Safety Data Sheet

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

1.1. Product identifier
EcoXtreme LT Ink, AI4-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:	8 November, 2019

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
Toxic to reproduction	Category 1B

2.2. GHS label elements, incliding precautionary statements
Pictogram

Signal word(s)	Danger
Hazard statement(s)	Combustible liquid. Causes skin irritation. May damage fertility or the unborn child

Precautionary statement(s)

Prevention	Do not handle until all safety precautions have been read and understood. 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 exposed or concerned: Get medical advice/attention.
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) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.
Ingestion:	May cause injury of mouth, throat, and stomach.
Chronic Health Hazards:	Repeated skin contact may cause a persistent irritation or dermatitis.
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

3. Composition/information on ingredients

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008
Resin	C.B.I.	C.B.I.	N/A for the moment	1-10	Not classified as hazardous
Copper compounds	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	203-963-7	N/A for the moment	40-60	Skin Irrit. 2: H315
Dialkylene glycol dialkyl ether	C.B.I.	C.B.I.	N/A for the moment	20-40	Not classified as hazardous
Dipropylene glycol monomethyl ether	34590-94-8	252-104-2	N/A for the moment	1-5	Not classified as hazardous
Tetraethylene glycol dimethyl ether	143-24-8	205-594-7	N/A for the moment	5-10	Repr. 1B: H360
Additive	C.B.I.	C.B.I.	N/A for the moment	5 - 10	Not classified as hazardous

*C.B.I.: Confidential Business Information

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

Ingestion: May cause injury of mouth, throat, and stomach.

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

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

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:

components	TWA
Dipropylene glycol monomethyl ether	308mg/m^3, 50ppm

DNEL

components	Long term exposure	Short term exposure
Diethylene glycol diethyl ether	50.05mg/m^3	-
Tetraethylene glycol dimethyl ether	22mg/m^3	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

Australia: OELs

components	TWA
Dipropylene glycol monomethyl ether	308mg/m^3, 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:	Cyan Liquid
Odour:	Slight odor
Odour threshold:	No data available
pH:	Not applicable
Melting point/freezing point:	approx. 176 °C or higher
Initial boiling point and boiling range:	No data available
Flash point:	approx.70 °C or higher
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:	0.945±0.01 (25 °C)
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	not below 220 °C
Decomposition Temperature:	No data available
Viscosity:	9.5±0.5 mPa·s
Explosive properties:	Lower limits: 0.6 vol% Upper limits: 13.0 vol% (Diethylene glycol diethyl ether) Lower limits: 2.5 vol% Upper limits: 33.0 vol% (Dialkylene glycol dialkyl ether)
Oxidizing properties:	No data available
Volatile organic compounds (VOC) content:	780 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 ingestion

Acute toxicity:

1) Diethylene glycol diethyl ether	Oral LD_{50}	4970 mg/kg (Rat)
	Dermal LD_{50}	6097 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
2) Dialkylene glycol dialkyl ether	Oral LD_{50}	6000 mg/kg (Rats)
	Dermal LD_{50}	6526 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
3) Dipropylene glycol monomethyl ether	Oral LD_{50}	5130 mg/kg (Rat)
	Dermal LD_{50}	9500 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
4) Tetraethylene glycol dimethyl ether	Oral LD_{50}	5140 mg/kg (Rat)
	Dermal LD_{50}	No data available
	Inhalation LC_{50}	No data available

Skin corrosion/irritation:	No data available Reference data: Moderate irritant (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 Suspected of damaging fertility or the unborn child.(Tetraethylene glycol dimethyl ether and a similar chemical)
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)
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:	No data available

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 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.
H360 Maydamage fertility or the unborn child.

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
EcoXtreme LT Ink, AI4-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

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:	8 November, 2019

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
Toxic to reproduction	Category 1B

2.2. GHS label elements, incliding precautionary statements
Pictogram

Signal word(s)	Danger
Hazard statement(s)	Combustible liquid. Causes skin irritation. May damage fertility or the unborn child

Precautionary statement(s)

Prevention	Do not handle until all safety precautions have been read and understood. 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 exposed or concerned: Get medical advice/attention.
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) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.
Ingestion:	May cause injury of mouth, throat, and stomach.
Chronic Health Hazards:	Repeated skin contact may cause a persistent irritation or dermatitis.
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

3. Composition/information on ingredients

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008
Resin	C.B.I.	C.B.I.	N/A for the moment	1-10	Not classified as hazardous
Magenta pigment	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	203-963-7	N/A for the moment	40-60	Skin Irrit. 2: H315
Dialkylene glycol dialkyl ether	C.B.I.	C.B.I.	N/A for the moment	20-40	Not classified as hazardous
Dipropylene glycol monomethyl ether	34590-94-8	252-104-2	N/A for the moment	1-5	Not classified as hazardous
Tetraethylene glycol dimethyl ether	143-24-8	205-594-7	N/A for the moment	1-5	Repr. 1B: H360
Additive	C.B.I.	C.B.I.	N/A for the moment	5 - 10	Not classified as hazardous

*C.B.I.: Confidential Business Information

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

Ingestion: May cause injury of mouth, throat, and stomach.

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

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

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:

components	TWA
Dipropylene glycol monomethyl ether	308mg/m^3, 50ppm

DNEL

components	Long term exposure	Short term exposure
Diethylene glycol diethyl ether	50.05mg/m^3	-
Tetraethylene glycol dimethyl ether	22mg/m^3	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

Australia: OELs

components	TWA
Dipropylene glycol monomethyl ether	308mg/m^3, 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:	Magenta Liquid
Odour:	Slight odor
Odour threshold:	No data available
pH:	Not applicable
Melting point/freezing point:	approx. 176 °C or higher
Initial boiling point and boiling range:	No data available
Flash point:	approx.70 °C or higher
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:	0.948±0.01 (25 °C)
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	not below 220 °C
Decomposition Temperature:	No data available
Viscosity:	9.5±0.5 mPa·s
Explosive properties:	Lower limits: 0.6 vol% Upper limits: 13.0 vol% (Diethylene glycol diethyl ether) Lower limits: 2.5 vol% Upper limits: 33.0 vol% (Dialkylene glycol dialkyl ether)
Oxidizing properties:	No data available
Volatile organic compounds (VOC) content:	780 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 ingestion

Acute toxicity:

1) Diethylene glycol diethyl ether	Oral LD_{50}	4970 mg/kg (Rat)
	Dermal LD_{50}	6097 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
2) Dialkylene glycol dialkyl ether	Oral LD_{50}	6000 mg/kg (Rats)
	Dermal LD_{50}	6526 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
3) Dipropylene glycol monomethyl ether	Oral LD_{50}	5130 mg/kg (Rat)
	Dermal LD_{50}	9500 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
4) Tetraethylene glycol dimethyl ether	Oral LD_{50}	5140 mg/kg (Rat)
	Dermal LD_{50}	No data available
	Inhalation LC_{50}	No data available

Skin corrosion/irritation: No data available

Reference data: Moderate irritant (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

Suspected of damaging fertility or the unborn child.(Tetraethylene glycol dimethyl ether and a similar chemical)

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: No data available

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 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.

16. Other information

List of relevant H-Statements:
H315 Causes skin irritation.
H360 Maydamage fertility or the unborn child.

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
EcoXtreme LT Ink, AI4-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:	8 November, 2019

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
Toxic to reproduction	Category 1B

2.2. GHS label elements, incliding precautionary statements
Pictogram

Signal word(s)	Danger
Hazard statement(s)	Combustible liquid. Causes skin irritation. May damage fertility or the unborn child

Precautionary statement(s)

Prevention	Do not handle until all safety precautions have been read and understood. 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 exposed or concerned: Get medical advice/attention.
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) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.
Ingestion:	May cause injury of mouth, throat, and stomach.
Chronic Health Hazards:	Repeated skin contact may cause a persistent irritation or dermatitis.
Carcinogenicity:	The product contains Nickel compounds. IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).

3. Composition/information on ingredients

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008
Resin	C.B.I.	C.B.I.	N/A for the moment	1-10	Not classified as hazardous
Yellow pigment (Nickel Compounds)	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	203-963-7	N/A for the moment	40-60	Skin Irrit. 2: H315
Dialkylene glycol dialkyl ether	C.B.I.	C.B.I.	N/A for the moment	20-40	Not classified as hazardous
Dipropylene glycol monomethyl ether	34590-94-8	252-104-2	N/A for the moment	1-5	Not classified as hazardous
Tetraethylene glycol dimethyl ether	143-24-8	205-594-7	N/A for the moment	1-5	Repr. 1B: H360
Additive	C.B.I.	C.B.I.	N/A for the moment	5 - 10	Not classified as hazardous

*C.B.I.: Confidential Business Information

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

Ingestion: May cause injury of mouth, throat, and stomach.

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

Hazardous gases/vapors produced in fire are carbon monoxide, carbon dioxide, oxides of nitrogen.

Flash Point: approx. 70 °C or higher

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:

components	TWA
Dipropylene glycol monomethyl ether	308mg/m^3, 50ppm

DNEL

components	Long term exposure	Short term exposure
Diethylene glycol diethyl ether	50.05mg/m^3	-
Tetraethylene glycol dimethyl ether	22mg/m^3	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

Australia: OELs

components	TWA
Dipropylene glycol monomethyl ether	308mg/m^3, 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
Odour:	Slight odor
Odour threshold:	No data available
pH:	Not applicable
Melting point/freezing point:	approx. 176 °C or higher
Initial boiling point and boiling range:	No data available
Flash point:	approx.70 °C or higher
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:	0.954±0.01 (25 °C)
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	not below 220 °C
Decomposition Temperature:	No data available
Viscosity:	9.5±0.5 mPa·s
Explosive properties:	Lower limits: 0.6 vol% Upper limits: 13.0 vol% (Diethylene glycol diethyl ether) Lower limits: 2.5 vol% Upper limits: 33.0 vol% (Dialkylene glycol dialkyl ether)
Oxidizing properties:	No data available
Volatile organic compounds (VOC) content:	780 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 ingestion

Acute toxicity:

1) Diethylene glycol diethyl ether	Oral LD_{50}	4970 mg/kg (Rat)
	Dermal LD_{50}	6097 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
2) Dialkylene glycol dialkyl ether	Oral LD_{50}	6000 mg/kg (Rats)
	Dermal LD_{50}	6526 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
3) Dipropylene glycol monomethyl ether	Oral LD_{50}	5130 mg/kg (Rat)
	Dermal LD_{50}	9500 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
4) Tetraethylene glycol dimethyl ether	Oral LD_{50}	5140 mg/kg (Rat)
	Dermal LD_{50}	No data available
	Inhalation LC_{50}	No data available

Skin corrosion/irritation: No data available

Reference data: Moderate irritant (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

Suspected of damaging fertility or the unborn child.(Tetraethylene glycol dimethyl ether and a similar chemical)

Carcinogenicity: The product contains Nickel compounds.

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:	No data available

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 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 Nickel compounds.
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.
H360 Maydamage fertility or the unborn child.

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
EcoXtreme LT Ink, AI4-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

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:	8 November, 2019

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
Toxic to reproduction	Category 1B

2.2. GHS label elements, incliding precautionary statements
Pictogram

Signal word(s)	Danger
Hazard statement(s)	Combustible liquid. Causes skin irritation. May damage fertility or the unborn child

Precautionary statement(s)

Prevention	Do not handle until all safety precautions have been read and understood. 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 exposed or concerned: Get medical advice/attention.
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) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.
Ingestion:	May cause injury of mouth, throat, and stomach.
Chronic Health Hazards:	Repeated skin contact may cause a persistent irritation or dermatitis.
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen.

3. Composition/information on ingredients

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008
Resin	C.B.I.	C.B.I.	N/A for the moment	1-10	Not classified as hazardous
Black pigment	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	203-963-7	N/A for the moment	40-60	Skin Irrit. 2: H315
Dialkylene glycol dialkyl ether	C.B.I.	C.B.I.	N/A for the moment	20-40	Not classified as hazardous
Dipropylene glycol monomethyl ether	34590-94-8	252-104-2	N/A for the moment	1-5	Not classified as hazardous
Tetraethylene glycol dimethyl ether	143-24-8	205-594-7	N/A for the moment	5-10	Repr. 1B: H360
Additive	C.B.I.	C.B.I.	N/A for the moment	5 - 10	Not classified as hazardous

*C.B.I.: Confidential Business Information

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

Ingestion: May cause injury of mouth, throat, and stomach.

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

Hazardous gases/vapors produced in fire are carbon monoxide, carbon dioxide, oxides of nitrogen.

Flash Point: approx. 70 °C or higher

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:

components	TWA
Dipropylene glycol monomethyl ether	308mg/m^3, 50ppm

DNEL

components	Long term exposure	Short term exposure
Diethylene glycol diethyl ether	50.05mg/m^3	-
Tetraethylene glycol dimethyl ether	22mg/m^3	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

Australia: OELs

components	TWA
Dipropylene glycol monomethyl ether	308mg/m^3, 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:	Black Liquid
Odour:	Slight odor
Odour threshold:	No data available
pH:	Not applicable
Melting point/freezing point:	approx. 176 °C or higher
Initial boiling point and boiling range:	No data available
Flash point:	approx.70 °C or higher
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:	0.964±0.01 (25 °C)
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	not below 220 °C
Decomposition Temperature:	No data available
Viscosity:	9.5±0.5 mPa·s
Explosive properties:	Lower limits: 0.6 vol% Upper limits: 13.0 vol% (Diethylene glycol diethyl ether) Lower limits: 2.5 vol% Upper limits: 33.0 vol% (Dialkylene glycol dialkyl ether)
Oxidizing properties:	No data available
Volatile organic compounds (VOC) content:	780 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 ingestion

Acute toxicity:

1) Diethylene glycol diethyl ether	Oral LD_{50}	4970 mg/kg (Rat)
	Dermal LD_{50}	6097 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
2) Dialkylene glycol dialkyl ether	Oral LD_{50}	6000 mg/kg (Rats)
	Dermal LD_{50}	6526 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
3) Dipropylene glycol monomethyl ether	Oral LD_{50}	5130 mg/kg (Rat)
	Dermal LD_{50}	9500 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
4) Tetraethylene glycol dimethyl ether	Oral LD_{50}	5140 mg/kg (Rat)
	Dermal LD_{50}	No data available
	Inhalation LC_{50}	No data available

Skin corrosion/irritation:	No data available Reference data: Moderate irritant (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 Suspected of damaging fertility or the unborn child.(Tetraethylene glycol dimethyl ether and a similar chemical)
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:	No data available

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 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.

16. Other information

List of relevant H-Statements:
H315 Causes skin irritation.
H360 Maydamage fertility or the unborn child.

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
EcoXtreme LT Ink, AI4-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:	8 November, 2019

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
Toxic to reproduction	Category 1B

2.2. GHS label elements, incliding precautionary statements
Pictogram

Signal word(s)	Danger
Hazard statement(s)	Combustible liquid. Causes skin irritation. May damage fertility or the unborn child

Precautionary statement(s)

Prevention	Do not handle until all safety precautions have been read and understood. 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 exposed or concerned: Get medical advice/attention.
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) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.
Ingestion:	May cause injury of mouth, throat, and stomach.
Chronic Health Hazards:	Repeated skin contact may cause a persistent irritation or dermatitis.
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

3. Composition/information on ingredients

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008
Resin	C.B.I.	C.B.I.	N/A for the moment	1-10	Not classified as hazardous
Copper compounds	C.B.I.	C.B.I.	N/A for the moment	0.1-1	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	203-963-7	N/A for the moment	30-50	Skin Irrit. 2: H315
Dialkylene glycol dialkyl ether	C.B.I.	C.B.I.	N/A for the moment	20-40	Not classified as hazardous
Dipropylene glycol monomethyl ether	34590-94-8	252-104-2	N/A for the moment	1-5	Not classified as hazardous
Tetraethylene glycol dimethyl ether	143-24-8	205-594-7	N/A for the moment	5-10	Repr. 1B: H360
Additive	C.B.I.	C.B.I.	N/A for the moment	5 - 10	Not classified as hazardous

*C.B.I.: Confidential Business Information

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

Ingestion: May cause injury of mouth, throat, and stomach.

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

Hazardous gases/vapors produced in fire are carbon monoxide, carbon dioxide, oxides of nitrogen.

Flash Point: approx. 70 °C or higher

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:

components	TWA
Dipropylene glycol monomethyl ether	308mg/m^3, 50ppm

DNEL

components	Long term exposure	Short term exposure
Diethylene glycol diethyl ether	50.05mg/m^3	-
Tetraethylene glycol dimethyl ether	22mg/m^3	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

Australia: OELs

components	TWA
Dipropylene glycol monomethyl ether	308mg/m^3, 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:	Cyan Liquid
Odour:	Slight odor
Odour threshold:	No data available
pH:	Not applicable
Melting point/freezing point:	approx. 176 °C or higher
Initial boiling point and boiling range:	No data available
Flash point:	approx.70 °C or higher
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:	0.964±0.01 (25 °C)
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	not below 220 °C
Decomposition Temperature:	No data available
Viscosity:	0.941±0.01 (25 °C)
Explosive properties:	Lower limits: 0.6 vol% Upper limits: 13.0 vol% (Diethylene glycol diethyl ether) Lower limits: 2.5 vol% Upper limits: 33.0 vol% (Dialkylene glycol dialkyl ether)
Oxidizing properties:	No data available
Volatile organic compounds (VOC) content:	780 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 ingestion

Acute toxicity:

1) Diethylene glycol diethyl ether	Oral LD_{50}	4970 mg/kg (Rat)
	Dermal LD_{50}	6097 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
2) Dialkylene glycol dialkyl ether	Oral LD_{50}	6000 mg/kg (Rats)
	Dermal LD_{50}	6526 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
3) Dipropylene glycol monomethyl ether	Oral LD_{50}	5130 mg/kg (Rat)
	Dermal LD_{50}	9500 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
4) Tetraethylene glycol dimethyl ether	Oral LD_{50}	5140 mg/kg (Rat)
	Dermal LD_{50}	No data available
	Inhalation LC_{50}	No data available

Skin corrosion/irritation: No data available

Reference data: Moderate irritant (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

Suspected of damaging fertility or the unborn child.(Tetraethylene glycol dimethyl ether and a similar chemical)

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

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: No data available

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 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.
H360 Maydamage fertility or the unborn child.

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
EcoXtreme LT Ink, AI4-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

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:	8 November, 2019

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
Toxic to reproduction	Category 1B

2.2. GHS label elements, incliding precautionary statements
Pictogram

Signal word(s)	Danger
Hazard statement(s)	Combustible liquid. Causes skin irritation. May damage fertility or the unborn child

Precautionary statement(s)

Prevention	Do not handle until all safety precautions have been read and understood. 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 exposed or concerned: Get medical advice/attention.
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) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.
Ingestion:	May cause injury of mouth, throat, and stomach.
Chronic Health Hazards:	Repeated skin contact may cause a persistent irritation or dermatitis.
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)

3. Composition/information on ingredients

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008
Resin	C.B.I.	C.B.I.	N/A for the moment	1-10	Not classified as hazardous
Magenta pigment	C.B.I.	C.B.I.	N/A for the moment	0.1-1	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	203-963-7	N/A for the moment	30-50	Skin Irrit. 2: H315
Dialkylene glycol dialkyl ether	C.B.I.	C.B.I.	N/A for the moment	20-40	Not classified as hazardous
Dipropylene glycol monomethyl ether	34590-94-8	252-104-2	N/A for the moment	1-5	Not classified as hazardous
Tetraethylene glycol dimethyl ether	143-24-8	205-594-7	N/A for the moment	5-10	Repr. 1B: H360
Additive	C.B.I.	C.B.I.	N/A for the moment	5 - 10	Not classified as hazardous

*C.B.I.: Confidential Business Information

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

Ingestion: May cause injury of mouth, throat, and stomach.

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

Hazardous gases/vapors produced in fire are carbon monoxide, carbon dioxide, oxides of nitrogen.

Flash Point: approx. 70 °C or higher

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:

components	TWA
Dipropylene glycol monomethyl ether	308mg/m^3, 50ppm

DNEL

components	Long term exposure	Short term exposure
Diethylene glycol diethyl ether	50.05mg/m^3	-
Tetraethylene glycol dimethyl ether	22mg/m^3	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

Australia: OELs

components	TWA
Dipropylene glycol monomethyl ether	308mg/m^3, 50ppm

US:

components	OSHA:PEL	ACGIH:TLV
Dipropylene glycol monomethyl ether	TWA: 600mg/m^3, 100ppm	TWA: 100ppm, 606 mg/m^3 STEL: 150ppm, 909 mg/m^3

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:	Slight odor
Odour threshold:	No data available
pH:	Not applicable
Melting point/freezing point:	approx. 176 °C or higher
Initial boiling point and boiling range:	No data available
Flash point:	approx.70 °C or higher
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:	0.942±0.01 (25 °C)
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	not below 220 °C
Decomposition Temperature:	No data available
Viscosity:	9.5±0.5 mPa·s
Explosive properties:	Lower limits: 0.6 vol% Upper limits: 13.0 vol% (Diethylene glycol diethyl ether) Lower limits: 2.5 vol% Upper limits: 33.0 vol% (Dialkylene glycol dialkyl ether)
Oxidizing properties:	No data available
Volatile organic compounds (VOC) content:	780 gram/liter (maximum value)

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:	Oxidizers and explosives.
10.6. Hazardous decomposition products:	Thermal decomposition will produce oxides of carbon, copper and nitrogen.

11. Toxicological information

11.1. Information on toxicological effects

Routes of Overexposure: Eye, skin, inhalation, and oral ingestion

Acute toxicity:

1) Diethylene glycol diethyl ether	Oral LD_{50}	4970 mg/kg (Rat)
	Dermal LD_{50}	6097 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
2) Dialkylene glycol dialkyl ether	Oral LD_{50}	6000 mg/kg (Rats)
	Dermal LD_{50}	6526 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
3) Dipropylene glycol monomethyl ether	Oral LD_{50}	5130 mg/kg (Rat)
	Dermal LD_{50}	9500 mg/kg (Rabbit)
	Inhalation LC_{50}	No data available
4) Tetraethylene glycol dimethyl ether	Oral LD_{50}	5140 mg/kg (Rat)
	Dermal LD_{50}	No data available
	Inhalation LC_{50}	No data available

Skin corrosion/irritation: No data available

Reference data: Moderate irritant (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

Suspected of damaging fertility or the unborn child.(Tetraethylene glycol dimethyl ether and a similar chemical)

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

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 ink and abandonment has a possibility of affecting environment. Then, cautions are required for handing. 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 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.
H360 Maydamage fertility or the unborn child.

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.