphenol

LD50（oral）: no data available, LD50 (dermal): no data available, LD50 (Inhal.): no data available

Serious eye damage/eye irritation:

Causes serious eye damage.

- Morpholine, 4-(1-oxo-2-propenyl)
- 2-Propenamide, N,N-dimethyl-

Causes serious eye irritation.

- Hexamethylene Diacrylate
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
- 4-Methoxyphenol

Skin corrosion/irritation:

Causes skin irritation.

- Benzyl acrylate
- Hexamethylene Diacrylate
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

Respiratory or skin sensitisation:

May cause an allergic skin reaction.

- Benzyl acrylate
- Hexamethylene Diacrylate
- Morpholine, 4-(1-oxo-2-propenyl)
- 2-Propenoic acid, 2-phenoxyethyl ester
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
- Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate
- Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide
- 4-Methoxyphenol

Germ cell mutagenicity:

no data available.

Reproductive toxicity:

Suspected of damaging fertility or the unborn child.

- 2-Propenoic acid, 2-phenoxyethyl ester

Carcinogenicity:

This product contains Carbon black.
IARC evaluated printing ink as a Group 3.
(IARC Group 3: Not t classifiable as to carcinogenicity to humans)

Specific target organ toxicity - single exposure, (STOT-SE):

no data available.

Specific target organ toxicity - repeat exposure, (STOT-RE):

May cause damage to organs through prolonged or repeated exposure.

- Morpholine, 4-(1-oxo-2-propenyl)

Aspiration hazard:

no data available.

12. Ecological information

Ecotoxicity:

Very toxic to aquatic life.
- Benzyl acrylate

Very toxic to aquatic life with long lasting effects.
- Benzyl acrylate

Toxic to aquatic life with long lasting effects.
- 2-Propenoic acid, 2-phenoxyethyl ester
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
- Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate

May cause long lasting harmful effects to aquatic life.
- Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide

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 : Environmentall hazardous substance, liquid, n.o.s.

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
ADR/ADG/DOT, IMDG, or IATA : 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 regulated

15. Regulatory Information

Federal Regulations

Toxic Substance 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 §721.5185 and 9664. These SNURs designate specific requirements for protection in the workplace, hazard communication, releases to water and Recordkeeping.
This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

SARA Title III Rules

Section 313/312 Hazard Classes

- ☐ Explosive
- ☐ Flammable (gases, aerosols, liquids, or solids)
- ☐ Oxidizer (liquid, solid, or gas)
- ☐ Self-reactive
- ☐ Pyrophoric (liquid or solid)
- ☐ Pyrophoric Gas
- ☐ Self-heating
- ☐ Organic peroxide
- ☐ Corrosive to metal
- ☐ Gas under pressure (compressed gas)
- ☐ In contact with water emits flammable gas
- ☐ Combustible Dust
- ☐ Hazard not otherwise classified
- ☑ Acute toxicity (any route of exposure)
- ☑ Skin corrosion or irritation
- ☑ Serious eye damage or eye irritation
- ☑ Respiratory or skin sensitization
- ☐ Germ cell mutagenicity
- ☐ Carcinogenicity
- ☑ Reproductive toxicity
- ☑ Specific target organ toxicity (single or repeated exposure)
- ☐ Aspiration hazard
- ☐ Simple Asphyxiant
- ☐ Hazard not otherwise classified

Section 302 Extreamly Hazardous Substances (EHS)

None of the ingredients are listed.

Section 313 Toxic Chemicals

Glycol Ethers (N230)

CERCLA Hazardous Substances

Glycol Ethers (N230) RQ†

† - There is no RQ assigned to this broad class, although the class is a CERCLA hazardous substances. Refer to 50 Federal Register 13456 (April 4, 1985).

RCRA (Hazardous waste code)

None Assigned

State Regulations

California Propostion 65:

None of the ingredients are listed.

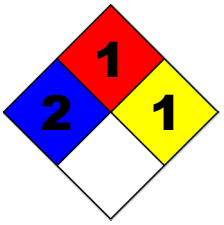
16. Other information

NFPA Rating (NFPA 704):

NFPA Health Hazard: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA Flammability: 1 - Must be preheated before ignition can occur.

NFPA Instability: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.



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, EUV5-WH

Use of the product: Inkjet Printing

Manufacturer:

Manufacture's name:	Roland DG Corporation
Address:	1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103
Phone:	+ 81-53-484-1224
FAX:	+ 81-53-484-1226

Importer/Supplier:

Supplier's name:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	+1-949-727-2100
FAX:	+1-949-727-2112
E-mail:	

Emergency telephone: +1-949-727-2100

Date of issue: Dec-8-2020

2. Hazard identification

2.1 Emergency Overview:

Appearance and odor: White Liquid and Characteristic odour

Classification according to GHS.

Acute toxicity (oral)	Category 4
Acute toxicity (dermal)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Sensitization (Skin)	Category 1A
Specific target organ toxicity (Repeated exposure)	Category 2
Hazardous to the aquatic environment (AcuteHazard)	Category 1
Hazardous to the aquatic environment (Chronic Hazard)	Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal Word: Danger

Hazard Statement:

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

Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary statements — 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.

Precautionary statements — 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 by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

2.3. Other hazards

Potential Health Effects:

Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic sensitization.
Inhalation:	Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
Ingestion:	May cause injury of mouth, throat, and stomach.
Chronic Health Hazards:	Repeated skin contact may cause a persistent irritation or dermatitis.
Carcinogenicity:	This product contains Titanium dioxide.IARC evaluated printing ink as a Group 3.(IARC Group 3: Not t classifiable as to carcinogenicity to humans)
Others:	No information.

See section 11 for more information.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/information on ingredients

Chenical nature: mixture

Composition	CAS No.	% By Weight	Classification (HCS) Hazard Communication Standard
Titanium dioxide	13463-67-7	10-20	Not classified as hazardous
Benzyl acrylate	2495-35-4	30-40	Skin Irrit. 2: H315 Skin Sens. 1B: H317 Aquatic Acute 1: H400 Aquatic Chronic 1: H410
Hexamethylene Diacrylate	13048-33-4	10-20	Skin Irrit. 2: H315 Skin Sens. 1: H317 Eye Irrit. 2: H319
Morpholine, 4-(1-oxo-2-propenyl)	5117-12-4	10-20	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Dam. 1: H318 STOT RE 2 : H373
2-Propenamide, N,N-dimethyl-	2680-03-7	10-20	Acute Tox. 3: H301 Acute Tox. 3: H311 Eye Damage 1: H318
2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester	7328-17-8	1-5	Acute Tox. 4: H302 Acute Tox. 3: H311 Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1A: H317 Aquatic Chronic 2: H411
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	84434-11-7	10-20	Skin Sens. 1B: H317 Aquatic Chronic 2: H411
4-Methoxyphenol	150-76-5	<1	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Irrit. 2: H319

4. First aid measures

4.1. First aid procedures

Eyes: In case of contact, immediately flush eyes with plenty of water for several 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. Firefighting measures

5.1. Flammable properties:

Incombustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: > 201.2deg.F

5.2. Extinguishing media

Suitable extinguishing media: Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.
Unsuitable extinguishing media: Water, High-pressure water jet

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

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

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus(SCBA).
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

Wipe off spillage. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Sweep up material and dispose as waste following local regulations.

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 vapers and dilute spill to a non-flamable 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.

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:
Titanium dioxide (CAS 13463-67-7):
[OSHA] PEL TWA: 15 mg/m3
[California Code of Regulations, Title 8] PEL: -- (Total dust)
-- (Respirable fraction) ppm (10 (Total dust)
4-Methoxyphenol (CAS 150-76-5):
[NIOSH] REL TWA: 5 mg/m3
OSHA PEL: none
[California Code of Regulations, Title 8] PEL: -- ppm (5mg/m3)

8.2. Engineering controls

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains the substance 2-propen-1-one, 1-(4-morpholinyl)- (CASRN 5117-12-4), which is regulated under a TSCA Significant New Use Rule (SNUR) codified at 40 C.F.R. § 721.5185.

Eye protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear safety glasses or chemical splash goggles.

Hand protection:

Employee must wear appropriate protective impervious gloves to prevent contact with the ink. Recommended impervious gloves are 4/4H EVOH/PE laminate, Ansell Edmont Neoprene number 865, and Solvex Nitrile Rubber number 275 gloves which satisfy the dermal protection requirements of the SNUR.

Skin protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear protective clothing.

Respiratory protection:

In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory 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 odour
odor threshold:	Not defined
pH:	Not applicable

melting point/freezing point:	No data available
initial boiling point and boiling range:	No data available
flash point:	> 201.2deg.F
evaporation rate:	No data available
flammability (solid, gas):	Not applicable
vapor pressure:	No data available
vapor density:	No data available
specific gravity or relative density:	1.1-1.2
solubility in water:	Slightly soluble
partition coefficient: n-octanol/water:	No data available
auto-ignition temperature:	No data available
decomposition temperature:	No data available
volatile organic compounds (VOC) content:	No data available

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:

Stable under normal temperature.

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:

Morpholine, 4-(1-oxo-2-propenyl)

LD50（oral）: 588mg/kgbw, LD50 (dermal): >2000mg/kgbw, LD50 (Inhal.): no data available

2-Propenamide, N,N-dimethyl-

LD50（oral）: >215-<464mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

LD50（oral）: ca.1106mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

4-Methoxyphenol

LD50（oral）: no data available, LD50 (dermal): no data available, LD50 (Inhal.): no data available

Serious eye damage/eye irritation:

Causes serious eye damage.

- Morpholine, 4-(1-oxo-2-propenyl)
- 2-Propenamide, N,N-dimethyl-

Causes serious eye irritation.

- Hexamethylene Diacrylate
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

• 4-Methoxyphenol

Skin corrosion/irritation:

Causes skin irritation.

- Benzyl acrylate
- Hexamethylene Diacrylate
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

Respiratory or skin sensitisation:

May cause an allergic skin reaction.

- Benzyl acrylate
- Hexamethylene Diacrylate
- Morpholine, 4-(1-oxo-2-propenyl)
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
- Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate
- 4-Methoxyphenol

Germ cell mutagenicity:

no data available.

Reproductive toxicity:

no data available.

Carcinogenicity:

This product contains Titanium dioxide.
IARC evaluated printing ink as a Group 3.
(IARC Group 3: Not t classifiable as to carcinogenicity to humans)

Specific target organ toxicity - single exposure, (STOT-SE):

no data available.

Specific target organ toxicity - repeat exposure, (STOT-RE):

May cause damage to organs through prolonged or repeated exposure.

- Morpholine, 4-(1-oxo-2-propenyl)

Aspiration hazard:

no data available.

12. Ecological information

Ecotoxicity:

Very toxic to aquatic life.

- Benzyl acrylate

Very toxic to aquatic life with long lasting effects.

- Benzyl acrylate

Toxic to aquatic life with long lasting effects.

- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
- Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate

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 : Environmentall hazardous substance, liquid, n.o.s.

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
ADR/ADG/DOT, IMDG, or IATA : 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 regulated

15. Regulatory Information

Federal Regulations

Toxic Substance Control Act (TSCA):

All components of this product are listed on the TSCA Inventory.
This product contains an ingredient that is regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR §721.5185. This SNUR designates specific requirements for protection in the workplace, hazard communication, releases to water and Recordkeeping.
This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

SARA Title III Rules

Section 313/312 Hazard Classes

- ☐ Explosive
- ☐ Flammable (gases, aerosols, liquids, or solids)
- ☐ Oxidizer (liquid, solid, or gas)
- ☐ Self-reactive
- ☑ Acute toxicity (any route of exposure)
- ☑ Skin corrosion or irritation
- ☑ Serious eye damage or eye irritation
- ☑ Respiratory or skin sensitization

☐ Pyrophoric (liquid or solid)
☐ Pyrophoric Gas
☐ Self-heating
☐ Organic peroxide
☐ Corrosive to metal
☐ Gas under pressure (compressed gas)
☐ In contact with water emits flammable gas
☐ Combustible Dust
☐ Hazard not otherwise classified

☐ Germ cell mutagenicity
☐ Carcinogenicity
☐ Reproductive toxicity
☑ Specific target organ toxicity (single or repeated exposure)
☐ Aspiration hazard
☐ Simple Asphyxiant
☐ Hazard not otherwise classified

Section 302 Extreamly Hazardous Substances (EHS)
None of the ingredients are listed.

Section 313 Toxic Chemicals
Glycol Ethers (N230)

CERCLA Hazardous Substances
Glycol Ethers (N230) RQ†

† - There is no RQ assigned to this broad class, although the class is a CERCLA hazardous substances. Refer to 50 Federal Register 13456 (April 4, 1985).

RCRA (Hazardous waste code)
None Assigned

State Regulations

California Propostion 65:
None of the ingredients are listed.

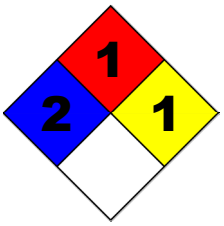
16. Other information

NFPA Rating (NFPA 704):

NFPA Health Hazard: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical

NFPA Flammability: 1 - Must be preheated before ignition can occur.

NFPA Instability: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.



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, EUV5-5GL

Use of the product: Inkjet Printing

Manufacturer:

Manufacture's name:	Roland DG Corporation
Address:	1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103
Phone:	+ 81-53-484-1224
FAX:	+ 81-53-484-1226

Importer/Supplier:

Supplier's name:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	+1-949-727-2100
FAX:	+1-949-727-2112
E-mail:	

Emergency telephone: +1-949-727-2100

Date of issue: Dec-8-2020

2. Hazard identification

2.1 Emergency Overview:

Appearance and odor: Clear Liquid and Characteristic odour

Classification according to GHS.

Acute toxicity (oral)	Category 4
Acute toxicity (dermal)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Sensitization (Skin)	Category 1A
Reproductive toxicity	Category 2
Specific target organ toxicity (Repeated exposure)	Category 2
Hazardous to the aquatic environment (AcuteHazard)	Category 1
Hazardous to the aquatic environment (Chronic Hazard)	Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal Word: Danger

Hazard Statement:

Harmful if swallowed.
Harmful in contact with skin.
Causes skin irritation.
Causes serious eye damage.
May cause an allergic skin reaction.

Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary statements — 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.

Precautionary statements — 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 by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

2.3. Other hazards

Potential Health Effects:

Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic 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)
Others:	No information.

See section 11 for more information.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/information on ingredients

Chenical nature: mixture

Composition	CAS No.	% By Weight	Classification (HCS) Hazard Communication Standard
Benzyl acrylate	2495-35-4	20-30	Skin Irrit. 2: H315 Skin Sens. 1B: H317 Aquatic Acute 1: H400 Aquatic Chronic 1: H410
Hexamethylene Diacrylate	13048-33-4	20-30	Skin Irrit. 2: H315 Skin Sens. 1: H317 Eye Irrit. 2: H319
Morpholine, 4-(1-oxo-2-propenyl)	5117-12-4	10-20	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Dam. 1: H318 STOT RE 2 : H373
2-Propenoic acid, 2-phenoxyethyl ester	48145-04-6	5-10	Skin Sens. 1A: H317 Repr. 2: H361 Aquatic Chronic 2: H411
2-Propenamide, N,N-dimethyl-	2680-03-7	5-10	Acute Tox. 3: H301 Acute Tox. 3: H311 Eye Damage 1: H318
2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester	7328-17-8	5-10	Acute Tox. 4: H302 Acute Tox. 3: H311 Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1A: H317 Aquatic Chronic 2: H411
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	84434-11-7	1-5	Skin Sens. 1B: H317 Aquatic Chronic 2: H411
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	162881-26-7	1-5	Skin Sens. 1A: H317 Aquatic Chronic 4: H413
4-Methoxyphenol	150-76-5	<1	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Irrit. 2: H319

4. First aid measures

4.1. First aid procedures

Eyes: In case of contact, immediately flush eyes with plenty of water for several 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. Firefighting measures

5.1. Flammable properties:

Incombustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: > 201.2deg.F

5.2. Extinguishing media

Suitable extinguishing media: Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.
Unsuitable extinguishing media: Water, High-pressure water jet

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

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

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus(SCBA).
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

Wipe off spillage. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Sweep up material and dispose as waste following local regulations.

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 vapers and dilute spill to a non-flamable 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.

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:
4-Methoxyphenol (CAS 150-76-5):
[NIOSH] REL TWA: 5 mg/m3
OSHA PEL: none
[California Code of Regulations, Title 8] PEL: -- ppm (5mg/m3)

8.2. Engineering controls

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains the substance 2-propen-1-one, 1-(4-morpholinyl)- (CASRN 5117-12-4), which is regulated under a TSCA Significant New Use Rule (SNUR) codified at 40 C.F.R. § 721.5185.

Eye protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear safety glasses or chemical splash goggles.

Hand protection:

Employee must wear appropriate protective impervious gloves to prevent contact with the ink. Recommended impervious gloves are 4/4H EVOH/PE laminate, Ansell Edmont Neoprene number 865, and Solvex Nitrile Rubber number 275 gloves which satisfy the dermal protection requirements of the SNUR.

Skin protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear protective clothing.

Respiratory protection:

In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory 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 odour
odor threshold:	Not defined
pH:	Not applicable

melting point/freezing point:	No data available
initial boiling point and boiling range:	No data available
flash point:	> 201.2deg.F
evaporation rate:	No data available
flammability (solid, gas):	Not applicable
vapor pressure:	No data available
vapor density:	No data available
specific gravity or relative density:	1.0-1.1
solubility in water:	Slightly soluble
partition coefficient: n-octanol/water:	No data available
auto-ignition temperature:	No data available
decomposition temperature:	No data available
volatile organic compounds (VOC) content:	No data available

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:

Stable under normal temperature.

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:

Morpholine, 4-(1-oxo-2-propenyl)

LD50（oral）: 588mg/kgbw, LD50 (dermal): >2000mg/kgbw, LD50 (Inhal.): no data available

2-Propenamide, N,N-dimethyl-

LD50（oral）: >215-<464mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

LD50（oral）: ca.1106mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

4-Methoxyphenol

LD50（oral）: no data available, LD50 (dermal): no data available, LD50 (Inhal.): no data available

Serious eye damage/eye irritation:

Causes serious eye damage.

- Morpholine, 4-(1-oxo-2-propenyl)
- 2-Propenamide, N,N-dimethyl-

Causes serious eye irritation.

- Hexamethylene Diacrylate
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

• 4-Methoxyphenol

Skin corrosion/irritation:

Causes skin irritation.

- Benzyl acrylate
- Hexamethylene Diacrylate
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester

Respiratory or skin sensitisation:

May cause an allergic skin reaction.

- Benzyl acrylate
- Hexamethylene Diacrylate
- Morpholine, 4-(1-oxo-2-propenyl)
- 2-Propenoic acid, 2-phenoxyethyl ester
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
- Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate
- Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide
- 4-Methoxyphenol

Germ cell mutagenicity:

no data available.

Reproductive toxicity:

Suspected of damaging fertility or the unborn child.

- 2-Propenoic acid, 2-phenoxyethyl ester

Carcinogenicity:

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

Specific target organ toxicity - single exposure, (STOT-SE):

no data available.

Specific target organ toxicity - repeat exposure, (STOT-RE):

May cause damage to organs through prolonged or repeated exposure.

- Morpholine, 4-(1-oxo-2-propenyl)

Aspiration hazard:

no data available.

12. Ecological information

Ecotoxicity:

Very toxic to aquatic life.

- Benzyl acrylate

Very toxic to aquatic life with long lasting effects.

- Benzyl acrylate

Toxic to aquatic life with long lasting effects.

- 2-Propenoic acid, 2-phenoxyethyl ester
- 2-Propenoic acid, 2-(2-ethoxyethoxy)ethyl ester
- Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate

May cause long lasting harmful effects to aquatic life.

- Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide

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 : Environmentall hazardous substance, liquid, n.o.s.

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
ADR/ADG/DOT, IMDG, or IATA : 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 regulated

15. Regulatory Information

Federal Regulations

Toxic Substance Control Act (TSCA):

All components of this product are listed on the TSCA Inventory.
This product contains an ingredient that is regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR §721.5185. This SNUR designates specific requirements for protection in the workplace, hazard communication, releases to water and Recordkeeping.
This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

SARA Title III Rules

Section 313/312 Hazard Classes

☐ Explosive
☐ Flammable (gases, aerosols, liquids, or solids)
☐ Oxidizer (liquid, solid, or gas)
☐ Self-reactive
☐ Pyrophoric (liquid or solid)
☐ Pyrophoric Gas
☐ Self-heating
☐ Organic peroxide
☐ Corrosive to metal
☐ Gas under pressure (compressed gas)
☐ In contact with water emits flammable gas
☐ Combustible Dust
☐ Hazard not otherwise classified

☑ Acute toxicity (any route of exposure)
☑ Skin corrosion or irritation
☑ Serious eye damage or eye irritation
☑ Respiratory or skin sensitization
☐ Germ cell mutagenicity
☐ Carcinogenicity
☑ Reproductive toxicity
☑ Specific target organ toxicity (single or repeated exposure)
☐ Aspiration hazard
☐ Simple Asphyxiant
☐ Hazard not otherwise classified

Section 302 Extreamly Hazardous Substances (EHS)
None of the ingredients are listed.

Section 313 Toxic Chemicals
Glycol Ethers (N230)

CERCLA Hazardous Substances
Glycol Ethers (N230) RQ†

† - There is no RQ assigned to this broad class, although the class is a CERCLA hazardous substances. Refer to 50 Federal Register 13456 (April 4, 1985).

RCRA (Hazardous waste code)
None Assigned

State Regulations

California Propostion 65:
None of the ingredients are listed.

16. Other information

NFPA Rating (NFPA 704):

NFPA Health Hazard: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.
NFPA Flammability: 1 - Must be preheated before ignition can occur.
NFPA Instability: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

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, EUV5-5PR

Use of the product: Inkjet Printing

Manufacturer:

Manufacture's name:	Roland DG Corporation
Address:	1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103
Phone:	+ 81-53-484-1224
FAX:	+ 81-53-484-1226

Importer/Supplier:

Supplier's name:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	+1-949-727-2100
FAX:	+1-949-727-2112
E-mail:	

Emergency telephone: +1-949-727-2100

Date of issue: Dec-8-2020

2. Hazard identification

2.1 Emergency Overview:

Appearance and odor: Clear Liquid and Characteristic odour

Classification according to GHS.

Acute toxicity (oral)	Category 4
Acute toxicity (dermal)	Category 5
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Sensitization (Skin)	Category 1A
Reproductive toxicity	Category 2
Specific target organ toxicity (Single exposure)	Category 3
Specific target organ toxicity (Repeated exposure)	Category 2
Hazardous to the aquatic environment (AcuteHazard)	Category 1
Hazardous to the aquatic environment (Chronic Hazard)	Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal Word: Danger

Hazard Statement:

Harmful if swallowed.
May be harmful in contact with skin
Causes skin irritation.
Causes serious eye damage.

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

Precautionary statements — 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.

Precautionary statements — 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 by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

2.3. Other hazards

Potential Health Effects:

Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic 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)
Others:	No information.

See section 11 for more information.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/information on ingredients

Chenical nature: mixture

Composition	CAS No.	% By Weight	Classification (HCS) Hazard Communication Standard
Benzyl acrylate	2495-35-4	30-40	Skin Irrit. 2: H315 Skin Sens. 1B: H317 Aquatic Acute 1: H400 Aquatic Chronic 1: H410
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	5888-33-5	20-30	Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT Single Exp. 3: H335 Aquatic Acute 1: H400 Aquatic Chronic 1: H410
Morpholine, 4-(1-oxo-2-propenyl)	5117-12-4	20-30	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Dam. 1: H318 STOT RE 2 : H373
2-Propenamide, N,N-dimethyl-	2680-03-7	5-10	Acute Tox. 3: H301 Acute Tox. 3: H311 Eye Damage 1: H318
2-Propenoic acid, 2-phenoxyethyl ester	48145-04-6	5-10	Skin Sens. 1A: H317 Repr. 2: H361 Aquatic Chronic 2: H411
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	84434-11-7	1-5	Skin Sens. 1B: H317 Aquatic Chronic 2: H411
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	162881-26-7	1-5	Skin Sens. 1A: H317 Aquatic Chronic 4: H413
Hexamethylene Diacrylate	13048-33-4	<1	Skin Irrit. 2: H315 Skin Sens. 1: H317 Eye Irrit. 2: H319
4-Methoxyphenol	150-76-5	<1	Acute Tox. 4 : H302 Skin Sens. 1: H317 Eye Irrit. 2: H319

4. First aid measures

4.1. First aid procedures

Eyes: In case of contact, immediately flush eyes with plenty of water for several 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. Firefighting measures

5.1. Flammable properties:

Incombustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: > 201.2deg.F

5.2. Extinguishing media

Suitable extinguishing media: Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.
Unsuitable extinguishing media: Water, High-pressure water jet

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

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

Protective equipment and precautions for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus(SCBA).
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

Wipe off spillage. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods for containment

Dike spilled product.

6.4. Methods for Clean-up

Sweep up material and dispose as waste following local regulations.

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 vapers and dilute spill to a non-flamable 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.

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:
4-Methoxyphenol (CAS 150-76-5):
[NIOSH] REL TWA: 5 mg/m3
OSHA PEL: none
[California Code of Regulations, Title 8] PEL: -- ppm (5mg/m3)

8.2. Engineering controls

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

This product contains the substance 2-propen-1-one, 1-(4-morpholinyl)- (CASRN 5117-12-4), which is regulated under a TSCA Significant New Use Rule (SNUR) codified at 40 C.F.R. § 721.5185.

Eye protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear safety glasses or chemical splash goggles.

Hand protection:

Employee must wear appropriate protective impervious gloves to prevent contact with the ink. Recommended impervious gloves are 4/4H EVOH/PE laminate, Ansell Edmont Neoprene number 865, and Solvex Nitrile Rubber number 275 gloves which satisfy the dermal protection requirements of the SNUR.

Skin protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, wear protective clothing.

Respiratory protection:

In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory 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 odour
odor threshold:	Not defined

pH:	Not applicable
melting point/freezing point:	No data available
initial boiling point and boiling range:	No data available
flash point:	> 201.2deg.F
evaporation rate:	No data available
flammability (solid, gas):	Not applicable
vapor pressure:	No data available
vapor density:	No data available
specific gravity or relative density:	1.0-1.1
solubility in water:	Slightly soluble
partition coefficient: n-octanol/water:	No data available
auto-ignition temperature:	No data available
decomposition temperature:	No data available
volatile organic compounds (VOC) content:	No data available

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:

Stable under normal temperature.

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:

Morpholine, 4-(1-oxo-2-propenyl)

LD50（oral）: 588mg/kgbw, LD50 (dermal): >2000mg/kgbw, LD50 (Inhal.): no data available

2-Propenamide, N,N-dimethyl-

LD50（oral）: >215-<464mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): no data available

4-Methoxyphenol

LD50（oral）: no data available, LD50 (dermal): no data available, LD50 (Inhal.): no data available

Serious eye damage/eye irritation:

Causes serious eye damage.

- Morpholine, 4-(1-oxo-2-propenyl)
- 2-Propenamide, N,N-dimethyl-

Causes serious eye irritation.

- Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
- Hexamethylene Diacrylate
- 4-Methoxyphenol

Skin corrosion/irritation:

Causes skin irritation.

- Benzyl acrylate
- Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
- Hexamethylene Diacrylate

Respiratory or skin sensitisation:

May cause an allergic skin reaction.

- Benzyl acrylate
- Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
- Morpholine, 4-(1-oxo-2-propenyl)
- 2-Propenoic acid, 2-phenoxyethyl ester
- Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate
- Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide
- Hexamethylene Diacrylate
- 4-Methoxyphenol

Germ cell mutagenicity:

no data available.

Reproductive toxicity:

Suspected of damaging fertility or the unborn child.

- 2-Propenoic acid, 2-phenoxyethyl ester

Carcinogenicity:

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

Specific target organ toxicity - single exposure, (STOT-SE):

no data available.

Specific target organ toxicity - repeat exposure, (STOT-RE):

May cause damage to organs through prolonged or repeated exposure.

- Morpholine, 4-(1-oxo-2-propenyl)

Aspiration hazard:

no data available.

12. Ecological information

Ecotoxicity:

Very toxic to aquatic life.

- Benzyl acrylate
- Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate

Very toxic to aquatic life with long lasting effects.

- Benzyl acrylate
- Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate

Toxic to aquatic life with long lasting effects.

- 2-Propenoic acid, 2-phenoxyethyl ester
- Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate

May cause long lasting harmful effects to aquatic life.

- Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide

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 : Environmentall hazardous substance, liquid, n.o.s.

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
ADR/ADG/DOT, IMDG, or IATA : 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 regulated

15. Regulatory Information

Federal Regulations

Toxic Substance Control Act (TSCA):

All components of this product are listed on the TSCA Inventory.
This product contains an ingredient that is regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR §721.5185. This SNUR designates specific requirements for protection in the workplace, hazard communication, releases to water and Recordkeeping.
This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.

SARA Title III Rules

Section 313/312 Hazard Classes

☐ Explosive
☐ Flammable (gases, aerosols, liquids, or solids)
☐ Oxidizer (liquid, solid, or gas)
☐ Self-reactive
☐ Pyrophoric (liquid or solid)
☐ Pyrophoric Gas
☐ Self-heating
☐ Organic peroxide
☐ Corrosive to metal
☐ Gas under pressure (compressed gas)
☐ In contact with water emits flammable gas
☐ Combustible Dust
☐ Hazard not otherwise classified

☑ Acute toxicity (any route of exposure)
☑ Skin corrosion or irritation
☑ Serious eye damage or eye irritation
☑ Respiratory or skin sensitization
☐ Germ cell mutagenicity
☐ Carcinogenicity
☑ Reproductive toxicity
☑ Specific target organ toxicity (single or repeated exposure)
☐ Aspiration hazard
☐ Simple Asphyxiant
☐ Hazard not otherwise classified

Section 302 Extreamly Hazardous Substances (EHS)
None of the ingredients are listed.

Section 313 Toxic Chemicals
Glycol Ethers (N230)

CERCLA Hazardous Substances
Glycol Ethers (N230) RQ†

† - There is no RQ assigned to this broad class, although the class is a CERCLA hazardous substances. Refer to 50 Federal Register 13456 (April 4, 1985).

RCRA (Hazardous waste code)
None Assigned

State Regulations

California Propostion 65:
None of the ingredients are listed.

16. Other information

NFPA Rating (NFPA 704):

NFPA Health Hazard: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.
NFPA Flammability: 1 - Must be preheated before ignition can occur.
NFPA Instability: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

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.