

Material Safety Data Sheet

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

1.1. Product identifier

EcoXtreme i, AI3-BK Ver.2

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

Revision: 21 November, 2012

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is classified as dangerous according to EU Directive 1999/45/EC.

Xi R36/38

2.2. Label elements

In accordance with 1999/45/EC:



Xi Irritant

Wording of Risk and Safety Phrases:

R36/38 Irritating to eyes and skin.

S24/25 Avoid contact with skin and eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

2.3. Other hazards

Potential Health Effects:

| | |
|-------------------------|--|
| Eyes: | Contact with eye will be irritating. |
| Skin: | Contact with skin may cause minimally irritation. |
| Inhalation: | Exposure to vapors (mist) will cause respiratory irritation and anesthesia. |
| Ingestion: | May cause upset stomach. |
| Chronic Health Hazards: | No information available. |
| 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

| Composition | CAS No. | EC No. | EU registration No. | % By Weight | Classification EC No. 1272/2008 | Classification 67/548/EEC |
|-------------------------------------|-----------|-----------|---------------------|-------------|---------------------------------|-----------------------------|
| Diethylene glycol diethyl ether | 112-36-7 | 203-963-7 | N/A for the moment | 50-59 | Not classified as hazardous | Not classified as hazardous |
| Dialkylene glycol dialkyl ether | C.B.I. | C.B.I. | N/A for the moment | 18-24 | Not classified as hazardous | Not classified as hazardous |
| Polyalkylene glycol dialkyl ether | C.B.I. | C.B.I. | N/A for the moment | 6-10 | Not classified as hazardous | Not classified as hazardous |
| Resin | C.B.I. | C.B.I. | N/A for the moment | 4-6 | Not classified as hazardous | Not classified as hazardous |
| Carbon black | 1333-86-4 | 215-609-9 | N/A for the moment | 3-5 | Not classified as hazardous | Not classified as hazardous |
| Polyalkylene glycol monoalkyl ether | C.B.I. | C.B.I. | N/A for the moment | 2-4 | Not classified as hazardous | Not classified as hazardous |
| Dispersant | C.B.I. | C.B.I. | N/A for the moment | 2-4 | Not classified as hazardous | Not classified as hazardous |
| Pigment blue 15 | 147-14-8 | 205-685-1 | N/A for the moment | 1-2 | Not classified as hazardous | Not classified as hazardous |

*C.B.I.: Confidential Business Information

4. First aid measures

4.1. Description of first aid measures

| | |
|-------------|---|
| Eyes: | In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician. |
| Skin: | In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse. |
| 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 minimally irritation. |
| Inhalation: | Exposure to vapors (mist) will cause respiratory irritation and anesthesia. |
| Ingestion: | May cause upset 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:
Water spray, dry chemical, CO₂ or foam.

Unsuitable extinguishing media:
No information

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products: Oxides of carbon and nitrogen.
Combustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: 70 deg.C (T.C.C.)

5.3. Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective equipment.
Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental release measures

General:

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

6.1. Personal precautions, 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

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

6.3. Methods and material for containment and cleaning up

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

6.4. 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. Do not dismantle container. Make sure cartridge is dry before insertion into printer housing.

7.2. Conditions for safe storage, including any incompatibilities

Do not store the product in high or freezing temperatures. Keep the product out of direct sunlight. Do not store the product with oxidizing agents or explosives.

7.3. Specific end use(s): Inkjet printing

8. Exposure controls/ personal protection

8.1. Control parameters

Occupational Exposure Limits:

US:

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

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

| components | PEL |
|---------------------------------|---------------------------|
| Carbon black | 3.5mg/m ³ |
| Diethylene glycol diethyl ether | 5ppm, 33mg/m ³ |

Australia: OELs

| components | TWA |
|--------------|--------------------|
| Carbon black | 3mg/m ³ |

8.2 . Exposure controls:

- Occupational exposure control: Control the airborne concentrations below the exposure limits. Use only with adequate ventilation.
- Personal protective equipment:
- Respiratory protection: Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection.
- Hand protection: Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, use protective gloves.
- Eye protection: Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear safety glasses or chemical splash goggles.
- Skin protection: Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to 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: | Slight Solvent odor | |
| pH: | No data available | |
| Boiling point: | 188.9 deg.C (Diethylene glycol diethyl ether) 176.0 deg.C (Dialkylene glycol dialkyl ether) | |
| Melting point: | No data available | |
| Flash point: | 70 deg.C (T.C.C.) | |
| Explosive properties: | | |
| explosive limit | lower limits: 0.6vol% | upper limits 13.0vol% (Diethylene glycol diethyl ether) |
| | lower limits 2.5vol% | upper limits 33.0vol% (Dialkylene glycol dialkyl ether) |
| Oxidizing properties: | No data available | |
| Vapor pressure: | 0.38mmHg (20deg.C) (Diethylene glycol diethyl ether) | |
| Vapor density: | No data available | |
| Relative density: | 0.966 at 25deg.C | |
| Solubility in Water: | Easily soluble (Diethylene glycol diethyl ether) Fusibility (Dialkylene glycol dialkyl ether) | |
| Solubility in fat: | No data available | |
| Partition coefficient: n-octanol/water: | No data available | |
| Viscosity: | No data available | |
| Melting point: | No data available | |

9.2. Other information: No information

10. Stability and reactivity

| | |
|---|---|
| 10.1. Reactivity: | No data available |
| 10.2. Chemical stability: | Stable under normal temperature |
| 10.3. Possibility of hazardous reactions: | Not expected |
| 10.4. Conditions to avoid: | High and freezing temperatures |
| 10.5. Incompatible materials: | Acids and oxidizing agents |
| 10.6. Hazardous decomposition products: | Thermal decomposition will produce oxides of carbon, copper and nitrogen. |

11. Toxicological information

*Based on toxicology data of chemically similar material

11.1. Information on toxicological effects

| | | |
|------------------------------------|---|---------------------|
| Routes of Overexposure: | Eye, skin, inhalation, and oral | |
| Acute Health Hazards: | | |
| 1) Diethylene glycol diethyl ether | Oral LD50 | 4970mg/kg (Rat)* |
| | Dermal LD50 | 6097mg/kg (Rabbit)* |
| | Inhalant LC50 | No data available |
| 2) Dialkylene glycol dialkyl ether | Oral LD50 | 6000mg/kg (Rat)* |
| | Dermal LD50 | 6526mg/kg (Rabbit)* |
| | Inhalant LC50 | No data available |
| Skin corrosion/irritation: | No data available Reference data: Moderate irritant (Dialkylene glycol dialkyl ether)* | |
| Serious eye damage/eye irritation: | No data available Reference data: Moderate irritant (Diethylene glycol diethyl ether)* | |
| Respiratory or skin sensitisation: | No data available | |

| | |
|-------------------------|--|
| Germ cell mutagenicity: | Negative (by Ames Test) |
| 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: | Overexposure of eye may be irritating. Overexposure of skin may cause irritation and in some people swelling and redness. Inhalation may result in respiratory irritation and anesthesia. Ingestion may cause an upset stomach. |
| 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: | Disclosure of this product and abandonment have a possibility of affecting environment. Then, cautions are required for handling. It is necessary to cope with it so that especially a product or washing water may not flow to the ground, a river, and a drain. |

13. Disposal considerations

| | |
|--------------------------------|---|
| 13.1. Waste treatment methods: | This product is considered as a hazardous waste according to Directive 2008/98/EC. 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 applicable |
| 14.2. UN proper shipping name: | |
| ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.3. Transport hazard class(es): | |
| ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.4. Packing group: | |
| ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.5. Environmental hazards: | |
| ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.6. Special precautions for user: | Transport and storage of the product in accordance with general precautions and instructions mentioned in this MSDS. |
| 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code: | Not applicable |

15. Regulatory information

US information:

Toxic Substances Control Act (TSCA): All ingredients are listed on the TSCA Inventory.

Product contains Diethylene glycol diethyl ether and Polyalkylene glycol dialkyl ether that are subject to TSCA Section 5 proposed SNUR and to TSCA Section 12(b) export notification requirements.

California; Proposition 65: Not regulated

SARA TITLE III:

Section 313:

Diethylene glycol diethyl ether (Chemical Category N230)

Dialkylene glycol dialkyl ether (Chemical Category N230)

Polyalkylene glycol monoalkyl ether (Chemical Category N230)

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.

16. Other information

List of relevant H-Statements in section 3: Nothing

List of relevant R-phrases:

R36/38 Irritating to eyes and skin.

The information in this Material Safety Data Sheet (MSDS) 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.

Material Safety Data Sheet

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

1.1. Product identifier

EcoXtreme i, AI3-CY Ver.2

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

Revision: 21 November, 2012

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is classified as dangerous according to EU Directive 1999/45/EC.

Xi R36/38

2.2. Label elements

In accordance with 1999/45/EC:



Xi Irritant

Wording of Risk and Safety Phrases:

R36/38 Irritating to eyes and skin.

S24/25 Avoid contact with skin and eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

2.3. Other hazards

Potential Health Effects:

| | |
|-------------------------|---|
| Eyes: | Contact with eye will be irritating. |
| Skin: | Contact with skin may cause minimally irritation. |
| Inhalation: | Exposure to vapors (mist) will cause respiratory irritation and anesthesia. |
| Ingestion: | May cause upset stomach. |
| Chronic Health Hazards: | No information available. |
| Carcinogenicity: | None of the ingredients in this ink is listed by IARC as a carcinogen. |

3. Composition/information on ingredients

Chemical nature: mixture

| Composition | CAS No. | EC No. | EU registration No. | % By Weight | Classification EC No. 1272/2008 | Classification 67/548/EEC |
|-------------------------------------|----------|-----------|---------------------|-------------|---------------------------------|-----------------------------|
| Diethylene glycol diethyl ether | 112-36-7 | 203-963-7 | N/A for the moment | 52-60 | Not classified as hazardous | Not classified as hazardous |
| Dialkylene glycol dialkyl ether | C.B.I. | C.B.I. | N/A for the moment | 19-23 | Not classified as hazardous | Not classified as hazardous |
| Polyalkylene glycol dialkyl ether | C.B.I. | C.B.I. | N/A for the moment | 6-10 | Not classified as hazardous | Not classified as hazardous |
| Resin | C.B.I. | C.B.I. | N/A for the moment | 3-7 | Not classified as hazardous | Not classified as hazardous |
| Pigment blue 15 | 147-14-8 | 205-685-1 | N/A for the moment | 3-5 | Not classified as hazardous | Not classified as hazardous |
| Polyalkylene glycol monoalkyl ether | C.B.I. | C.B.I. | N/A for the moment | 2-4 | Not classified as hazardous | Not classified as hazardous |
| Dispersant | C.B.I. | C.B.I. | N/A for the moment | 2-4 | Not classified as hazardous | Not classified as hazardous |

*C.B.I.: Confidential Business Information

4. First aid measures

4.1. Description of first aid measures

| | |
|-------------|---|
| Eyes: | In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician. |
| Skin: | In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse. |
| 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 minimally irritation.
Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
Ingestion: May cause upset 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:
Water spray, dry chemical, CO₂ or foam.

Unsuitable extinguishing media:
No information

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products: Oxides of carbon and nitrogen.
Combustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: 70 deg.C (T.C.C.)

5.3. Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective equipment.
Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental release measures

General:

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

6.1. Personal precautions, 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

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

6.3. Methods and material for containment and cleaning up

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

6.4. 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. Do not dismantle container. Make sure cartridge is dry before insertion into printer housing.

7.2. Conditions for safe storage, including any incompatibilities

Do not store the product in high or freezing temperatures. Keep the product out of direct sunlight. Do not store the product with oxidizing agents or explosives.

7.3. Specific end use(s): Inkjet printing

8. Exposure controls/ personal protection

8.1. Control parameters

Occupational Exposure Limits:

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

| components | PEL |
|---------------------------------|---------------------------|
| Diethylene glycol diethyl ether | 5ppm, 33mg/m ³ |

8.2. Exposure controls:

| | |
|---------------------------------|---|
| Occupational exposure control: | Control the airborne concentrations below the exposure limits. Use only with adequate ventilation. |
| Personal protective equipment: | |
| Respiratory protection: | Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection. |
| Hand protection: | Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, use protective gloves. |
| Eye protection: | Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear safety glasses or chemical splash goggles. |
| Skin protection: | Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to 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: | Blue liquid |
| Odor: | Slight Solvent odor |
| pH: | No data available |
| Boiling point: | 188.9 deg.C (Diethylene glycol diethyl ether) 176.0 deg.C (Dialkylene glycol dialkyl ether) |
| Melting point: | No data available |
| Flash point: | 70 deg.C (T.C.C.) |
| Explosive properties: | |
| explosive limit | lower limits: 0.6vol% upper limits 13.0vol% (Diethylene glycol diethyl ether) lower limits 2.5vol% upper limits 33.0vol% (Dialkylene glycol dialkyl ether) |

| | |
|---|--|
| Oxidizing properties: | No data available |
| Vapor pressure: | 0.38mmHg (20deg.C) (Diethylene glycol diethyl ether) |
| Vapor density: | No data available |
| Relative density: | 0.960 at 25deg.C |
| Solubility in Water: | Easily soluble (Diethylene glycol diethyl ether) Fusibility (Dialkylene glycol dialkyl ether) |
| Solubility in fat: | No data available |
| Partition coefficient: n-octanol/water: | No data available |
| Viscosity: | No data available |
| Melting point: | No data available |

9.2. Other information: No information

10. Stability and reactivity

| | |
|---|---|
| 10.1. Reactivity: | No data available |
| 10.2. Chemical stability: | Stable under normal temperature |
| 10.3. Possibility of hazardous reactions: | Not expected |
| 10.4. Conditions to avoid: | High and freezing temperatures |
| 10.5. Incompatible materials: | Acids and oxidizing agents |
| 10.6. Hazardous decomposition products: | Thermal decomposition will produce oxides of carbon, copper and nitrogen. |

11. Toxicological information

*Based on toxicology data of chemically similar material

11.1. Information on toxicological effects

| | | |
|------------------------------------|--|---------------------|
| Routes of Overexposure: | Eye, skin, inhalation, and oral | |
| Acute Health Hazards: | | |
| 1) Diethylene glycol diethyl ether | Oral LD50 | 4970mg/kg (Rat)* |
| | Dermal LD50 | 6097mg/kg (Rabbit)* |
| | Inhalant LC50 | No data available |
| 2) Dialkylene glycol dialkyl ether | Oral LD50 | 6000mg/kg (Rat)* |
| | Dermal LD50 | 6526mg/kg (Rabbit)* |
| | Inhalant LC50 | No data available |
| Skin corrosion/irritation: | No data available Reference data: Moderate irritant (Dialkylene glycol dialkyl ether)* | |
| Serious eye damage/eye irritation: | No data available Reference data: Moderate irritant (Diethylene glycol diethyl ether)* | |
| Respiratory or skin sensitisation: | No data available | |
| Germ cell mutagenicity: | Negative (by Ames Test) | |
| Reproductive toxicity: | No data available | |
| Carcinogenicity: | None of the ingredients in this ink is listed by IARC as a carcinogen. | |
| STOT-single exposure: | Overexposure of eye may be irritating. Overexposure of skin may cause irritation and in some people swelling and redness. Inhalation may result in respiratory irritation and anesthesia. Ingestion may cause an upset stomach. | |
| 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: | Disclosure of this product and abandonment have a possibility of affecting environment. Then, cautions are required for handling. It is necessary to cope with it so that especially a product or washing water may not flow to the ground, a river, and a drain. |

13. Disposal considerations

- 13.1. Waste treatment methods:
This product is considered as a hazardous waste according to Directive 2008/98/EC.
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 applicable |
| 14.2. UN proper shipping name: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.3. Transport hazard class(es): ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.4. Packing group: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.5. Environmental hazards: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.6. Special precautions for user: | Transport and storage of the product in accordance with general precautions and instructions mentioned in this MSDS. |
| 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code: | Not applicable |

15. Regulatory information

US information:

Toxic Substances Control Act (TSCA): All ingredients are listed on the TSCA Inventory.

Product contains Diethylene glycol diethyl ether and Polyalkylene glycol dialkyl ether that are subject to TSCA Section 5 proposed SNUR and to TSCA Section 12(b) export notification requirements.

California; Proposition 65: Not regulated

SARA TITLE III:

Section 313:

Diethylene glycol diethyl ether (Chemical Category N230)

Dialkylene glycol dialkyl ether (Chemical Category N230)

Polyalkylene glycol monoalkyl ether (Chemical Category N230)

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.

16. Other information

List of relevant H-Statements in section 3: Nothing

List of relevant R-phrases:

R36/38 Irritating to eyes and skin.

The information in this Material Safety Data Sheet (MSDS) 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.

Material Safety Data Sheet

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

1.1. Product identifier

EcoXtreme i, AI3-MG Ver.2

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

Revision: 21 November, 2012

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is classified as dangerous according to EU Directive 1999/45/EC.

Xi R36/38

2.2. Label elements

In accordance with 1999/45/EC:



Xi Irritant

Wording of Risk and Safety Phrases:

R36/38 Irritating to eyes and skin.

S24/25 Avoid contact with skin and eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Contains Poly[oxy(methyl-1,2-ethanediyl)], .alpha.,.alpha.',.alpha."-1,2,3- propanetriyltris[.omega.-[(1-oxo-2-propenyl)oxy]]]-. May produce an allergic reaction.

2.3. Other hazards

Potential Health Effects:

| | |
|-------------------------|---|
| Eyes: | Contact with eye will be irritating. |
| Skin: | Contact with skin may cause minimally irritation. |
| Inhalation: | Exposure to vapors (mist) will cause respiratory irritation and anesthesia. |
| Ingestion: | May cause upset stomach. |
| Chronic Health Hazards: | No information available. |
| Carcinogenicity: | None of the ingredients in this ink is listed by IARC as a carcinogen. |

3. Composition/information on ingredients

Chemical nature: mixture

| Composition | CAS No. | EC No. | EU registration No. | % By Weight | Classification EC No. 1272/2008 | Classification 67/548/EEC |
|-------------------------------------|----------|-----------|---------------------|-------------|---------------------------------|-----------------------------|
| Diethylene glycol diethyl ether | 112-36-7 | 203-963-7 | N/A for the moment | 48-56 | Not classified as hazardous | Not classified as hazardous |
| Dialkylene glycol dialkyl ether | C.B.I. | C.B.I. | N/A for the moment | 20-25 | Not classified as hazardous | Not classified as hazardous |
| Polyalkylene glycol dialkyl ether | C.B.I. | C.B.I. | N/A for the moment | 8-11 | Not classified as hazardous | Not classified as hazardous |
| Pigment red 122 | 980-26-7 | 213-561-3 | N/A for the moment | 4-7 | Not classified as hazardous | Not classified as hazardous |
| Resin | C.B.I. | C.B.I. | N/A for the moment | 3-5 | Not classified as hazardous | Not classified as hazardous |
| Dispersant | C.B.I. | C.B.I. | N/A for the moment | 3-5 | Not classified as hazardous | Not classified as hazardous |
| Polyalkylene glycol monoalkyl ether | C.B.I. | C.B.I. | N/A for the moment | 2-3 | Not classified as hazardous | Not classified as hazardous |

*C.B.I.: Confidential Business Information

4. First aid measures

4.1. Description of first aid measures

| | |
|-------------|---|
| Eyes: | In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician. |
| Skin: | In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse. |
| 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 minimally irritation. |
| Inhalation: | Exposure to vapors (mist) will cause respiratory irritation and anesthesia. |
| Ingestion: | May cause upset 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:
Water spray, dry chemical, CO₂ or foam.

Unsuitable extinguishing media:
No information

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products: Oxides of carbon and nitrogen.
Combustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: 70 deg.C (T.C.C.)

5.3. Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective equipment.
Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental release measures

General:

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

6.1. Personal precautions, 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

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

6.3. Methods and material for containment and cleaning up

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

6.4. 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. Do not dismantle container. Make sure cartridge is dry before insertion into printer housing.

7.2. Conditions for safe storage, including any incompatibilities

Do not store the product in high or freezing temperatures. Keep the product out of direct sunlight. Do not store the product with oxidizing agents or explosives.

7.3. Specific end use(s): Inkjet printing

8. Exposure controls/ personal protection

8.1. Control parameters

Occupational Exposure Limits:

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

| components | PEL |
|---------------------------------|---------------------------|
| Diethylene glycol diethyl ether | 5ppm, 33mg/m ³ |

8.2. Exposure controls:

| | |
|---------------------------------|---|
| Occupational exposure control: | Control the airborne concentrations below the exposure limits. Use only with adequate ventilation. |
| Personal protective equipment: | |
| Respiratory protection: | Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection. |
| Hand protection: | Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, use protective gloves. |
| Eye protection: | Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear safety glasses or chemical splash goggles. |
| Skin protection: | Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to 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: | Slight Solvent odor |
| pH: | No data available |
| Boiling point: | 188.9 deg.C (Diethylene glycol diethyl ether) 176.0 deg.C (Dialkylene glycol dialkyl ether) |
| Melting point: | No data available |
| Flash point: | 70 deg.C (T.C.C.) |
| Explosive properties: | |
| explosive limit | lower limits: 0.6vol% upper limits 13.0vol% (Diethylene glycol diethyl ether) lower limits 2.5vol% upper limits 33.0vol% (Dialkylene glycol dialkyl ether) |

| | |
|---|--|
| Oxidizing properties: | No data available |
| Vapor pressure: | 0.38mmHg (20deg.C) (Diethylene glycol diethyl ether) |
| Vapor density: | No data available |
| Relative density: | 0.961 at 25deg.C |
| Solubility in Water: | Easily soluble (Diethylene glycol diethyl ether) Fusibility (Dialkylene glycol dialkyl ether) |
| Solubility in fat: | No data available |
| Partition coefficient: n-octanol/water: | No data available |
| Viscosity: | No data available |
| Melting point: | No data available |

9.2. Other information: No information

10. Stability and reactivity

| | |
|---|---|
| 10.1. Reactivity: | No data available |
| 10.2. Chemical stability: | Stable under normal temperature |
| 10.3. Possibility of hazardous reactions: | Not expected |
| 10.4. Conditions to avoid: | High and freezing temperatures |
| 10.5. Incompatible materials: | Acids and oxidizing agents |
| 10.6. Hazardous decomposition products: | Thermal decomposition will produce oxides of carbon, copper and nitrogen. |

11. Toxicological information

*Based on toxicology data of chemically similar material

11.1. Information on toxicological effects

| | | |
|------------------------------------|--|---------------------|
| Routes of Overexposure: | Eye, skin, inhalation, and oral | |
| Acute Health Hazards: | | |
| 1) Diethylene glycol diethyl ether | Oral LD50 | 4970mg/kg (Rat)* |
| | Dermal LD50 | 6097mg/kg (Rabbit)* |
| | Inhalant LC50 | No data available |
| 2) Dialkylene glycol dialkyl ether | Oral LD50 | 6000mg/kg (Rat)* |
| | Dermal LD50 | 6526mg/kg (Rabbit)* |
| | Inhalant LC50 | No data available |
| Skin corrosion/irritation: | No data available Reference data: Moderate irritant (Dialkylene glycol dialkyl ether)* | |
| Serious eye damage/eye irritation: | No data available Reference data: Moderate irritant (Diethylene glycol diethyl ether)* | |
| Respiratory or skin sensitisation: | No data available | |
| Germ cell mutagenicity: | Negative (by Ames Test) | |
| Reproductive toxicity: | No data available | |
| Carcinogenicity: | None of the ingredients in this ink is listed by IARC as a carcinogen. | |
| STOT-single exposure: | Overexposure of eye may be irritating. Overexposure of skin may cause irritation and in some people swelling and redness. Inhalation may result in respiratory irritation and anesthesia. Ingestion may cause an upset stomach. | |
| 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: | Disclosure of this product and abandonment have a possibility of affecting environment. Then, cautions are required for handling. It is necessary to cope with it so that especially a product or washing water may not flow to the ground, a river, and a drain. |

13. Disposal considerations

- 13.1. Waste treatment methods:
This product is considered as a hazardous waste according to Directive 2008/98/EC.
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 applicable |
| 14.2. UN proper shipping name: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.3. Transport hazard class(es): ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.4. Packing group: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.5. Environmental hazards: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.6. Special precautions for user: | Transport and storage of the product in accordance with general precautions and instructions mentioned in this MSDS. |
| 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code: | Not applicable |

15. Regulatory information

US information:

Toxic Substances Control Act (TSCA): All ingredients are listed on the TSCA Inventory.

Product contains Diethylene glycol diethyl ether and Polyalkylene glycol dialkyl ether that are subject to TSCA Section 5 proposed SNUR and to TSCA Section 12(b) export notification requirements.

California; Proposition 65: Not regulated

SARA TITLE III:

Section 313:

Diethylene glycol diethyl ether (Chemical Category N230)

Dialkylene glycol dialkyl ether (Chemical Category N230)

Polyalkylene glycol monoalkyl ether (Chemical Category N230)

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.

16. Other information

List of relevant H-Statements in section 3: Nothing

List of relevant R-phrases:

R36/38 Irritating to eyes and skin.

The information in this Material Safety Data Sheet (MSDS) 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.

Material Safety Data Sheet

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

1.1. Product identifier

EcoXtreme i, AI3-YE Ver.2

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

Revision: 21 November, 2012

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is classified as dangerous according to EU Directive 1999/45/EC.

Xi R36/38

2.2. Label elements

In accordance with 1999/45/EC:



Xi Irritant

Wording of Risk and Safety Phrases:

R36/38 Irritating to eyes and skin.

S24/25 Avoid contact with skin and eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

2.3. Other hazards

Potential Health Effects:

Eyes: Contact with eye will be irritating.

Skin: Contact with skin may cause minimally irritation.

Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.

Ingestion: May cause upset stomach.

Chronic Health Hazards: No information available.

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

3. Composition/information on ingredients

Chemical nature: mixture

| Composition | CAS No. | EC No. | EU registration No. | % By Weight | Classification EC No. 1272/2008 | Classification 67/548/EEC |
|-------------------------------------|------------|-----------|---------------------|-------------|---------------------------------|-----------------------------|
| Diethylene glycol diethyl ether | 112-36-7 | 203-963-7 | N/A for the moment | 48-56 | Not classified as hazardous | Not classified as hazardous |
| Dialkylene glycol dialkyl ether | C.B.I. | C.B.I. | N/A for the moment | 20-25 | Not classified as hazardous | Not classified as hazardous |
| Polyalkylene glycol dialkyl ether | C.B.I. | C.B.I. | N/A for the moment | 8-11 | Not classified as hazardous | Not classified as hazardous |
| Pigment yellow 150 | 68511-62-6 | 270-944-8 | N/A for the moment | 4-7 | Not classified as hazardous | Not classified as hazardous |
| Resin | C.B.I. | C.B.I. | N/A for the moment | 3-5 | Not classified as hazardous | Not classified as hazardous |
| Dispersant | C.B.I. | C.B.I. | N/A for the moment | 3-5 | Not classified as hazardous | Not classified as hazardous |
| Polyalkylene glycol monoalkyl ether | C.B.I. | C.B.I. | N/A for the moment | 2-4 | Not classified as hazardous | Not classified as hazardous |

*C.B.I.: Confidential Business Information

4. First aid measures

4.1. Description of first aid measures

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

Skin: In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.

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 minimally irritation. |
| Inhalation: | Exposure to vapors (mist) will cause respiratory irritation and anesthesia. |
| Ingestion: | May cause upset 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:
Water spray, dry chemical, CO₂ or foam.

Unsuitable extinguishing media:
No information

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products: Oxides of carbon and nitrogen.
Combustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: 70 deg.C (T.C.C.)

5.3. Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective equipment.
Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental release measures

General:

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

6.1. Personal precautions, 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

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

6.3. Methods and material for containment and cleaning up

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

6.4. Reference to other sections

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

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | | |
|---|--|---|
| Appearance: | Yellow liquid | |
| Odor: | Slight Solvent odor | |
| pH: | No data available | |
| Boiling point: | 188.9 deg.C (Diethylene glycol diethyl ether) 176.0 deg.C (Dialkylene glycol dialkyl ether) | |
| Melting point: | No data available | |
| Flash point: | 70 deg.C (T.C.C.) | |
| Explosive properties: | | |
| explosive limit | lower limits: 0.6vol% | upper limits 13.0vol% (Diethylene glycol diethyl ether) |
| | lower limits 2.5vol% | upper limits 33.0vol% (Dialkylene glycol dialkyl ether) |
| Oxidizing properties: | No data available | |
| Vapor pressure: | 0.38mmHg (20deg.C) (Diethylene glycol diethyl ether) | |
| Vapor density: | No data available | |
| Relative density: | 0.966 at 25deg.C | |
| Solubility in Water: | Easily soluble (Diethylene glycol diethyl ether) Fusibility (Dialkylene glycol dialkyl ether) | |
| Solubility in fat: | No data available | |
| Partition coefficient: n-octanol/water: | No data available | |
| Viscosity: | No data available | |
| Melting point: | No data available | |

9.2. Other information: No information

10. Stability and reactivity

| | |
|---|---|
| 10.1. Reactivity: | No data available |
| 10.2. Chemical stability: | Stable under normal temperature |
| 10.3. Possibility of hazardous reactions: | Not expected |
| 10.4. Conditions to avoid: | High and freezing temperatures |
| 10.5. Incompatible materials: | Acids and oxidizing agents |
| 10.6. Hazardous decomposition products: | Thermal decomposition will produce oxides of carbon, copper and nitrogen. |

11. Toxicological information

*Based on toxicology data of chemically similar material

11.1. Information on toxicological effects

| | | |
|------------------------------------|---|---------------------|
| Routes of Overexposure: | Eye, skin, inhalation, and oral | |
| Acute Health Hazards: | | |
| 1) Diethylene glycol diethyl ether | Oral LD50 | 4970mg/kg (Rat)* |
| | Dermal LD50 | 6097mg/kg (Rabbit)* |
| | Inhalant LC50 | No data available |
| 2) Dialkylene glycol dialkyl ether | Oral LD50 | 6000mg/kg (Rat)* |
| | Dermal LD50 | 6526mg/kg (Rabbit)* |
| | Inhalant LC50 | No data available |
| Skin corrosion/irritation: | No data available Reference data: Moderate irritant (Dialkylene glycol dialkyl ether)* | |
| Serious eye damage/eye irritation: | No data available Reference data: Moderate irritant (Diethylene glycol diethyl ether)* | |
| Respiratory or skin sensitisation: | No data available | |

| | |
|-------------------------|--|
| Germ cell mutagenicity: | Negative (by Ames Test) |
| Reproductive toxicity: | No data available |
| Carcinogenicity: | None of the ingredients in this ink is listed by IARC as a carcinogen. |
| STOT-single exposure: | Overexposure of eye may be irritating. Overexposure of skin may cause irritation and in some people swelling and redness. Inhalation may result in respiratory irritation and anesthesia. Ingestion may cause an upset stomach. |
| 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: | Disclosure of this product and abandonment have a possibility of affecting environment. Then, cautions are required for handling. It is necessary to cope with it so that especially a product or washing water may not flow to the ground, a river, and a drain. |

13. Disposal considerations

| | |
|--------------------------------|---|
| 13.1. Waste treatment methods: | This product is considered as a hazardous waste according to Directive 2008/98/EC. 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 applicable |
| 14.2. UN proper shipping name: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.3. Transport hazard class(es): ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.4. Packing group: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.5. Environmental hazards: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.6. Special precautions for user: | Transport and storage of the product in accordance with general precautions and instructions mentioned in this MSDS. |
| 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code: | Not applicable |

15. Regulatory information

US information:

Toxic Substances Control Act (TSCA): All ingredients are listed on the TSCA Inventory.

Product contains Diethylene glycol diethyl ether and Polyalkylene glycol dialkyl ether that are subject to TSCA Section 5 proposed SNUR and to TSCA Section 12(b) export notification requirements.

California; Proposition 65: Pigment yellow150 (Nickel Compounds)

SARA TITLE III:

Section 313:

Pigment yellow150 (Nickel Compounds) (Category Code N495)

Diethylene glycol diethyl ether (Chemical Category N230)

Dialkylene glycol dialkyl ether (Chemical Category N230)

Polyalkylene glycol monoalkyl ether (Chemical Category N230)

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.

16. Other information

List of relevant H-Statements in section 3: Nothing

List of relevant R-phrases:

R36/38 Irritating to eyes and skin.

The information in this Material Safety Data Sheet (MSDS) 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.

Material Safety Data Sheet

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

1.1. Product identifier

EcoXtreme i, AI3-LC Ver.2

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

Revision: 21 November, 2012

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is classified as dangerous according to EU Directive 1999/45/EC.

Xi R36/38

2.2. Label elements

In accordance with 1999/45/EC:



Xi Irritant

Wording of Risk and Safety Phrases:

R36/38 Irritating to eyes and skin.

S24/25 Avoid contact with skin and eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

2.3. Other hazards

Potential Health Effects:

| | |
|-------------------------|---|
| Eyes: | Contact with eye will be irritating. |
| Skin: | Contact with skin may cause minimally irritation. |
| Inhalation: | Exposure to vapors (mist) will cause respiratory irritation and anesthesia. |
| Ingestion: | May cause upset stomach. |
| Chronic Health Hazards: | No information available. |
| Carcinogenicity: | None of the ingredients in this ink is listed by IARC as a carcinogen. |

3. Composition/information on ingredients

Chemical nature: mixture

| Composition | CAS No. | EC No. | EU registration No. | % By Weight | Classification EC No. 1272/2008 | Classification 67/548/EEC |
|-------------------------------------|----------|-----------|---------------------|-------------|---------------------------------|-----------------------------|
| Diethylene glycol diethyl ether | 112-36-7 | 203-963-7 | N/A for the moment | 55-65 | Not classified as hazardous | Not classified as hazardous |
| Dialkylene glycol dialkyl ether | C.B.I. | C.B.I. | N/A for the moment | 18-25 | Not classified as hazardous | Not classified as hazardous |
| Polyalkylene glycol dialkyl ether | C.B.I. | C.B.I. | N/A for the moment | 6-10 | Not classified as hazardous | Not classified as hazardous |
| Resin | C.B.I. | C.B.I. | N/A for the moment | 5-8 | Not classified as hazardous | Not classified as hazardous |
| Polyalkylene glycol monoalkyl ether | C.B.I. | C.B.I. | N/A for the moment | 2.5-4 | Not classified as hazardous | Not classified as hazardous |
| Dispersant | C.B.I. | C.B.I. | N/A for the moment | 0.5-1 | Not classified as hazardous | Not classified as hazardous |
| Pigment blue 15 | 147-14-8 | 205-685-1 | N/A for the moment | 0.5-1 | Not classified as hazardous | Not classified as hazardous |

*C.B.I.: Confidential Business Information

4. First aid measures

4.1. Description of first aid measures

| | |
|-------------|---|
| Eyes: | In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician. |
| Skin: | In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse. |
| 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 minimally irritation. |
| Inhalation: | Exposure to vapors (mist) will cause respiratory irritation and anesthesia. |
| Ingestion: | May cause upset 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:
Water spray, dry chemical, CO₂ or foam.

Unsuitable extinguishing media:
No information

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products: Oxides of carbon and nitrogen.
Combustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: 70 deg.C (T.C.C.)

5.3. Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective equipment.
Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental release measures

General:

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

6.1. Personal precautions, 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

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

6.3. Methods and material for containment and cleaning up

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

6.4. 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. Do not dismantle container. Make sure cartridge is dry before insertion into printer housing.

7.2. Conditions for safe storage, including any incompatibilities

Do not store the product in high or freezing temperatures. Keep the product out of direct sunlight. Do not store the product with oxidizing agents or explosives.

7.3. Specific end use(s): Inkjet printing

8. Exposure controls/ personal protection

8.1. Control parameters

Occupational Exposure Limits:

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

| components | PEL |
|---------------------------------|---------------------------|
| Diethylene glycol diethyl ether | 5ppm, 33mg/m ³ |

8.2. Exposure controls:

| | |
|---------------------------------|---|
| Occupational exposure control: | Control the airborne concentrations below the exposure limits. Use only with adequate ventilation. |
| Personal protective equipment: | |
| Respiratory protection: | Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection. |
| Hand protection: | Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, use protective gloves. |
| Eye protection: | Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear safety glasses or chemical splash goggles. |
| Skin protection: | Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to 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: | Light Blue liquid |
| Odor: | Slight Solvent odor |
| pH: | No data available |
| Boiling point: | 188.9 deg.C (Diethylene glycol diethyl ether) 176.0 deg.C (Dialkylene glycol dialkyl ether) |
| Melting point: | No data available |
| Flash point: | 70 deg.C (T.C.C.) |
| Explosive properties: | |
| explosive limit | lower limits: 0.6vol% upper limits 13.0vol% (Diethylene glycol diethyl ether) lower limits 2.5vol% upper limits 33.0vol% (Dialkylene glycol dialkyl ether) |

| | |
|---|--|
| Oxidizing properties: | No data available |
| Vapor pressure: | 0.38mmHg (20deg.C) (Diethylene glycol diethyl ether) |
| Vapor density: | No data available |
| Relative density: | 0.946 at 25deg.C |
| Solubility in Water: | Easily soluble (Diethylene glycol diethyl ether) Fusibility (Dialkylene glycol dialkyl ether) |
| Solubility in fat: | No data available |
| Partition coefficient: n-octanol/water: | No data available |
| Viscosity: | No data available |
| Melting point: | No data available |

9.2. Other information: No information

10. Stability and reactivity

| | |
|---|---|
| 10.1. Reactivity: | No data available |
| 10.2. Chemical stability: | Stable under normal temperature |
| 10.3. Possibility of hazardous reactions: | Not expected |
| 10.4. Conditions to avoid: | High and freezing temperatures |
| 10.5. Incompatible materials: | Acids and oxidizing agents |
| 10.6. Hazardous decomposition products: | Thermal decomposition will produce oxides of carbon, copper and nitrogen. |

11. Toxicological information

*Based on toxicology data of chemically similar material

11.1. Information on toxicological effects

| | | |
|------------------------------------|--|---------------------|
| Routes of Overexposure: | Eye, skin, inhalation, and oral | |
| Acute Health Hazards: | | |
| 1) Diethylene glycol diethyl ether | Oral LD50 | 4970mg/kg (Rat)* |
| | Dermal LD50 | 6097mg/kg (Rabbit)* |
| | Inhalant LC50 | No data available |
| 2) Dialkylene glycol dialkyl ether | Oral LD50 | 6000mg/kg (Rat)* |
| | Dermal LD50 | 6526mg/kg (Rabbit)* |
| | Inhalant LC50 | No data available |
| Skin corrosion/irritation: | No data available Reference data: Moderate irritant (Dialkylene glycol dialkyl ether)* | |
| Serious eye damage/eye irritation: | No data available Reference data: Moderate irritant (Diethylene glycol diethyl ether)* | |
| Respiratory or skin sensitisation: | No data available | |
| Germ cell mutagenicity: | Negative (by Ames Test) | |
| Reproductive toxicity: | No data available | |
| Carcinogenicity: | None of the ingredients in this ink is listed by IARC as a carcinogen. | |
| STOT-single exposure: | Overexposure of eye may be irritating. Overexposure of skin may cause irritation and in some people swelling and redness. Inhalation may result in respiratory irritation and anesthesia. Ingestion may cause an upset stomach. | |
| 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: | Disclosure of this product and abandonment have a possibility of affecting environment. Then, cautions are required for handling. It is necessary to cope with it so that especially a product or washing water may not flow to the ground, a river, and a drain. |

13. Disposal considerations

- 13.1. Waste treatment methods:
This product is considered as a hazardous waste according to Directive 2008/98/EC.
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 applicable |
| 14.2. UN proper shipping name: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.3. Transport hazard class(es): ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.4. Packing group: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.5. Environmental hazards: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.6. Special precautions for user: | Transport and storage of the product in accordance with general precautions and instructions mentioned in this MSDS. |
| 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code: | Not applicable |

15. Regulatory information

US information:

Toxic Substances Control Act (TSCA): All ingredients are listed on the TSCA Inventory.

Product contains Diethylene glycol diethyl ether and Polyalkylene glycol dialkyl ether that are subject to TSCA Section 5 proposed SNUR and to TSCA Section 12(b) export notification requirements.

California; Proposition 65: Not regulated

SARA TITLE III:

Section 313:

Diethylene glycol diethyl ether (Chemical Category N230)

Dialkylene glycol dialkyl ether (Chemical Category N230)

Polyalkylene glycol monoalkyl ether (Chemical Category N230)

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.

16. Other information

List of relevant H-Statements in section 3: Nothing

List of relevant R-phrases:

R36/38 Irritating to eyes and skin.

The information in this Material Safety Data Sheet (MSDS) 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.

Material Safety Data Sheet

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

1.1. Product identifier

EcoXtreme i, AI3-LM Ver.2

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

Revision: 21 November, 2012

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is classified as dangerous according to EU Directive 1999/45/EC.

Xi R36/38

2.2. Label elements

In accordance with 1999/45/EC:



Xi Irritant

Wording of Risk and Safety Phrases:

R36/38 Irritating to eyes and skin.

S24/25 Avoid contact with skin and eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

2.3. Other hazards

Potential Health Effects:

| | |
|-------------------------|---|
| Eyes: | Contact with eye will be irritating. |
| Skin: | Contact with skin may cause minimally irritation. |
| Inhalation: | Exposure to vapors (mist) will cause respiratory irritation and anesthesia. |
| Ingestion: | May cause upset stomach. |
| Chronic Health Hazards: | No information available. |
| Carcinogenicity: | None of the ingredients in this ink is listed by IARC as a carcinogen. |

3. Composition/information on ingredients

Chemical nature: mixture

| Composition | CAS No. | EC No. | EU registration No. | % By Weight | Classification EC No. 1272/2008 | Classification 67/548/EEC |
|-------------------------------------|----------|-----------|---------------------|-------------|---------------------------------|-----------------------------|
| Diethylene glycol diethyl ether | 112-36-7 | 203-963-7 | N/A for the moment | 53-62 | Not classified as hazardous | Not classified as hazardous |
| Dialkylene glycol dialkyl ether | C.B.I. | C.B.I. | N/A for the moment | 20-25 | Not classified as hazardous | Not classified as hazardous |
| Polyalkylene glycol dialkyl ether | C.B.I. | C.B.I. | N/A for the moment | 7-11 | Not classified as hazardous | Not classified as hazardous |
| Resin | C.B.I. | C.B.I. | N/A for the moment | 5-8 | Not classified as hazardous | Not classified as hazardous |
| Polyalkylene glycol monoalkyl ether | C.B.I. | C.B.I. | N/A for the moment | 1-4 | Not classified as hazardous | Not classified as hazardous |
| Pigment red 122 | 980-26-7 | 213-561-3 | N/A for the moment | 0.5-1.5 | Not classified as hazardous | Not classified as hazardous |
| Dispersant | C.B.I. | C.B.I. | N/A for the moment | 0.5-1.5 | Not classified as hazardous | Not classified as hazardous |

*C.B.I.: Confidential Business Information

4. First aid measures

4.1. Description of first aid measures

| | |
|-------------|---|
| Eyes: | In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician. |
| Skin: | In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse. |
| 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 minimally irritation. |
| Inhalation: | Exposure to vapors (mist) will cause respiratory irritation and anesthesia. |
| Ingestion: | May cause upset 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:
Water spray, dry chemical, CO₂ or foam.

Unsuitable extinguishing media:
No information

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products: Oxides of carbon and nitrogen.
Combustible liquid under Hazard Communication Standard (HCS, U.S.A).
Flash Point: 70 deg.C (T.C.C.)

5.3. Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective equipment.
Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental release measures

General:

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

6.1. Personal precautions, 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

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

6.3. Methods and material for containment and cleaning up

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

6.4. 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. Do not dismantle container. Make sure cartridge is dry before insertion into printer housing.

7.2. Conditions for safe storage, including any incompatibilities

Do not store the product in high or freezing temperatures. Keep the product out of direct sunlight. Do not store the product with oxidizing agents or explosives.

7.3. Specific end use(s): Inkjet printing

8. Exposure controls/ personal protection

8.1. Control parameters

Occupational Exposure Limits:

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

| components | PEL |
|---------------------------------|---------------------------|
| Diethylene glycol diethyl ether | 5ppm, 33mg/m ³ |

8.2. Exposure controls:

| | |
|---------------------------------|---|
| Occupational exposure control: | Control the airborne concentrations below the exposure limits. Use only with adequate ventilation. |
| Personal protective equipment: | |
| Respiratory protection: | Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection. |
| Hand protection: | Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, use protective gloves. |
| Eye protection: | Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear safety glasses or chemical splash goggles. |
| Skin protection: | Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to 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: | Light Magenta liquid |
| Odor: | Slight Solvent odor |
| pH: | No data available |
| Boiling point: | 188.9 deg.C (Diethylene glycol diethyl ether) 176.0 deg.C (Dialkylene glycol dialkyl ether) |
| Melting point: | No data available |
| Flash point: | 70 deg.C (T.C.C.) |
| Explosive properties: | |
| explosive limit | lower limits: 0.6vol% upper limits 13.0vol% (Diethylene glycol diethyl ether) lower limits 2.5vol% upper limits 33.0vol% (Dialkylene glycol dialkyl ether) |

| | |
|---|--|
| Oxidizing properties: | No data available |
| Vapor pressure: | 0.38mmHg (20deg.C) (Diethylene glycol diethyl ether) |
| Vapor density: | No data available |
| Relative density: | 0.947 at 25deg.C |
| Solubility in Water: | Easily soluble (Diethylene glycol diethyl ether) Fusibility (Dialkylene glycol dialkyl ether) |
| Solubility in fat: | No data available |
| Partition coefficient: n-octanol/water: | No data available |
| Viscosity: | No data available |
| Melting point: | No data available |

9.2. Other information: No information

10. Stability and reactivity

| | |
|---|---|
| 10.1. Reactivity: | No data available |
| 10.2. Chemical stability: | Stable under normal temperature |
| 10.3. Possibility of hazardous reactions: | Not expected |
| 10.4. Conditions to avoid: | High and freezing temperatures |
| 10.5. Incompatible materials: | Acids and oxidizing agents |
| 10.6. Hazardous decomposition products: | Thermal decomposition will produce oxides of carbon, copper and nitrogen. |

11. Toxicological information

*Based on toxicology data of chemically similar material

11.1. Information on toxicological effects

| | | |
|------------------------------------|--|---------------------|
| Routes of Overexposure: | Eye, skin, inhalation, and oral | |
| Acute Health Hazards: | | |
| 1) Diethylene glycol diethyl ether | Oral LD50 | 4970mg/kg (Rat)* |
| | Dermal LD50 | 6097mg/kg (Rabbit)* |
| | Inhalant LC50 | No data available |
| 2) Dialkylene glycol dialkyl ether | Oral LD50 | 6000mg/kg (Rat)* |
| | Dermal LD50 | 6526mg/kg (Rabbit)* |
| | Inhalant LC50 | No data available |
| Skin corrosion/irritation: | No data available Reference data: Moderate irritant (Dialkylene glycol dialkyl ether)* | |
| Serious eye damage/eye irritation: | No data available Reference data: Moderate irritant (Diethylene glycol diethyl ether)* | |
| Respiratory or skin sensitisation: | No data available | |
| Germ cell mutagenicity: | Negative (by Ames Test) | |
| Reproductive toxicity: | No data available | |
| Carcinogenicity: | None of the ingredients in this ink is listed by IARC as a carcinogen. | |
| STOT-single exposure: | Overexposure of eye may be irritating. Overexposure of skin may cause irritation and in some people swelling and redness. Inhalation may result in respiratory irritation and anesthesia. Ingestion may cause an upset stomach. | |
| 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: | Disclosure of this product and abandonment have a possibility of affecting environment. Then, cautions are required for handling. It is necessary to cope with it so that especially a product or washing water may not flow to the ground, a river, and a drain. |

13. Disposal considerations

- 13.1. Waste treatment methods:
This product is considered as a hazardous waste according to Directive 2008/98/EC.
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 applicable |
| 14.2. UN proper shipping name: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.3. Transport hazard class(es): ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.4. Packing group: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.5. Environmental hazards: ADR/ADG/DOT, IMDG, or IATA : | Not applicable |
| 14.6. Special precautions for user: | Transport and storage of the product in accordance with general precautions and instructions mentioned in this MSDS. |
| 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code: | Not applicable |

15. Regulatory information

US information:

Toxic Substances Control Act (TSCA): All ingredients are listed on the TSCA Inventory.

Product contains Diethylene glycol diethyl ether and Polyalkylene glycol dialkyl ether that are subject to TSCA Section 5 proposed SNUR and to TSCA Section 12(b) export notification requirements.

California; Proposition 65: Not regulated

SARA TITLE III:

Section 313:

Diethylene glycol diethyl ether (Chemical Category N230)

Dialkylene glycol dialkyl ether (Chemical Category N230)

Polyalkylene glycol monoalkyl ether (Chemical Category N230)

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.

16. Other information

List of relevant H-Statements in section 3: Nothing

List of relevant R-phrases:

R36/38 Irritating to eyes and skin.

The information in this Material Safety Data Sheet (MSDS) 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.