1. Product and Company Identification

**Product name:** ECO-UV, EUV-CY Ver.2

**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:** Apr-24-2019

2. Hazard Identification

2.1 Emergency Overview:

**Appearance and odor:** Cyan Liquid and Characteristic odour

**Classification according to GHS.**
- Flammable liquids: Category 4
- Acute toxicity (oral): Category 4
- Acute toxicity (dermal): Category 4
- Acute toxicity (inhalation): Category 4
- Skin corrosion/irritation: Category 1C
- Serious eye damage/eye irritation: Category 1
- Sensitization (Skin): Category 1B
- Reproductive toxicity: Category 1B
- Specific target organ toxicity (Repeated exposure): Category 1
- Hazardous to the aquatic environment (Acute Hazard): Category 1
- Hazardous to the aquatic environment (Chronic Hazard): Category 1

**GHS label elements, including precautionary statements**

**Pictogram(s):**

**Signal word:** Danger

**Hazard Statement(s):**
- Combustible liquid.
- Harmful if swallowed.
- Harmful in contact with skin.
- Harmful if inhaled.
Causes severe skin burns and eye damage.
Causes serious eye damage.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

**Precautionary Statement(s):**

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

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

**2.2. OSHA regulatory status**

This product is considered hazardous 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

**Chemical nature:** mixture

<table>
<thead>
<tr>
<th>Composition</th>
<th>CAS No.</th>
<th>% By Weight</th>
<th>Classification (HCS)</th>
<th>Hazard Communication Standard</th>
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<td>Hexamethylene diacrylate</td>
<td>13048-33-4</td>
<td>20-30</td>
<td>Skin Irrit. 2: H315</td>
<td>Skin Sens. 1: H317 Eye Irrit. 2: H319</td>
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<tr>
<td>exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate</td>
<td>5888-33-5</td>
<td>5-10</td>
<td>Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1B: H317 STOT Single Exp. 3: H335 Aquatic Acute 1: H400 Aquatic Chronic 1: H410</td>
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</tr>
<tr>
<td>Benzyl acrylate</td>
<td>2495-35-4</td>
<td>10-20</td>
<td>Skin Irrit. 2: H315 Skin Sens. 1B: H317 Aquatic Acute 1: H400 Aquatic Chronic 1: H410</td>
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<td>Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide</td>
<td>75980-60-8</td>
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<td>Other polymerization initiator</td>
<td>C.B.I.</td>
<td>1-5</td>
<td>Not classified as hazardous</td>
<td></td>
</tr>
</tbody>
</table>

† C.B.I.: Confidential Business Information

### 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:
Flash Point: >158°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 vapors and dilute spill to a non-flammable 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: Not available.

8.2. Engineering controls
Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

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 Chemical Protective Gloves are ethylene vinyl alcohol (EVA) Gloves and Laminate gloves. Laminate gloves are made by cutting and then heat-sealing patterns of various hand sizes from laminated sheets of EVA sealed between layers of polyethylene.

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>appearance</td>
<td>Cyan Liquid</td>
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<tr>
<td>odor</td>
<td>Characteristic odour</td>
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<tr>
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<tr>
<td>vapor density</td>
<td>&gt;1</td>
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</tbody>
</table>
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:
2-Methoxyethyl acrylate (of one component of this product)
  LD50 (Oral) 404 mg/kg
  LD50 (Dermal) 252.5 mg/kg
  LC50 (Inhalation) 2.7 mg/L

1-vinylhexahydro-2H-azepin-2-one (of one component of this product)
  LD50 (Oral) 1114 mg/kg
  LD50 (Dermal) 1700 mg/kg

Serious eye damage/eye irritation:
Causes serious eye damage.
  • 2-Methoxyethyl acrylate
Causes serious eye irritation.
  • Hexamethylene diacrylate
  • exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
  • 1-vinylhexahydro-2H-azepin-2-one

Skin corrosion/irritation:
Causes severe skin burns and eye damage.
  • 2-Methoxyethyl acrylate
Causes skin irritation.
  • Hexamethylene diacrylate
  • exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate

specific gravity or relative density: No data available
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: 16 grams/liter
• Benzyl acrylate

**Respiratory or skin sensitisation:**
May cause an allergic skin reaction.
• Hexamethylene diacrylate
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate
• 2-Methoxyethyl acrylate
• 1-vinylhexahydro-2H-azepin-2-one

**Germ cell mutagenicity:**
no data available.

**Reproductive toxicity:**
May damage fertility or the unborn child.
• 2-Methoxyethyl acrylate
Suspected of damaging fertility or the unborn child.
• Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

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

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

**Specific target organ toxicity - repeat exposure, (STOT-RE):**
Causes damage to organs through prolonged or repeated exposure.
• 1-vinylhexahydro-2H-azepin-2-one
May cause damage to organs through prolonged or repeated exposure.
• 2-Methoxyethyl acrylate

**Aspiration hazard:**
no data available.

### 12. Ecological information

**Ecotoxicity:**
Very toxic to aquatic life.
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate

Very toxic to aquatic life with long lasting effects.
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate

Harmful to aquatic life with long lasting effects.
• 2-Methoxyethyl acrylate

**Persistence/Degradability:**
No data available

**Bioaccumulation/Accumulation:**
No data available

**Mobility in environment media:**
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: 1760

14.2 UN proper shipping name
ADR/ADG/DOT, IMDG, or IATA: Corrosive liquid, n.o.s. (2-Methoxyethyl acrylate)

14.3 Transport hazard class(es)
ADR/ADG/DOT, IMDG, or IATA: 8

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 40 CFR §721.9664 that is regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR §721.9664. The SNUR designates specific requirements for 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

Other adverse effects:
No data available
☐ Pyrophoric (liquid or solid) ☐ Pyrophoric Gas
☐ Self-heating ☐ Germ cell mutagenicity
☐ Organic peroxide ☐ Carcinogenicity
☐ Corrosive to metal ☑ Reproductive toxicity
☐ Gas under pressure (compressed gas) ☐ Specific target organ toxicity (single or repeated exposure)
☐ In contact with water emits flammable gas ☐ Aspiration hazard
☐ Combustible Dust ☐ Simple Asphyxiant
☐ Hazard not otherwise classified ☐ Hazard not otherwise classified

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

Section 313 Toxic Chemicals
2-Methoxyethyl acrylate (CASRN 3121-61-7) 20 - 24 wt%

CERCLA Hazardous Substances
2-Methoxyethyl acrylate (CASRN 3121-61-7) (Listed under 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 Proposition 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: 2 - Must be moderately heated or exposed to relatively high temperature 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.
2. Hazard identification

2.1 Emergency Overview:

**Classification according to GHS.**

- Flammable liquids: Category 4
- Acute toxicity (oral): Category 4
- Acute toxicity (dermal): Category 4
- Acute toxicity (inhalation): Category 4
- Skin corrosion/irritation: Category 1C
- Serious eye damage/eye irritation: Category 1
- Sensitization (Skin): Category 1B
- Reproductive toxicity: Category 1B
- Specific target organ toxicity (Repeated exposure): Category 1
- Hazardous to the aquatic environment (Acute Hazard): Category 1
- Hazardous to the aquatic environment (Chronic Hazard): Category 1

**GHS label elements, including precautionary statements**

- **Pictogram(s):**

- **Signal word:** Danger

- **Hazard Statement(s):**
  - Combustible liquid.
  - Harmful if swallowed.
  - Harmful in contact with skin.
  - Harmful if inhaled.
Causes severe skin burns and eye damage.
Causes serious eye damage.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s):
- Prevention
  - Do not handle until all safety precautions have been read and understood.
  - Do not breathe dust/fume/gas/mist/vapours/spray.
  - Avoid release to the environment.
  - Wear protective gloves/protective clothing/eye protection/face protection.
- Response
  - IF ON SKIN: Wash with plenty of soap and water.
  - IF exposed or concerned: Get medical advice/attention.

2.2. OSHA regulatory status
This product is considered hazardous 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

Chemical nature: mixture

<table>
<thead>
<tr>
<th>Composition</th>
<th>CAS No.</th>
<th>% By Weight</th>
<th>Classification (HCS)</th>
<th>Hazard Communication Standard</th>
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<tbody>
<tr>
<td>Hexamethylene diacrylate</td>
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<td>5–10</td>
<td>Skin Irrit. 2: H315</td>
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<td>Eye Irrit. 2: H319</td>
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† C.B.I.: Confidential Business Information

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:
Flash Point: >158°F

5.2. Extinguishing media
Suitable extinguishing media: Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.
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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 vapors and dilute spill to a non-flammable 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: Not available.

8.2. Engineering controls
Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

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 Chemical Protective Gloves are ethylene vinyl alcohol (EVA) Gloves and Laminate gloves. Laminate gloves are made by cutting and then heat-sealing patterns of various hand sizes from laminated sheets of EVA sealed between layers of polyethylene.

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>appearance:</td>
<td>Magenta Liquid</td>
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<tr>
<td>odor:</td>
<td>Characteristic odour</td>
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<tr>
<td>odor threshold:</td>
<td>No data available</td>
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<td>pH:</td>
<td>Not applicable</td>
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<td>melting point/freezing point:</td>
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<td>initial boiling point and boiling range:</td>
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<td>flash point:</td>
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<td>evaporation rate:</td>
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<td>vapor density:</td>
<td>&gt;1</td>
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<tr>
<td>specific gravity or relative density:</td>
<td>No data available</td>
</tr>
</tbody>
</table>
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:
2-Methoxyethyl acrylate (of one component of this product)
LD50 (Oral) 404 mg/kg
LD50 (Dermal) 252.5 mg/kg
LC50 (Inhalation) 2.7 mg/L

1-vinylhexahydro-2H-azepin-2-one (of one component of this product)
LD50 (Oral) 1114 mg/kg
LD50 (Dermal) 1700 mg/kg

Serious eye damage/eye irritation:
Causes serious eye damage.
- 2-Methoxyethyl acrylate

Causes serious eye irritation.
- Hexamethylene diacrylate
- exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
- 1-vinylhexahydro-2H-azepin-2-one

Skin corrosion/irritation:
Causes severe skin burns and eye damage.
- 2-Methoxyethyl acrylate

Causes skin irritation.
- Hexamethylene diacrylate
- exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
- Benzyl acrylate
Respiratory or skin sensitisation:
May cause an allergic skin reaction.
• Hexamethylene diacrylate
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate
• 2-Methoxyethyl acrylate
• 1-vinylhexahydro-2H-azepin-2-one

Germ cell mutagenicity:
no data available.

Reproductive toxicity:
May damage fertility or the unborn child.
• 2-Methoxyethyl acrylate
Suspected of damaging fertility or the unborn child.
• Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

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

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

Specific target organ toxicity - repeat exposure, (STOT-RE):
Causes damage to organs through prolonged or repeated exposure.
• 1-vinylhexahydro-2H-azepin-2-one
May cause damage to organs through prolonged or repeated exposure.
• 2-Methoxyethyl acrylate

Aspiration hazard:
no data available.

12. Ecological information

Ecotoxicity:
Very toxic to aquatic life.
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate
Very toxic to aquatic life with long lasting effects.
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate
Harmful to aquatic life with long lasting effects.
• 2-Methoxyethyl acrylate

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: 1760

14.2 UN proper shipping name
ADR/ADG/DOT, IMDG, or IATA: Corrosive liquid, n.o.s.
(2-Methoxyethyl acrylate)

14.3 Transport hazard class(es)
ADR/ADG/DOT, IMDG, or IATA: 8

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 40 CFR §721.9664 that is regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR §721.9664. The SNUR designates specific requirements for 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 ☑ Acute toxicity (any route of exposure)
☑ Flammable (gases, aerosols, liquids, or solids) ☑ Skin corrosion or irritation
☐ Oxidizer (liquid, solid, or gas) ☑ Serious eye damage or eye irritation
☐ Self-reactive ☑ Respiratory or skin sensitization
☐ Pyrophoric (liquid or solid) ☐ Germ cell mutagenicity
☐ Pyrophoric Gas  ☑ Carcinogenicity
☐ Self-heating  ☑ Reproductive toxicity
☐ Organic peroxide  ☑ Specific target organ toxicity (single or repeated exposure)
☐ Corrosive to metal  ☐ Aspiration hazard
☐ Gas under pressure (compressed gas)  ☐ Simple Asphyxiant
☐ In contact with water emits flammable gas  ☐ Hazard not otherwise classified
☐ Combustible Dust
☐ Hazard not otherwise classified

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

Section 313 Toxic Chemicals
2-Methoxyethyl acrylate (CASRN 3121-61-7) 20.0 - 24.0 wt%

CERCLA Hazardous Substances
2-Methoxyethyl acrylate (CASRN 3121-61-7) (Listed under 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 Proposition 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: 2 - Must be moderately heated or exposed to relatively high temperature 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.
1. Product and Company Identification

Product name: ECO-UV, EUV-YE Ver.2

Use of the product: Inkjet Printing

Manufacturer:
- Manufacturer'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: Apr-24-2019

2. Hazard identification

2.1 Emergency Overview:

Appearance and odor: Yellow Liquid and Characteristic odour

Classification according to GHS.
- Flammable liquids: Category 4
- Acute toxicity (oral): Category 4
- Acute toxicity (dermal): Category 4
- Acute toxicity (inhalation): Category 4
- Skin corrosion/irritation: Category 1C
- Serious eye damage/eye irritation: Category 1
- Sensitization (Skin): Category 1B
- Reproductive toxicity: Category 1B
- Specific target organ toxicity (Repeated exposure): Category 1
- Hazardous to the aquatic environment (Acute Hazard): Category 1
- Hazardous to the aquatic environment (Chronic Hazard): Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal word: Danger

Hazard Statement(s):
- Combustible liquid.
- Harmful if swallowed.
- Harmful in contact with skin.
- Harmful if inhaled.
Causes severe skin burns and eye damage.
Causes serious eye damage.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s):
Prevention
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapours/spray.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
Response
IF ON SKIN: Wash with plenty of soap and water.
IF exposed or concerned: Get medical advice/attention.

2.2. OSHA regulatory status
This product is considered hazardous 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 Nickel compounds. IARC evaluated printing ink as a Group 3 (Not 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

Chemical nature: mixture

<table>
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<th>Composition</th>
<th>CAS No.</th>
<th>% By Weight</th>
<th>Classification (HCS) / Hazard Communication Standard</th>
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<td>Hexamethylene diacrylate</td>
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<td>Skin Irrit. 2: H315</td>
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<td>Eye Irrit. 2: H319</td>
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<td>2-Methoxyethyl acrylate</td>
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<td>Flam. Liquid 3: H226</td>
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<td>Aquatic Acute 1: H400</td>
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<td>Other polymerization initiator</td>
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<td>Not classified as hazardous</td>
</tr>
</tbody>
</table>

† C.B.I.: Confidential Business Information

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
5. Firefighting measures

5.1. Flammable properties:
Flash Point: >158°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 vapors and dilute spill to a non-flammable 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:

- Pigment Yellow 150 (CAS 68511-62-6):
  - [NIOSH] REL TWA: 0.015 mg/m³
  - [OSHA] PEL TWA: 1 mg/m³
  - [California Code of Regulations, Title 8] PEL: -- ppm (0.1mg/m³)

8.2. Engineering controls
Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)
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 Chemical Protective Gloves are ethylene vinyl alcohol (EVA) Gloves and Laminate gloves.
- Laminate gloves are made by cutting and then heat-sealing patterns of various hand sizes from laminated sheets of EVA sealed between layers of polyethylene.

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Yellow Liquid</td>
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<tr>
<td>Odor</td>
<td>Characteristic odour</td>
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<td>Odor threshold</td>
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<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
</tbody>
</table>
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:
2-Methoxyethyl acrylate (of one component of this product)
LD50 (Oral) 404 mg/kg
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LC50 (Inhalation) 2.7 mg/L

1-vinylhexahydro-2H-azepin-2-one (of one component of this product)
LD50 (Oral) 1114 mg/kg
LD50 (Dermal) 1700 mg/kg

Serious eye damage/eye irritation:
Causes serious eye damage.
• 2-Methoxyethyl acrylate
Causes serious eye irritation.
• Hexamethylene diacrylate
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• 1-vinylhexahydro-2H-azepin-2-one

Skin corrosion/irritation:
Causes severe skin burns and eye damage.
  • 2-Methoxyethyl acrylate

Causes skin irritation.
  • Hexamethylene diacylate
  • exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
  • Benzyl acrylate

Respiratory or skin sensitisation:
May cause an allergic skin reaction.
  • Hexamethylene diacylate
  • exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
  • Benzyl acrylate
  • 2-Methoxyethyl acrylate
  • 1-vinylhexahydro-2H-azepin-2-one

Germ cell mutagenicity:
no data available.

Reproductive toxicity:
May damage fertility or the unborn child.
  • 2-Methoxyethyl acrylate
Suspected of damaging fertility or the unborn child.
  • Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

Carcinogenicity:
This product contains Nickel compounds. IARC evaluated printing ink as a Group 3 (Not 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):
Causes damage to organs through prolonged or repeated exposure.
  • 1-vinylhexahydro-2H-azepin-2-one
May cause damage to organs through prolonged or repeated exposure.
  • 2-Methoxyethyl acrylate

Aspiration hazard:
no data available.

12. Ecological information

Ecotoxicity:
Very toxic to aquatic life.
  • exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
  • Benzyl acrylate
Very toxic to aquatic life with long lasting effects.
  • exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
  • Benzyl acrylate
Harmful to aquatic life with long lasting effects.
  • 2-Methoxyethyl acrylate

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: 1760

#### 14.2 UN proper shipping name
ADR/ADG/DOT, IMDG, or IATA: Corrosive liquid, n.o.s.
(2-Methoxyethyl acrylate)

#### 14.3 Transport hazard class(es)
ADR/ADG/DOT, IMDG, or IATA: 8

#### 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 40 CFR §721.9664 that is regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR §721.9664. These two SNURs designate specific requirements for releases to water and Recordkeeping.
This product is subject to TSCA export notification requirements prescribed 40 CFR 707.60.
S A R A T i t l e I I I R u l e s

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
☐ 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 Extremely Hazardous Substances (EHS)
None of the ingredients are listed.

Section 313 Toxic Chemicals
2-Methoxyethyl acrylate (CASRN 3121-61-7)  20.0 - 24.0 wt%

CERCLA Hazardous Substances
2-Methoxyethyl acrylate (CASRN 3121-61-7) (Listed under 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 Proposition 65:

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

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:  2 - Must be moderately heated or exposed to relatively high temperature 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...
1. Product and Company Identification

Product name: ECO-UV, EUV-BK Ver.2

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

Emergency telephone: +1-949-727-2100

Date of issue: Apr-24-2019

2. Hazard identification

2.1 Emergency Overview:

Classification according to GHS.
- Flameable liquids: Category 4
- Acute toxicity (oral): Category 4
- Acute toxicity (dermal): Category 4
- Acute toxicity (inhalation): Category 4
- Skin corrosion/irritation: Category 1C
- Serious eye damage/eye irritation: Category 1
- Sensitization (Skin): Category 1B
- Reproductive toxicity: Category 1B
- Specific target organ toxicity (Repeated exposure): Category 1
- Hazardous to the aquatic environment (Acute Hazard): Category 1
- Hazardous to the aquatic environment (Chronic Hazard): Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal word: Danger

Hazard Statement(s):
- Combustible liquid.
- Harmful if swallowed.
- Harmful in contact with skin.
- Harmful if inhaled.
Causes severe skin burns and eye damage.
Causes serious eye damage.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s):

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

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

2.2. OSHA regulatory status
This product is considered hazardous 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 (Not 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

Chemical nature: mixture

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<th>Composition</th>
<th>CAS No.</th>
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<th>Classification (HCS) Hazard Communication Standard</th>
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</table>

† C.B.I.: Confidential Business Information

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
5. Firefighting measures

5.1. Flammable properties:
- Flash Point: 158°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

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 vapors and dilute spill to a non-flammable 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)

8.2. Engineering controls
Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)
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 Chemical Protective Gloves are ethylene vinyl alcohol (EVA) Gloves and Laminate gloves. Laminate gloves are made by cutting and then heat-sealing patterns of various hand sizes from laminated sheets of EVA sealed between layers of polyethylene.

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: No data available
pH: Not applicable
melting point/freezing point: 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:
2-Methoxyethyl acrylate (of one component of this product)
LD50 (Oral) 404 mg/kg
LD50 (Dermal) 252.5 mg/kg
LC50 (Inhalation) 2.7 mg/L

1-vinylhexahydro-2H-azepin-2-one (of one component of this product)
LD50 (Oral) 1114 mg/kg
LD50 (Dermal) 1700 mg/kg

Serious eye damage/eye irritation:
Causes serious eye damage.
• 2-Methoxyethyl acrylate
Causes serious eye irritation.
• Hexamethylene diacrylate
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• 1-vinylhexahydro-2H-azepin-2-one
Skin corrosion/irritation:
Causes severe skin burns and eye damage.
• 2-Methoxyethyl acrylate
Causes skin irritation.
• Hexamethylene diacrylate
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate

Respiratory or skin sensitisation:
May cause an allergic skin reaction.
• Hexamethylene diacrylate
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate
• 2-Methoxyethyl acrylate
• 1-vinylhexahydro-2H-azepin-2-one

Germ cell mutagenicity:
no data available.

Reproductive toxicity:
May damage fertility or the unborn child.
• 2-Methoxyethyl acrylate
Suspected of damaging fertility or the unborn child.
• Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

Carcinogenicity:
This product contains Carbon black. IARC evaluated printing ink as a Group 3 (Not 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):
Causes damage to organs through prolonged or repeated exposure.
• 1-vinylhexahydro-2H-azepin-2-one
May cause damage to organs through prolonged or repeated exposure.
• 2-Methoxyethyl acrylate

Aspiration hazard:
no data available.

12. Ecological information

Ecotoxicity:
Very toxic to aquatic life.
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate
Very toxic to aquatic life with long lasting effects.
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate
Harmful to aquatic life with long lasting effects.
• 2-Methoxyethyl acrylate

Very toxic to aquatic life.
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate

Very toxic to aquatic life with long lasting effects.
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate

Harmful to aquatic life with long lasting effects.
• 2-Methoxyethyl acrylate

Very toxic to aquatic life.
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate

Very toxic to aquatic life with long lasting effects.
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate

Harmful to aquatic life with long lasting effects.
• 2-Methoxyethyl acrylate
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: 1760

14.2 UN proper shipping name
ADR/ADG/DOT, IMDG, or IATA: Corrosive liquid, n.o.s. (2-Methoxyethyl acrylate)

14.3 Transport hazard class(es)
ADR/ADG/DOT, IMDG, or IATA: 8

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 40 CFR §721.9664 that is regulated under the TSCA Significant New Use Rules (SNURs) prescribed 40 CFR §721.9664. The SNUR designates specific requirements for 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 Extremely Hazardous Substances (EHS)

None of the ingredients are listed.

Section 313 Toxic Chemicals

2-Methoxyethyl acrylate (CASRN 3121-61-7) 20.0 - 24.0 wt%

CERCLA Hazardous Substances

2-Methoxyethyl acrylate (CASRN 3121-61-7) (Listed under 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 Proposition 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: 2 - Must be moderately heated or exposed to relatively high temperature 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
1. Product and Company Identification

Product name: ECO-UV, EUV-WH Ver.2

Use of the product: Inkjet Printing

Manufacturer:
- Manufacturer's name: Roland DG Corporation
- Address: 1-6-4 Shinmiyakodai, 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: Apr-24-2019

2. Hazard identification

2.1 Emergency Overview:

Appearance and odor: White Liquid and Characteristic odour

Classification according to GHS:
- Flammable liquids: Category 4
- Acute toxicity (oral): Category 5
- Acute toxicity (dermal): Category 4
- Acute toxicity (inhalation): Category 4
- Skin corrosion/irritation: Category 1C
- Serious eye damage/eye irritation: Category 1
- Sensitization (Skin): Category 1B
- Reproductive toxicity: Category 1B
- Specific target organ toxicity (Repeated exposure): Category 2
- Hazardous to the aquatic environment (Acute Hazard): Category 1
- Hazardous to the aquatic environment (Chronic Hazard): Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal word: Danger

Hazard Statement(s):
- Combustible liquid.
- May be harmful if swallowed.
- Harmful in contact with skin.
- Harmful if inhaled.
Causes severe skin burns and eye damage.
Causes serious eye damage.
May cause an allergic skin reaction.
May damage 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 Statement(s):

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

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

2.2. OSHA regulatory status
This product is considered hazardous 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 Titanium dioxide. IARC evaluated printing ink as a Group 3 (Not 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

<table>
<thead>
<tr>
<th>Chemical nature: mixture</th>
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<td>Hexamethylene diacrylate</td>
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<tr>
<td></td>
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<tr>
<td>2-Methoxyethyl acrylate</td>
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<tr>
<td>exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate</td>
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<td></td>
</tr>
<tr>
<td>Benzyl acrylate</td>
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<tr>
<td></td>
</tr>
<tr>
<td>Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide</td>
</tr>
</tbody>
</table>

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:

- Flash Point: 158°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 vapors and dilute spill to a non-flammable 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: -- ppm (10 mg/m³)

8.2. Engineering controls

Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

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 Chemical Protective Gloves are ethylene vinyl alcohol (EVA) Gloves and Laminate gloves.
- Laminate gloves are made by cutting and then heat-sealing patterns of various hand sizes from laminated sheets of EVA sealed between layers of polyethylene.

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
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<td>Characteristic odour</td>
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<td>Odor threshold</td>
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<tr>
<td>pH</td>
<td>Not applicable</td>
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<tr>
<td>Melting point/freezing point</td>
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<tr>
<td>Initial boiling point and boiling range</td>
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<tr>
<td>Evaporation rate</td>
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<td>Flammability (solid, gas)</td>
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</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
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</tr>
</tbody>
</table>
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:
2-Methoxyethyl acrylate (of one component of this product)
   LD50 (Oral) 404 mg/kg
   LD50 (Dermal) 252.5 mg/kg
   LC50 (Inhalation) 2.7 mg/L

Serious eye damage/eye irritation:
Causes serious eye damage.
   • 2-Methoxyethyl acrylate
Causes serious eye irritation.
   • Hexamethylene diacrylate
   • exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate

Skin corrosion/irritation:
Causes severe skin burns and eye damage.
   • 2-Methoxyethyl acrylate
Causes skin irritation.
   • Hexamethylene diacrylate
   • exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
   • Benzyl acrylate

Respiratory or skin sensitisation:
May cause an allergic skin reaction.
   • Hexamethylene diacrylate
   • exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
   • Benzyl acrylate
   • 2-Methoxyethyl acrylate

auto-ignition temperature: No data available
decomposition temperature: No data available
volatile organic compounds (VOC) content: 16 grams/liter
Germ cell mutagenicity:
no data available.

Reproductive toxicity:
May damage fertility or the unborn child.
• 2-Methoxyethyl acrylate
Suspected of damaging fertility or the unborn child.
• Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

Carcinogenicity:
This product contains Titanium dioxide. IARC evaluated printing ink as a Group 3 (Not 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.
• 2-Methoxyethyl acrylate

Aspiration hazard:
no data available.

12. Ecological information

Ecotoxicity:
Very toxic to aquatic life.
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate
Very toxic to aquatic life with long lasting effects.
• exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate
• Benzyl acrylate
Harmful to aquatic life with long lasting effects.
• 2-Methoxyethyl acrylate

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: 1760

14.2 UN proper shipping name
ADR/ADG/DOT, IMDG, or IATA: Corrosive liquid, n.o.s.
(2-Methoxyethyl acrylate)

14.3 Transport hazard class(es)
ADR/ADG/DOT, IMDG, or IATA: 8

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.

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 Extremely Hazardous Substances (EHS)
None of the ingredients are listed.

Section 313 Toxic Chemicals
2-Methoxyethyl acrylate (CASRN 3121-61-7) 20.0 - 24.0 wt%

CERCLA Hazardous Substances
2-Methoxyethyl acrylate (CASRN 3121-61-7) (Listed under 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 Proposition 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: 2 - Must be moderately heated or exposed to relatively high temperature 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.
1. Product and Company Identification

Product name: ECO-UV, EUV-GL Ver.2

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: Apr-24-2019

2. Hazard identification

2.1 Emergency Overview:

Appearance and odor: Clear Liquid and Characteristic odour

Classification according to GHS:
- Flammable liquids: Category 4
- Acute toxicity (oral): Category 4
- Acute toxicity (dermal): Category 4
- Acute toxicity (inhalation): Category 4
- Skin corrosion/irritation: Category 1C
- Serious eye damage/eye irritation: Category 1
- Sensitization (Skin): Category 1B
- Reproductive toxicity: Category 1B
- Specific target organ toxicity (Repeated exposure): Category 1
- Hazardous to the aquatic environment (Acute Hazard): Category 1
- Hazardous to the aquatic environment (Chronic Hazard): Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal word: Danger

Hazard Statement(s):
- Combustible liquid.
- Harmful if swallowed.
- Harmful in contact with skin.
- Harmful if inhaled.
Causes severe skin burns and eye damage.  
Causes serious eye damage.  
May cause an allergic skin reaction. 
May damage fertility or the unborn child. 
Causes damage to organs through prolonged or repeated exposure. 
Very toxic to aquatic life. 
Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s):

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

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

### 2.2. OSHA regulatory status

This product is considered hazardous 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

Chemical nature: mixture

<table>
<thead>
<tr>
<th>Composition</th>
<th>CAS No.</th>
<th>% By Weight</th>
<th>Classification (HCS) Hazard Communication Standard</th>
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<tr>
<td>Hexamethylene diacylate</td>
<td>13048-33-4</td>
<td>20-30</td>
<td>Skin Irrit. 2: H315</td>
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<td></td>
<td></td>
<td>Skin Sens. 1: H317</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>2-Methoxyethyl acrylate</td>
<td>3121-61-7</td>
<td>20-24</td>
<td>Flam. Liquid 3: H226</td>
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<td>Acute Tox. 4: H302</td>
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<td>75980-60-8</td>
<td>5-10</td>
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</tbody>
</table>

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:


Flash Point: 158°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 vapors and dilute spill to a non-flammable 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: Not available.
8.2. Engineering controls
Provide general and/or local exhaust ventilation.

8.3. Personal protective equipment (PPE)

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 Chemical Protective Gloves are ethylene vinyl alcohol (EVA) Gloves and Laminate gloves. Laminate gloves are made by cutting and then heat-sealing patterns of various hand sizes from laminated sheets of EVA sealed between layers of polyethylene.

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>appearance:</td>
<td>Clear Liquid</td>
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<td>odor:</td>
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</tr>
<tr>
<td>volatile organic compounds (VOC) content:</td>
<td>36 grams/liter</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Substance</th>
<th>LD50 (Oral)</th>
<th>LD50 (Dermal)</th>
<th>LC50 (Inhalation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methoxyethyl acrylate (of one component of this product)</td>
<td>404 mg/kg</td>
<td>252.5 mg/kg</td>
<td>2.7 mg/L</td>
</tr>
<tr>
<td>1-vinylhexahydro-2H-azepin-2-one (of one component of this product)</td>
<td>1114 mg/kg</td>
<td>1700 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

Serious eye damage/eye irritation:
Causes serious eye damage.
- 2-Methoxyethyl acrylate
Causes serious eye irritation.
- Hexamethylene diacrylate
- 1-vinylhexahydro-2H-azepin-2-one

Skin corrosion/irritation:
Causes severe skin burns and eye damage.
- 2-Methoxyethyl acrylate
Causes skin irritation.
- Hexamethylene diacrylate
- Benzyl acrylate

Respiratory or skin sensitisation:
May cause an allergic skin reaction.
- Hexamethylene diacrylate
- Benzyl acrylate
- 2-Methoxyethyl acrylate
- 1-vinylhexahydro-2H-azepin-2-one
Germ cell mutagenicity:
no data available.

Reproductive toxicity:
May damage fertility or the unborn child.
• 2-Methoxyethyl acrylate
  Suspected of damaging fertility or the unborn child.
• Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

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

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

Specific target organ toxicity - repeat exposure, (STOT-RE):
Causes damage to organs through prolonged or repeated exposure.
• 1-vinylhexahydro-2H-azepin-2-one
  May cause damage to organs through prolonged or repeated exposure.
• 2-Methoxyethyl acrylate

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
  Harmful to aquatic life with long lasting effects.
  • 2-Methoxyethyl acrylate

Persistence/Degradaibility:
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 : 1760

14.2 UN proper shipping name
ADR/ADG/DOT, IMDG, or IATA : Corrosive liquid, n.o.s.
(2-Methoxyethyl acrylate)

14.3 Transport hazard class(es)
ADR/ADG/DOT, IMDG, or IATA : 8

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.
(Benzyl acrylate)

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.

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 Extremally Hazardous Substances (EHS)
None of the ingredients are listed.
Section 313 Toxic Chemicals
2-Methoxyethyl acrylate (CASRN 3121-61-7) 20.0 - 24.0 wt%

CERCLA Hazardous Substances
2-Methoxyethyl acrylate (CASRN 3121-61-7) (Listed under 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).

State Regulations
California Proposition 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: 2 - Must be moderately heated or exposed to relatively high temperature 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.