Safety Data Sheet

1. Identification of the substance/mixture and of the company/ undertaking
1.1. Product identifier:
   EJ INK, EJ-CY

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

1.3. Details of the supplier of the safety data sheet
   Manufacture's name: Roland DG Corporation
   Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103
            JAPAN
   Phone: + 81-53-484-1224
   Fax: + 81-53-484-1226
   E-mail Address:

   Revised date: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification
2.1. Classification of the substance or mixture
   This product is classified as dangerous according to GHS.
   - Flammable liquids: Category 4
   - Skin corrosion/irritation: Category 2

2.2. GHS label elements, including precautionary statements
   Pictogram

   Signal word(s)                  Warning

   Hazard statement(s)            Combustible liquid.
                                   Causes skin irritation.

   Precautionary statement(s)
   Prevention
   - Keep away from flames and hot surfaces. — No smoking.
   - Wear protective gloves/protective clothing/eye protection/face protection.
   Response
   - IF ON SKIN: Wash with plenty of soap and water.
   - If skin irritation occurs: Get medical advice/attention.
   - Take off contaminated clothing and wash before reuse.
   Storage
   - Store in a well-ventilated place. Keep cool.
2.3. Other hazards

Potential Health Effects:

- **Eyes:** Contact with eye will be irritating.
- **Skin:** Contact with skin may cause irritation, swelling or redness, allergic sensitization.
- **Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- **Ingestion:** May cause injury of mouth, throat, and stomach.
- **Chronic Health Hazards:** Repeated skin contact may cause a persistent irritation or dermatitis.
- **Carcinogenicity:** None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

3. Composition/information on ingredients

**Chemical nature:** mixture

<table>
<thead>
<tr>
<th>Composition</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>EU registration No.</th>
<th>% By Weight</th>
<th>Classification EC No. 1272/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorant</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>1-5</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td>112-36-7</td>
<td>203-963-7</td>
<td>N/A for the moment</td>
<td>1-30</td>
<td>Skin Irrit. 2: H315</td>
</tr>
<tr>
<td>Glycol ether solvents</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>45-80</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>ε-Caprolactone</td>
<td>502-44-3</td>
<td>-</td>
<td>N/A for the moment</td>
<td>&lt;10</td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>Resin</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>1-5</td>
<td>Not classified as hazardous</td>
</tr>
</tbody>
</table>

*For the full text of the H-Statements mentioned in this Section, see Section 16.

4. First aid measures

4.1. Description of first aid measures

- **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. Most important symptoms and effects, both acute and delayed

- **Eyes:** Contact with eye will be irritating.
- **Skin:** Contact with skin may cause irritation, swelling or redness, allergic sensitization.
- **Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- **Ingestion:** May cause injury of mouth, throat, and stomach.

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

No information
5. **Firefighting measures**

5.1. Extinguishing media

Suitable extinguishing media:
- Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.

Unsuitable extinguishing media:
- Water, High-pressure water jet

5.2. Special hazards arising from the substance or mixture

Flash Point: about 93 deg.C

5.3. Advice 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, protective equipment and emergency procedures

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 and material for containment and cleaning up

Sweep up material and dispose as waste following local regulations.

6.4. Reference to other sections

Refer to “Section 8 Exposure controls/ personal protection” and “Section 13 Disposal consideration” as appropriate.

7. **Handling and storage**

7.1. Precautions for safe 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. Conditions for safe storage, including any incompatibilities

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.

7.3. Specific end use(s): Inkjet printing
8. Exposure controls/ personal protection

8.1. Control parameters

Occupational Exposure Limits:

<table>
<thead>
<tr>
<th>EU:</th>
<th>Components</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycol ether solvents</td>
<td></td>
<td>308mg/m³, 50ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DNEL</th>
<th>Components</th>
<th>Long term exposure</th>
<th>Short term exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-Caprolactone</td>
<td></td>
<td>10.4mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td></td>
<td>50.05mg/m³</td>
<td>-</td>
</tr>
</tbody>
</table>

REACH Toxicological Information (Workers - Hazard via inhalation route)

<table>
<thead>
<tr>
<th>Australia: OELs</th>
<th>Components</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycol ether solvents</td>
<td></td>
<td>308mg/m³, 50ppm</td>
</tr>
</tbody>
</table>

8.2. Exposure controls:

- **Appropriate engineering controls**: Provide general and/or local exhaust ventilation.

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

- **Hand protection**: Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, use protective gloves. Recommended impervious gloves is butyl rubber glove.

- **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.

- **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.

- **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.

- **Environmental exposure control**: Avoid release to the environment.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

- **Appearance**: Cyan Liquid
- **Odor**: Slightly
- **Odour threshold**: No data available
- **pH**: No data available
- **Melting point/freezing point**: No data available
- **Initial boiling point and boiling range**: ≥ 168 deg.C
- **Flash point**: 93 deg.C
- **Evaporation rate**: No data available
- **Flammability(solid,gas)**: Not applicable
Upper/lower flammability or explosive limits: No data available
Vapor pressure: No data available
Vapor density: No data available
Relative density: No data available
Solubility(ies): Water solubility: Soluble
Partition coefficient: n-octanol/water: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: 3.14 ± 0.5 cps(25°C)
Explosive properties: No data available
Oxidizing properties: None
Volatile organic compounds (VOC) content: 980 gram/liter (maximum value)

9.2. Other information: No information

10. Stability and reactivity
10.1. Reactivity: No reactivity under normal temperature.
10.2. Chemical stability: Stable under normal temperature
10.3. Possibility of hazardous reactions: Not expected
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: None under normal temperature

11. Toxicological information
11.1. Information on toxicological effects
Routes Of Overexposure: Eye, skin, inhalation, and oral
Acute toxicity:
Diethylene glycol diethyl ether
LD50 (oral-rat) 4790 mg/kg
LD50 (skin-rabbit) 6700 uL/kg
Skin corrosion/irritation: No data available
Causes skin irritation. (Diethylene glycol diethyl ether)
Serious eye damage/eye irritation: No data available
Respiratory or skin sensitisation: No data available
Germ cell mutagenicity: No data available
Reproductive toxicity: No data available
Carcinogenicity: None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)
STOT-single exposure: No data available
STOT-repeated exposure: No data available
Aspiration hazard: No data available

12. Ecological information
12.1. Toxicity: No data available
12.2. Persistence and degradability: No data available
12.3. Bioaccumulative potential: No data available
12.4. Mobility in soil: No data available
12.5. Results of PBT and vPvB assessment: Has not carried out PBT and vPvB assessment.
12.6. Other adverse effects: No data available
13. Disposal considerations
13.1. Waste treatment methods:
   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: Not regulated
14.2. UN proper shipping name:
   ADR/ADG/DOT, IMDG, or IATA: Not regulated
14.3. Transport hazard class(es):
   ADR/ADG/DOT, IMDG, or IATA: Not regulated
14.4. Packing group:
   ADR/ADG/DOT, IMDG, or IATA: Not regulated
14.5. Environmental hazards:
   ADR/ADG/DOT, IMDG, or IATA: Not regulated
14.6. Special precautions for user:
   Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:
   Not regulated

15. Regulatory information
   EU Information:
   Chemical Safety Assessment according to (EC)1907/2006:
   This product has not carried out any Chemical Safety Assessment yet.

   Australia Information:
   Hazardous statement: Classified as hazardous according to NOHSC criteria.

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

16. Other Information
   List of relevant H-Statements:
   H315 Causes skin irritation.
   H319 Causes serious eye irritation.

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

1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier:
EJ INK, EJ-MG

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

1.3. Details of the supplier of the safety data sheet
Manufacturer's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1226

E-mail Address: 
Revised date: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture
This product is classified as dangerous according to GHS.
Skin corrosion/irritation Category 2
Eye damage/irritation Category 2A

2.2. GHS label elements, including precautionary statements
Pictogram

 Signal word(s) Warning
 Hazard statement(s) Causes skin irritation.
 Causes serious eye irritation.

Precautionary statement(s)
Prevention Wear protective gloves/protective clothing/eye protection/face protection.
IF ON SKIN: Wash with plenty of soap and water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.

Response
2.3. Other hazards
Potential Health Effects:
- **Eyes:** Causes severe eye injury which may persist for several days.
- **Skin:** Contact with skin may cause irritation, swelling or redness, allergic sensitization.
- **Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- **Ingestion:** May cause injury of mouth, throat, and stomach.
- **Chronic Health Hazards:** Repeated skin contact may cause a persistent irritation or dermatitis.
- **Carcinogenicity:** None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

3. Composition/information on ingredients
**Chemical nature:** mixture

<table>
<thead>
<tr>
<th>Composition</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>EU registration No.</th>
<th>% By Weight</th>
<th>Classification EC No. 1272/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorant</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>1-5</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td>112-36-7</td>
<td>203-963-7</td>
<td>N/A for the moment</td>
<td>1-30</td>
<td>Skin Irrit. 2: H315</td>
</tr>
<tr>
<td>Glycol ether solvents</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>45-80</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>ε-Caprolactone</td>
<td>502-44-3</td>
<td>-</td>
<td>N/A for the moment</td>
<td>1-15</td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>Propylene carbonate</td>
<td>108-32-7</td>
<td>-</td>
<td>N/A for the moment</td>
<td>1-10</td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>Resin</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>1-5</td>
<td>Not classified as hazardous</td>
</tr>
</tbody>
</table>

*For the full text of the H-Statements mentioned in this Section, see Section 16.

4. First aid measures
4.1. Description of first aid measures
- **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. Most important symptoms and effects, both acute and delayed
- **Eyes:** Causes severe eye injury which may persist for several days.
- **Skin:** Contact with skin may cause irritation, swelling or redness, allergic sensitization.
- **Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- **Ingestion:** May cause injury of mouth, throat, and stomach.
4.3. Indication of any immediate medical attention and special treatment needed
No information

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

5.2. Special hazards arising from the substance or mixture
   Flash Point: about 96 deg.C

5.3. Advice 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, protective equipment and emergency procedures
   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 and material for containment and cleaning up
   Sweep up material and dispose as waste following local regulations.

6.4. Reference to other sections
   Refer to “Section 8 Exposure controls/ personal protection” and “Section 13 Disposal consideration” as appropriate.

7. Handling and storage
7.1. Precautions for safe 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. Conditions for safe storage, including any incompatibilities
   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.

7.3. Specific end use(s):
   Inkjet printing
8. Exposure controls/ personal protection

8.1. Control parameters

Occupational Exposure Limits:

<table>
<thead>
<tr>
<th>EU:</th>
<th>Glycol ether solvents</th>
<th>TWA</th>
<th>308mg/m³, 50ppm</th>
</tr>
</thead>
</table>

DNEL

<table>
<thead>
<tr>
<th>components</th>
<th>Long term exposure</th>
<th>Short term exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-Caprolactone</td>
<td>10.4mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Propylene carbonate</td>
<td>70.56 mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td>50.05mg/m³</td>
<td>-</td>
</tr>
</tbody>
</table>

REACH Toxicological Information (Workers - Hazard via inhalation route)

<table>
<thead>
<tr>
<th>Australia: OELs</th>
<th>Glycol ether solvents</th>
<th>TWA</th>
<th>308mg/m³, 50ppm</th>
</tr>
</thead>
</table>

8.2. Exposure controls:

- **Appropriate engineering controls**: Provide general and/or local exhaust ventilation.

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

- **Hand protection**: Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, use protective gloves. Recommended impervious gloves is butyl rubber glove.

- **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.

- **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.

- **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.

- **Environmental exposure control**: Avoid release to the environment.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Appearance:</th>
<th>Magenta Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor:</td>
<td>Slightly</td>
</tr>
<tr>
<td>Odour threshold:</td>
<td>No data available</td>
</tr>
<tr>
<td>pH:</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point:</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range:</td>
<td>≥ 168 deg.C</td>
</tr>
<tr>
<td>Flash point:</td>
<td>96 deg.C</td>
</tr>
<tr>
<td>Evaporation rate:</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability(solid,gas):</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
Upper/lower flammability or explosive limits:
Vapor pressure: No data available
Vapor density: No data available
Relative density: No data available
Solubility(ies): Water solubility: Soluble
Partition coefficient: n-octanol/water: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: 3.66 ± 0.5 cps(25℃)
Explosive properties: No data available
Oxidizing properties: None
Volatile organic compounds (VOC) content: 980 gram/liter (maximum value)

9.2. Other information: No information

10. Stability and reactivity
10.1. Reactivity: No reactivity under normal temperature.
10.2. Chemical stability: Stable under normal temperature
10.3. Possibility of hazardous reactions: Not expected
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: None under normal temperature

11. Toxicological information
11.1. Information on toxicological effects
Routes Of Overexposure: Eye, skin, inhalation, and oral
Acute toxicity:
Diethylene glycol diethyl ether
LD50 (oral-rat) 4790 mg/kg
LD50 (skin-rabbit) 6700 uL/kg
Propylene carbonate
LD50 (oral-rat) >5000 mg/kg
LD50 (dermal-rabbit) >2000 mg/kg
Skin corrosion/irritation: No data available
Causes skin irritation. (Diethylene glycol diethyl ether)
Serious eye damage/eye irritation: No data available
Causes serious eye irritation. (Propylene carbonate)
Respiratory or skin sensitisation: No data available
Germ cell mutagenicity: No data available
Reproductive toxicity: No data available
Carcinogenicity: None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)
STOT-single exposure: No data available
STOT-repeated exposure: No data available
Aspiration hazard: No data available
12. Ecological information
12.1. Toxicity: No data available
12.2. Persistence and degradability: No data available
12.3. Bioaccumulative potential: No data available
12.4. Mobility in soil: No data available
12.5. Results of PBT and vPvB assessment: Has not carried out PBT and vPvB assessment.
12.6. Other adverse effects: No data available

13. Disposal considerations
13.1. Waste treatment methods:
   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: Not regulated
14.2. UN proper shipping name:
   ADR/ADG/DOT, IMDG, or IATA: Not regulated
14.3. Transport hazard class(es):
   ADR/ADG/DOT, IMDG, or IATA: Not regulated
14.4. Packing group:
   ADR/ADG/DOT, IMDG, or IATA: Not regulated
14.5. Environmental hazards:
   ADR/ADG/DOT, IMDG, or IATA: Not regulated
14.6. Special precautions for user:
   Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code: Not regulated

15. Regulatory information
   EU Information:
   Chemical Safety Assessment according to (EC)1907/2006: This product has not carried out any Chemical Safety Assessment yet.

   Australia Information:
   Hazardous statement: Classified as hazardous according to NOHSC criteria.

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

16. Other Information
   List of relevant H-Statements:
   H315 Causes skin irritation.
   H319 Causes serious eye irritation.

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

1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier:
EJ INK, EJ-YE

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

1.3. Details of the supplier of the safety data sheet
Manufacture's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
Shizuoka-ken, 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1226

E-mail Address: 
Revised date: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture
This product is classified as dangerous according to GHS.
Skin corrosion/irritation Category 2
Eye damage/irritation Category 2A

2.2. GHS label elements, including precautionary statements
Pictogram

Signal word(s) Warning
Hazard statement(s) Causes skin irritation.
Causes serious eye irritation.
Precautionary statement(s)
Prevention Wear protective gloves/protective clothing/eye protection/face protection.
IF ON SKIN: Wash with plenty of soap and water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.

Response
2.3. Other hazards

Potential Health Effects:

- **Eyes:** Causes severe eye injury which may persist for several days.
- **Skin:** Contact with skin may cause irritation, swelling or redness, allergic sensitization.
- **Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- **Ingestion:** May cause injury of mouth, throat, and stomach.

**Chronic Health Hazards:** Repeated skin contact may cause a persistent irritation or dermatitis.

**Carcinogenicity:** The product contains Nickel compounds.

IARC evaluated printing ink as a Group 3 (Not classifiable as to carcinogenicity to humans).

3. Composition/information on ingredients

**Chemical nature:** mixture

<table>
<thead>
<tr>
<th>Composition</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>EU registration No.</th>
<th>% By Weight</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorant</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>1-5</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td>112-36-7</td>
<td>203-963-7</td>
<td>N/A for the moment</td>
<td>1-30</td>
<td>Skin Irrit. 2: H315</td>
</tr>
<tr>
<td>Glycol ether solvents</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>45-80</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>ε-Caprolactone</td>
<td>502-44-3</td>
<td>-</td>
<td>N/A for the moment</td>
<td>1-15</td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>Propylene carbonate</td>
<td>108-32-7</td>
<td>-</td>
<td>N/A for the moment</td>
<td>1-10</td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>Resin</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>1-5</td>
<td>Not classified as hazardous</td>
</tr>
</tbody>
</table>

*For the full text of the H-Statements mentioned in this Section, see Section 16.

4. First aid measures

4.1. Description of first aid measures

- **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. Most important symptoms and effects, both acute and delayed

- **Eyes:** Causes severe eye injury which may persist for several days.
- **Skin:** Contact with skin may cause irritation, swelling or redness, allergic sensitization.
- **Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- **Ingestion:** May cause injury of mouth, throat, and stomach.
4.3. Indication of any immediate medical attention and special treatment needed
   No information

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

5.2. Special hazards arising from the substance or mixture
   Flash Point: about 97 deg.C

5.3. Advice 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, protective equipment and emergency procedures
   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 and material for containment and cleaning up
   Sweep up material and dispose as waste following local regulations.

6.4. Reference to other sections
   Refer to “Section 8 Exposure controls/ personal protection” and “Section 13 Disposal consideration” as appropriate.

7. Handling and storage
7.1. Precautions for safe 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. Conditions for safe storage, including any incompatibilities
   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.

7.3. Specific end use(s):
   Inkjet printing
8. Exposure controls/ personal protection

8.1. Control parameters

Occupational Exposure Limits:

| EU: | Glycol ether solvents | 308mg/m³, 50ppm |

| DNEL | ε-Caprolactone | 10.4mg/m³ | - |
| | Propylene carbonate | 70.56 mg/m³ | - |
| | Diethylene glycol diethyl ether | 50.05mg/m³ | - |

REACH Toxicological Information (Workers - Hazard via inhalation route)

| Australia: OELs | Glycol ether solvents | 308mg/m³, 50ppm |

8.2. Exposure controls:

| Appropriate engineering controls | Provide general and/or local exhaust ventilation. |

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

| Hand protection: | Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, use protective gloves. Recommended impervious gloves is butyl rubber glove. |

| 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. |

| 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. |

| 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. |

| Environmental exposure control: | Avoid release to the environment. |
9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance: Yellow Liquid
Odor: Slightly
Odour threshold: No data available
pH: No data available
Melting point/freezing point: No data available
Initial boiling point and boiling range: ≥ 168 deg.C
Flash point: 97 deg.C
Evaporation rate: No data available
Flammability(solid, gas): Not applicable
Upper/lower flammability or explosive limits: No data available
Vapor pressure: No data available
Vapor density: No data available
Relative density: No data available
Solubility(ies): Water solubility: Soluble
Partition coefficient: n-octanol/water: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: 3.52 ± 0.5 cps(25°C)
Explosive properties: None
Oxidizing properties: None
Volatile organic compounds (VOC) content: 980 gram/liter (maximum value)

9.2. Other information: No information

10. Stability and reactivity

10.1. Reactivity: No reactivity under normal temperature.
10.2. Chemical stability: Stable under normal temperature
10.3. Possibility of hazardous reactions: Not expected
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: None under normal temperature

11. Toxicological information

11.1. Information on toxicological effects

Routes Of Overexposure: Eye, skin, inhalation, and oral
Acute toxicity:
Diethylene glycol diethyl ether
LD50 ( oral-rat ) 4790 mg/kg
LD50 ( skin-rabbit ) 6700 uL/kg
Propylene carbonate
LD50 ( oral-rat ) >5000 mg/kg
LD50 ( dermal-rabbit ) >2000 mg/kg

Skin corrosion/irritation: No data available
Causes skin irritation. (Diethylene glycol diethyl ether)
Serious eye damage/eye irritation: No data available
Causes serious eye irritation. (Propylene carbonate)
Respiratory or skin sensitisation: No data available
Germ cell mutagenicity: No data available
Reproductive toxicity: No data available
Carcinogenicity: The product contains Nickel compounds. IARC evaluated printing ink as a Group 3 (Not classifiable as to carcinogenicity to humans).

STOT-single exposure: No data available
STOT-repeated exposure: No data available
Aspiration hazard: No data available

12. Ecological information
12.1. Toxicity: No data available
12.2. Persistence and degradability: No data available
12.3. Bioaccumulative potential: No data available
12.4. Mobility in soil: No data available
12.5. Results of PBT and vPvB assessment: Has not carried out PBT and vPvB assessment.
12.6. Other adverse effects: No data available

13. Disposal considerations
13.1. Waste treatment methods:
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: Not regulated
14.2. UN proper shipping name: Not regulated
14.3. Transport hazard class(es): Not regulated
14.4. Packing group: Not regulated
14.5. Environmental hazards: Not regulated
14.6. Special precautions for user: Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code: Not regulated

15. Regulatory information
EU Information:
Chemical Safety Assessment according to (EC)1907/2006:
This product has not carried out any Chemical Safety Assessment yet.

Australia Information:
Hazardous statement: Classified as hazardous according to NOHSC criteria.

International Information:
The product contains Nickel compounds.
IARC evaluated printing ink as a Group 3 (Not classifiable as to carcinogenicity to humans).
16. Other Information

List of relevant H-Statements:

H315 Causes skin irritation.
H319 Causes serious eye irritation.

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

1. Identification of the substance/mixture and of the company/ undertaking

1.1. Product identifier:
EJ INK, EJ-BK

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

1.3. Details of the supplier of the safety data sheet
Manufatuare's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
Shizuoka-ken, 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1226

E-mail Address: 
Revised date: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture
This product is classified as dangerous according to GHS.
- Flammable liquids Category 4
- Skin corrosion/irritation Category 2
- Eye damage/irritation Category 2A

2.2. GHS label elements, including precautionary statements
Pictogram

Signal word(s) Warning
Hazard statement(s) Combustible liquid.
Causes skin irritation.
Causes serious eye irritation.
Precautionary statement(s)

Prevention
Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
Wear protective gloves/protective clothing/eye protection/face protection.

Response
IF ON SKIN: Wash with plenty of soap and water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

Potential Health Effects:

Eyes: Causes severe eye injury which may persist for several days.
Skin: Contact with skin may cause irritation, swelling or redness, allergic sensitization.
Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
Ingestion: May cause injury of mouth, throat, and stomach.

Chronic Health Hazards: Repeated skin contact may cause a persistent irritation or dermatitis.

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

3. Composition/information on ingredients

Chemical nature: mixture

<table>
<thead>
<tr>
<th>Composition</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>EU registration No.</th>
<th>% By Weight</th>
<th>Classification EC No. 1272/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon black</td>
<td></td>
<td>C.B.I.</td>
<td>C.B.I. N/A</td>
<td>1-5</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td>112-36-7</td>
<td>203-963-7</td>
<td>N/A for the moment</td>
<td>1-30</td>
<td>Skin Irrit. 2: H315</td>
</tr>
<tr>
<td>Glycol ether solvents</td>
<td></td>
<td>C.B.I.</td>
<td>C.B.I. N/A for the moment</td>
<td>45-80</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>ε-Caprolactone</td>
<td>502-44-3</td>
<td>-</td>
<td>N/A for the moment</td>
<td>1-15</td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>Propylene carbonate</td>
<td>108-32-7</td>
<td>-</td>
<td>N/A for the moment</td>
<td>1-10</td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>Resin</td>
<td></td>
<td>C.B.I.</td>
<td>C.B.I. N/A for the moment</td>
<td>1-5</td>
<td>Not classified as hazardous</td>
</tr>
</tbody>
</table>

*For the full text of the H-Statements mentioned in this Section, see Section 16.*
4. First aid measures
4.1. Description of first aid measures
   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. Most important symptoms and effects, both acute and delayed
   Eyes: Causes severe eye injury which may persist for several days.
   Skin: Contact with skin may cause irritation, swelling or redness, allergic sensitization.
   May cause injury of mouth, throat, and stomach.
   Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
4.3. Indication of any immediate medical attention and special treatment needed
   No information

5. Firefighting measures
5.1. Extinguishing media
   Suitable extinguishing media:
   - Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.
   Unsuitable extinguishing media:
   - Water, High-pressure water jet
5.2. Special hazards arising from the substance or mixture
   Flash Point: 89 deg.C
5.3. Advice 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, protective equipment and emergency procedures
   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 and material for containment and cleaning up
   Sweep up material and dispose as waste following local regulations.
6.4. Reference to other sections
Refer to “Section 8 Exposure controls/ personal protection” and “Section 13 Disposal consideration” as appropriate.

7. Handling and storage
7.1. Precautions for safe 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. Conditions for safe storage, including any incompatibilities
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.

7.3. Specific end use(s): Inkjet printing

8. Exposure controls/ personal protection
8.1. Control parameters
Occupational Exposure Limits:

<table>
<thead>
<tr>
<th>EU: components</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycol ether solvents</td>
<td>308mg/m³, 50ppm</td>
</tr>
</tbody>
</table>

DNEL

<table>
<thead>
<tr>
<th>components</th>
<th>Long term exposure</th>
<th>Short term exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>ε-Caprolactone</td>
<td>10.4mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Propylene carbonate</td>
<td>70.56 mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td>50.05mg/m³</td>
<td>-</td>
</tr>
</tbody>
</table>

REACH Toxicological Information (Workers - Hazard via inhalation route)

<table>
<thead>
<tr>
<th>Australia: OELs components</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycol ether solvents</td>
<td>308mg/m³, 50ppm</td>
</tr>
<tr>
<td>Carbon black</td>
<td>3mg/m³</td>
</tr>
</tbody>
</table>

8.2. Exposure controls:
Appropriate engineering controls: Provide general and/or local exhaust ventilation.

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

Hand protection: Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, use protective gloves. Recommended impervious gloves is butyl rubber glove.

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.
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.

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.

Environmental exposure control: Avoid release to the environment.

9. Physical and chemical properties
9.1. Information on basic physical and chemical properties
Appearance: Black Liquid
Odor: Slightly
Odour threshold: No data available
pH: No data available
Melting point/freezing point: No data available
Initial boiling point and boiling range: ≥ 168 deg.C
Flash point: 89 deg.C
Evaporation rate: No data available
Flammability(solid,gas): Not applicable
Upper/lower flammability or explosive limits: No data available
Vapor pressure: No data available
Vapor density: No data available
Relative density: No data available
Solubility(ies): Water solubility: Soluble
Partition coefficient: n-octanol/water: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: 3.51 ± 0.5 cps(25°C)
Explosive properties: None
Oxidizing properties: None
Volatile organic compounds (VOC) content: 980 gram/liter (maximum value)

9.2. Other information: No information

10. Stability and reactivity
10.1. Reactivity: No reactivity under normal temperature.
10.2. Chemical stability: Stable under normal temperature
10.3. Possibility of hazardous reactions: Not expected
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: None under normal temperature

11. Toxicological information
11.1. Information on toxicological effects
Routes Of Overexposure: Eye, skin, inhalation, and oral
Acute toxicity:
Diethylene glycol diethyl ether
LD50 (oral-rat) 4790 mg/kg
LD50 (skin-rabbit) 6700 uL/kg
Propylene carbonate
LD50 (oral-rat) >5000 mg/kg
LD50 (dermal-rabbit) >2000 mg/kg
Skin corrosion/irritation: No data available
Causes skin irritation. (Diethylene glycol diethyl ether)

Serious eye damage/eye irritation: No data available
Causes serious eye irritation. (Propylene carbonate)

Respiratory or skin sensitisation: No data available
Germ cell mutagenicity: No data available
Reproductive toxicity: No data available
Carcinogenicity: The product contains Carbon black.
IARC evaluated printing ink as a Group3 (Not classifiable as to carcinogenicity to humans).

STOT-single exposure: No data available
STOT-repeated exposure: No data available
Aspiration hazard: No data available

12. Ecological information
12.1. Toxicity: No data available
12.2. Persistence and degradability: No data available
12.3. Bioaccumulative potential: No data available
12.4. Mobility in soil: No data available
12.5. Results of PBT and vPvB assessment: Has not carried out PBT and vPvB assessment.
12.6. Other adverse effects: No data available

13. Disposal considerations
13.1. Waste treatment methods:
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 : Not regulated
14.2. UN proper shipping name:
ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.3. Transport hazard class(es):
ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.4. Packing group:
ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.5. Environmental hazards:
ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.6. Special precautions for user:
Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:
Not regulated
15. Regulatory information

EU Information:
Chemical Safety Assessment according to (EC)1907/2006:
This product has not carried out any Chemical Safety Assessment yet.

Australia Information:
Hazardous statement: Classified as hazardous according to NOHSC criteria.

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

16. Other Information
List of relevant H-Statements:
H315 Causes skin irritation.
H319 Causes serious eye irritation.

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

1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier:
EJ INK, EJ-LC

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

1.3. Details of the supplier of the safety data sheet
Manufacture's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1226

E-mail Address:
Revised date: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture
This product is classified as dangerous according to GHS.
Flammable liquids Category 4
Skin corrosion/irritation Category 2

2.2. GHS label elements, including precautionary statements
Pictogram

Signal word(s) Warning
Hazard statement(s) Combustible liquid.
Causes skin irritation.

Precautionary statement(s)
Prevention Keep away from flames and hot surfaces. — No smoking.
Wear protective gloves/protective clothing/eye protection/face protection.
Response IF ON SKIN: Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
Storage Store in a well-ventilated place. Keep cool.
2.3. Other hazards
Potential Health Effects:
   Eyes: Contact with eye will be irritating.
   Skin: Contact with skin may cause irritation, swelling or redness, allergic sensitization.
   Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
   Ingestion: May cause injury of mouth, throat, and stomach.

Chronic Health Hazards: Repeated skin contact may cause a persistent irritation or dermatitis.
Carcinogenicity: None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

3. Composition/information on ingredients
   Chemical nature: mixture

<table>
<thead>
<tr>
<th>Composition</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>EU registration No.</th>
<th>% By Weight</th>
<th>Classification EC No. 1272/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorant</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>0.1-2</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td>112-36-7</td>
<td>203-963-7</td>
<td>N/A for the moment</td>
<td>1-30</td>
<td>Skin Irrit. 2: H315</td>
</tr>
<tr>
<td>Glycol ether solvents</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>45-80</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>ε-Caprolactone</td>
<td>502-44-3</td>
<td>-</td>
<td>N/A for the moment</td>
<td>&lt;10</td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>Resin</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>2-8</td>
<td>Not classified as hazardous</td>
</tr>
</tbody>
</table>

*For the full text of the H-Statements mentioned in this Section, see Section 16.

4. First aid measures
4.1. Description of first aid measures
   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. Most important symptoms and effects, both acute and delayed
   Eyes: Contact with eye will be irritating.
   Skin: Contact with skin may cause irritation, swelling or redness, allergic sensitization.
   Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
   Ingestion: May cause injury of mouth, throat, and stomach.

4.3. Indication of any immediate medical attention and special treatment needed
   No information
5. Firefighting measures
5.1. Extinguishing media
   Suitable extinguishing media:
   - Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.
   Unsuitable extinguishing media:
   - Water, High-pressure water jet

5.2. Special hazards arising from the substance or mixture
   Flash Point: about 86 deg.C

5.3. Advice 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, protective equipment and emergency procedures
   - 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 and material for containment and cleaning up
   - Sweep up material and dispose as waste following local regulations.

6.4. Reference to other sections
   Refer to “Section 8 Exposure controls/ personal protection” and “Section 13 Disposal consideration” as appropriate.

7. Handling and storage
7.1. Precautions for safe 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. Conditions for safe storage, including any incompatibilities
   - 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.

7.3. Specific end use(s):
   - Inkjet printing
8. Exposure controls/ personal protection

8.1. Control parameters

Occupational Exposure Limits:

<table>
<thead>
<tr>
<th>EU:</th>
<th>components</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycol ether solvents</td>
<td>308mg/m³, 50ppm</td>
<td></td>
</tr>
</tbody>
</table>

DNEL

<table>
<thead>
<tr>
<th>components</th>
<th>Long term exposure</th>
<th>Short term exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Oxepanone</td>
<td>10.4mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td>50.05mg/m³</td>
<td>-</td>
</tr>
</tbody>
</table>

REACH Toxicological Information (Workers - Hazard via inhalation route)

<table>
<thead>
<tr>
<th>Australia: OELs</th>
<th>components</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycol ether solvents</td>
<td>308mg/m³, 50ppm</td>
<td></td>
</tr>
</tbody>
</table>

8.2. Exposure controls:

- **Appropriate engineering controls**: Provide general and/or local exhaust ventilation.

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

- **Hand protection**: Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, use protective gloves. Recommended impervious gloves is butyl rubber glove.

- **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.

- **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.

- **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.

- **Environmental exposure control**: Avoid release to the environment.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

- **Appearance**: Cyan Liquid
- **Odor**: Slightly
- **Odour threshold**: No data available
- **pH**: No data available
- **Melting point/freezing point**: No data available
- **Initial boiling point and boiling range**: ≥ 168 deg.C
- **Flash point**: 86 deg.C
- **Evaporation rate**: No data available
- **Flammability(solid, gas)**: Not applicable
- **Upper/lower flammability or explosive limits**: No data available
Vapor pressure: No data available
Vapor density: No data available
Relative density: No data available
Solubility: Water solubility: Soluble
Partition coefficient: n-octanol/water: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: 3.22 ± 0.5 cps(25°C)
Explosive properties: No data available
Oxidizing properties: None
Volatile organic compounds (VOC) content: 980 gram/liter (maximum value)

10. Stability and reactivity
10.1. Reactivity: No reactivity under normal temperature
10.2. Chemical stability: Stable under normal temperature
10.3. Possibility of hazardous reactions: Not expected
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: None under normal temperature

11. Toxicological information
11.1. Information on toxicological effects
   Routes Of Overexposure: Eye, skin, inhalation, and oral
   Acute toxicity:
      Diethylene glycol diethyl ether
      LD50 (oral-rat) 4790 mg/kg
      LD50 (skin-rabbit) 6700 uL/kg
   Skin corrosion/irritation: No data available
      Causes skin irritation. (Diethylene glycol diethyl ether)
   Serious eye damage/eye irritation: No data available
   Respiratory or skin sensitisation: No data available
   Germ cell mutagenicity: No data available
   Reproductive toxicity: No data available
   Carcinogenicity: None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)
   STOT-single exposure: No data available
   STOT-repeated exposure: No data available
   Aspiration hazard: No data available

12. Ecological information
12.1. Toxicity: No data available
12.2. Persistence and degradability: No data available
12.3. Bioaccumulative potential: No data available
12.4. Mobility in soil: No data available
12.5. Results of PBT and vPvB assessment: Has not carried out PBT and vPvB assessment.
12.6. Other adverse effects: No data available

13. Disposal considerations
13.1. Waste treatment methods:
   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 : Not regulated
14.2. UN proper shipping name:
   ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.3. Transport hazard class(es):
   ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.4. Packing group:
   ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.5. Environmental hazards:
   ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.6. Special precautions for user:
   Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:
   Not regulated

15. Regulatory information
   EU Information:
   Chemical Safety Assessment according to (EC)1907/2006:
   This product has not carried out any Chemical Safety Assessment yet.

   Australia Information:
   Hazardous statement: Classified as hazardous according to NOHSC criteria.

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

16. Other Information
   List of relevant H-Statements:
   H315 Causes skin irritation.
   H319 Causes serious eye irritation.

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

1. Identification of the substance/mixture and of the company/ undertakings
1.1. Product identifier:
EJ INK, EJ-LM

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

1.3. Details of the supplier of the safety data sheet
Manufacure's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
Shizuoka-ken, 431-2103 JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1226
E-mail Address:
Revised date: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification
2.1. Classification of the substance or mixture
This product is classified as dangerous according to GHS.
- Flammable liquids Category 4
- Skin corrosion/irritation Category 2
- Eye damage/irritation Category 2A

2.2. GHS label elements, including precautionary statements
Pictogram

Signal word(s) Warning
Hazard statement(s)
- Combustible liquid.
- Causes skin irritation.
- Causes serious eyes irritation.

Precautionary statement(s)
Prevention
- Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
- Wear protective gloves/protective clothing/eye protection/face protection.
Response
- IF ON SKIN: Wash with plenty of soap and water.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove any contact lenses, if present and easy to do. Continue rinsing.
- If skin irritation occurs: Get medical advice/attention.
- If eye irritation persists: Get medical advice/attention.
2.3. Other hazards

Potential Health Effects:
- **Eyes:** Causes severe eye injury which may persist for several days.
- **Skin:** Contact with skin may cause irritation, swelling or redness, allergic sensitization.
- **Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- **Ingestion:** May cause injury of mouth, throat, and stomach.
- **Chronic Health Hazards:** Repeated skin contact may cause a persistent irritation or dermatitis.
- **Carcinogenicity:** None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

3. Composition/information on ingredients

**Chemical nature:** mixture

<table>
<thead>
<tr>
<th>Composition</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>EU registration No.</th>
<th>% By Weight</th>
<th>Classification EC No. 1272/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorant</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>0.1-2</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td>112-36-7</td>
<td>203-963-7</td>
<td>N/A for the moment</td>
<td>1-30</td>
<td>Skin Irrit. 2: H315</td>
</tr>
<tr>
<td>Glycol ether solvents</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>45-80</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>ε-Caprolactone</td>
<td>502-44-3</td>
<td>-</td>
<td>N/A for the moment</td>
<td>1-15</td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>Propylene carbonate</td>
<td>108-32-7</td>
<td>-</td>
<td>N/A for the moment</td>
<td>1-10</td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>Resin</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>2-8</td>
<td>Not classified as hazardous</td>
</tr>
</tbody>
</table>

*For the full text of the H-Statements mentioned in this Section, see Section 16.*

4. First aid measures

4.1. Description of first aid measures

- **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. Most important symptoms and effects, both acute and delayed

- **Eyes:** Causes severe eye injury which may persist for several days.
- **Skin:** Contact with skin may cause irritation, swelling or redness, allergic sensitization.
- **Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- **Ingestion:** May cause injury of mouth, throat, and stomach.
4.3. Indication of any immediate medical attention and special treatment needed
No information

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

5.2. Special hazards arising from the substance or mixture
   Flash Point: about 90 deg.C

5.3. Advice 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, protective equipment and emergency procedures
   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 and material for containment and cleaning up
   Sweep up material and dispose as waste following local regulations.

6.4. Reference to other sections
   Refer to “Section 8 Exposure controls/ personal protection” and “Section 13 Disposal consideration” as appropriate.

7. Handling and storage
7.1. Precautions for safe 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. Conditions for safe storage, including any incompatibilities
   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.

7.3. Specific end use(s):
   Inkjet printing
8. Exposure controls/ personal protection

8.1. Control parameters

Occupational Exposure Limits:

<table>
<thead>
<tr>
<th>EU: components</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycol ether solvents</td>
<td>308mg/m³, 50ppm</td>
</tr>
</tbody>
</table>

DNEL

<table>
<thead>
<tr>
<th>components</th>
<th>Long term exposure</th>
<th>Short term exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-Caprolactone</td>
<td>10.4mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Propylene carbonate</td>
<td>70.56 mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td>50.05mg/m³</td>
<td>-</td>
</tr>
</tbody>
</table>

REACH Toxicological Information (Workers - Hazard via inhalation route)

<table>
<thead>
<tr>
<th>Australia: OELs components</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycol ether solvents</td>
<td>308mg/m³, 50ppm</td>
</tr>
</tbody>
</table>

8.2. Exposure controls:

- **Appropriate engineering controls**: Provide general and/or local exhaust ventilation.

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

- **Hand protection**: Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, use protective gloves. Recommended impervious gloves is butyl rubber glove.

- **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.

- **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.

- **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.

- **Environmental exposure control**: Avoid release to the environment.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

- **Appearance**: Magenta Liquid
- **Odor**: Slightly
- **Odour threshold**: No data available
- **pH**: No data available
- **Melting point/freezing point**: No data available
- **Initial boiling point and boiling range**: ≥ 168 deg.C
- **Flash point**: 90 deg.C
- **Evaporation rate**: No data available
- **Flammability(solid, gas)**: Not applicable
Upper/lower flammability or explosive limits: No data available
Vapor pressure: No data available
Vapor density: No data available
Relative density: No data available
Solubility(ies): Water solubility: Soluble
Partition coefficient: n-octanol/water: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: 3.37 ± 0.5 cps(25℃)
Explosive properties: No data available
Oxidizing properties: None
Volatile organic compounds (VOC) content: 980 gram/liter (maximum value)

10. Stability and reactivity
10.1. Reactivity: No reactivity under normal temperature
10.2. Chemical stability: Stable under normal temperature
10.3. Possibility of hazardous reactions: Not expected
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: None under normal temperature

11. Toxicological information
11.1. Information on toxicological effects
Routes Of Overexposure: Eye, skin, inhalation, and oral
Acute toxicity:
Diethylene glycol diethyl ether
LD50 (oral-rat) 4790 mg/kg
LD50 (skin-rabbit) 6700 μL/kg
Propylene carbonate
LD50 (oral-rat) >5000 mg/kg
LD50 (dermal-rabbit) >2000 mg/kg
Skin corrosion/irritation: No data available
Causes skin irritation. (Diethylene glycol diethyl ether)
Serious eye damage/eye irritation: No data available
Causes serious eye irritation. (Propylene carbonate)
Respiratory or skin sensitisation: No data available
Germ cell mutagenicity: No data available
Reproductive toxicity: No data available
Carcinogenicity: None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

12. Ecological information
12.1. Toxicity: No data available
12.2. Persistence and degradability: No data available
12.3. Bioaccumulative potential: No data available
12.4. Mobility in soil: No data available
12.5. Results of PBT and vPvB assessment: Has not carried out PBT and vPvB assessment.
12.6. Other adverse effects: No data available
13. Disposal considerations
13.1. Waste treatment methods:
   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 : Not regulated
14.2. UN proper shipping name:
   ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.3. Transport hazard class(es):
   ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.4. Packing group:
   ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.5. Environmental hazards:
   ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.6. Special precautions for user:
   Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:
   Not regulated

15. Regulatory information
   EU Information:
   Chemical Safety Assessment according to (EC)1907/2006:
   This product has not carried out any Chemical Safety Assessment yet.
   Australia Information:
   Hazardous statement: Classified as hazardous according to NOHSC criteria.

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

16. Other Information
   List of relevant H-Statements:
   H315 Causes skin irritation.
   H319 Causes serious eye irritation.

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

1. Identification of the substance/mixture and of the company/ undertaking

1.1. Product identifier:
EJ INK, EJ-LK

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

1.3. Details of the supplier of the safety data sheet
Manufacture's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1226

E-mail Address:

Revised date: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture
This product is classified as dangerous according to GHS.
Flammable liquids Category 4
Skin corrosion/irritation Category 2
Eye damage/irritation Category 2A

2.2. GHS label elements, including precautionary statements
Pictogram

Signal word(s) Warning
Hazard statement(s) Combustible liquid.
Causes skin irritation.
Causes serious eye irritation.
Precautionary statement(s)

Prevention
Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
Wear protective gloves/protective clothing/eye protection/face protection.

Response
IF ON SKIN: Wash with plenty of soap and water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

Potential Health Effects:

Eyes: Causes severe eye injury which may persist for several days.
Skin: Contact with skin may cause irritation, swelling or redness, allergic sensitization.
Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
Ingestion: May cause injury of mouth, throat, and stomach.

Chronic Health Hazards: Repeated skin contact may cause a persistent irritation or dermatitis.
Carcinogenicity: The product contains Carbon black.
IARC evaluated printing ink as a Group 3 (Not classifiable as to carcinogenicity to humans).

3. Composition/information on ingredients

Chemical nature: mixture

<table>
<thead>
<tr>
<th>Composition</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>EU registration No.</th>
<th>% By Weight</th>
<th>Classification EC No. 1272/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon black</td>
<td></td>
<td></td>
<td></td>
<td>0.1-1.5</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td>112-36-7</td>
<td>203-963-7</td>
<td>N/A for the moment</td>
<td>1-30</td>
<td>Skin Irrit. 2: H315</td>
</tr>
<tr>
<td>Glycol ether solvents</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>45-80</td>
<td>Not classified as hazardous</td>
</tr>
<tr>
<td>ε-Caprolactone</td>
<td>502-44-3</td>
<td>-</td>
<td>N/A for the moment</td>
<td>1-15</td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>Propylene carbonate</td>
<td>108-32-7</td>
<td>-</td>
<td>N/A for the moment</td>
<td>1-10</td>
<td>Eye Irrit. 2: H319</td>
</tr>
<tr>
<td>Resin</td>
<td>C.B.I.</td>
<td>C.B.I.</td>
<td>N/A for the moment</td>
<td>2-8</td>
<td>Not classified as hazardous</td>
</tr>
</tbody>
</table>

*For the full text of the H-Statements mentioned in this Section, see Section 16.*
4. First aid measures
4.1. Description of first aid measures
   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. Most important symptoms and effects, both acute and delayed
   Eyes: Causes severe eye injury which may persist for several days.
   Skin: Contact with skin may cause irritation, swelling or redness, allergic sensitization.
   May cause injury of mouth, throat, and stomach.

4.3. Indication of any immediate medical attention and special treatment needed
   No information

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

5.2. Special hazards arising from the substance or mixture
   Flash Point: 91 deg.C

5.3. Advice 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, protective equipment and emergency procedures
   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 and material for containment and cleaning up
   Sweep up material and dispose as waste following local regulations.

6.4. Reference to other sections
   Refer to “Section 8 Exposure controls/ personal protection” and “Section 13 Disposal consideration” as appropriate.
7. Handling and storage
7.1. Precautions for safe 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. Conditions for safe storage, including any incompatibilities
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.

7.3. Specific end use(s): Inkjet printing

8. Exposure controls/ personal protection
8.1. Control parameters
Occupational Exposure Limits:

<table>
<thead>
<tr>
<th>Components</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycol ether solvents</td>
<td>308mg/m³, 50ppm</td>
</tr>
</tbody>
</table>

DNEL

<table>
<thead>
<tr>
<th>Components</th>
<th>Long term exposure</th>
<th>Short term exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>ε-Caprolactone</td>
<td>10.4mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Propylene carbonate</td>
<td>70.56 mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Diethylene glycol diethyl ether</td>
<td>50.05mg/m³</td>
<td>-</td>
</tr>
</tbody>
</table>

REACH Toxicological Information (Workers - Hazard via inhalation route)

<table>
<thead>
<tr>
<th>Components</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycol ether solvents</td>
<td>308mg/m³, 50ppm</td>
</tr>
<tr>
<td>Carbon black</td>
<td>3mg/m³</td>
</tr>
</tbody>
</table>

8.2. Exposure controls:
Appropriate engineering controls  Provide general and/or local exhaust ventilation.

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

Hand protection:  Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, use protective gloves. Recommended impervious gloves is butyl rubber glove.

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.

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.
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.

Environmental exposure control:  Avoid release to the environment.

9. Physical and chemical properties
9.1. Information on basic physical and chemical properties
   Appearance:  Black Liquid
   Odor:  Slightly
   Odour threshold:  No data available
   pH:  No data available
   Melting point/freezing point:  No data available
   Initial boiling point and boiling range:  > 168 deg.C
   Flash point:  91 deg.C
   Evaporation rate:  No data available
   Flammability(solid, gas):  Not applicable
   Upper/lower flammability or explosive limits:  No data available
   Vapor pressure:  No data available
   Vapor density:  No data available
   Relative density:  No data available
   Solubility(ies):  Water solubility: Soluble
   Partition coefficient: n-octanol/water:  No data available
   Auto-ignition temperature:  No data available
   Decomposition temperature:  No data available
   Viscosity:  3.27 ± 0.5 cps(25°C)
   Explosive properties:  No data available
   Oxidizing properties:  None
   Volatile organic compounds (VOC) content:  980 gram/liter (maximum value)

9.2. Other information: No information

10. Stability and reactivity
10.1. Reactivity:  No reactivity under normal temperature
10.2. Chemical stability:  Stable under normal temperature
10.3. Possibility of hazardous reactions:  Not expected
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:  None under normal temperature

11. Toxicological information
11.1. Information on toxicological effects
   Routes Of Overexposure:  Eye, skin, inhalation, and oral
   Acute toxicity:
   Diethylene glycol diethyl ether
   LD50 ( oral-rat )  4790 mg/kg
   LD50 ( skin-rabbit )  6700 uL/kg
   Propylene carbonate
   LD50 ( oral-rat )  >5000 mg/kg
   LD50 ( dermal-rabbit )  >2000 mg/kg
Skin corrosion/irritation: No data available
Causes skin irritation. (Diethylene glycol diethyl ether)

Serious eye damage/eye irritation: No data available
Causes serious eye irritation. (Propylene carbonate)

Respiratory or skin sensitisation: No data available
Germ cell mutagenicity: No data available
Reproductive toxicity: No data available
Carcinogenicity: The product contains Carbon black.
IARC evaluated printing ink as a Group 3 (Not classifiable as to carcinogenicity to humans).

STOT-single exposure: No data available
STOT-repeated exposure: No data available
Aspiration hazard: No data available

12. Ecological information
12.1. Toxicity: No data available
12.2. Persistence and degradability: No data available
12.3. Bioaccumulative potential: No data available
12.4. Mobility in soil: No data available
12.5. Results of PBT and vPvB assessment: Has not carried out PBT and vPvB assessment.
12.6. Other adverse effects: No data available

13. Disposal considerations
13.1. Waste treatment methods:
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 : Not regulated
14.2. UN proper shipping name:
   ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.3. Transport hazard class(es):
   ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.4. Packing group:
   ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.5. Environmental hazards:
   ADR/ADG/DOT, IMDG, or IATA : Not regulated
14.6. Special precautions for user:
   Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code: Not regulated

15. Regulatory information
EU Information:
Chemical Safety Assessment according to (EC)1907/2006:
This product has not carried out any Chemical Safety Assessment yet.

Australia Information:
Hazardous statement: Classified as hazardous according to NOHSC criteria.

International Information:
The product contains Carbon black.
IARC evaluated printing ink as a Group 3 (Not classifiable as to carcinogenicity to humans).
16. Other Information

List of relevant H-Statements:

H315 Causes skin irritation.
H319 Causes serious eye irritation.

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.