
Safety Data Sheet

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

1.1. Product identifier

Pigment Ink, FPG-CY

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

Inkjet Printing

1.3. Details of the supplier of the safety data sheet

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

E-mail Address:

Revised date: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral Category 5

2.2. GHS label elements, including precautionary statements

Pictogram None

Signal word(s) Warning

Hazard statement(s) Harmful if swallowed.

Precautionary statement(s)

Response Call a POISON CENTER or doctor/physician if you feel unwell.

2.3. Other hazards

Potential Health Effects:

Eyes: Contact with eye may be mildly irritating.

Skin: Contact with skin may cause irritation, swelling or redness, allergic sensitization.

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

Ingestion: May cause upset 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
Colorants	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Triethylene glycol monobutyl ether	143-22-6	205-592-6	N/A for the moment	About 10	Not classified as hazardous
Ethylene glycol	107-21-1	203-473-3	N/A for the moment	5 - 10	Acute Tox. 4: H302
Triethanolamine	102-71-6	203-049-8	N/A for the moment	< 1	Not classified as hazardous
Proprietary organic materials	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Glycerols	C.B.I.	C.B.I.	N/A for the moment	10 - 15	Not classified as hazardous
Water	7732-18-5	231-791-2	Exemption	balance	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 may be mildly irritating.
- Skin: **Contact with skin may cause irritation, swelling or redness, allergic sensitization.**
- Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- Ingestion: **May cause injury of mouth, throat, and stomach.**

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

No information

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.

Unsuitable extinguishing media:

Water, High-pressure water jet

5.2. Special hazards arising from the substance or mixture

Not Flammable

Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)

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	STEL
Ethylene glycol	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm

Australia: OELs

components	TWA	STEL
Ethylene glycol (VAPOUR)	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm
Triethanolamine	5mg/m ³	-
Glycerol (mist)	10mg/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:

Cyan Liquid

Odour:

Slightly

Odour threshold:

No data available

pH:

8.5 - 9.9 at 20 deg.C / 68 deg.F

Melting point/freezing point:

No data available

Initial boiling point and boiling range:

No data available

Flash point:

Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)

Evaporation rate:

No data available

Flammability(solid,gas):

Not applicable

Upper/lower flammability or explosive limits:

None

Vapor pressure:

No data available

Vapor density:	No data available
Relative density:	About 1.07 at 20 deg.C / 68 deg.F
Solubility:	No data available
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	Less than 5 mPa·s
Explosive properties:	No data available
Oxidizing properties:	No data available
Volatile organic compounds (VOC) content:	370.0 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:	Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity:	Oral LD50	>2000mg/kg(Rat)
	Dermal LD50	>2000mg/kg(Rat)
	Inhalant LC50	No data available
Skin corrosion/irritation:	Non-irritant (Rabbit, OECD404)	
Serious eye damage/eye irritation:	Non-irritant (Rabbit, OECD405)	
Respiratory or skin sensitisation:	Non-sensitizer (Guinea Pig, OECD 406)	
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. (1,2A and 2B)	
STOT-single exposure:	Overexposure of eye may be mildly 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:

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: Not 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 in section 3:

H302 Harmful if swallowed.

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

Pigment Ink, FPG-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: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral Category 5

2.2. GHS label elements, including precautionary statements

Pictogram None

Signal word(s) Warning
Hazard statement(s) Harmful if swallowed.

Contains 1,2-Benzisothiazol-3(2H)-one. May produce an allergic reaction.

Precautionary statement(s)
Response

Call a POISON CENTER or doctor/physician if you feel unwell.

2.3. Other hazards

Potential Health Effects:

Eyes: Contact with eye may be mildly irritating.
Skin: Contact with skin may cause irritation, swelling or redness, allergic sensitization.
Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
Ingestion: May cause upset 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
Colorants	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Triethylene glycol monobutyl ether	143-22-6	205-592-6	N/A for the moment	About 5	Not classified as hazardous
Ethylene glycol	107-21-1	203-473-3	N/A for the moment	5 - 10	Acute Tox. 4: H302
Triethanolamine	102-71-6	203-049-8	N/A for the moment	< 1	Not classified as hazardous
Proprietary organic materials	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Glycerols	C.B.I.	C.B.I.	N/A for the moment	15 - 20	Not classified as hazardous
Water	7732-18-5	231-791-2	Exemption	balance	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 may be mildly irritating.
- Skin:** Contact with skin may cause irritation, swelling or redness, allergic sensitization.
- Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- Ingestion:** May cause injury of mouth, throat, and stomach.

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

No information

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.

Unsuitable extinguishing media:

Water, High-pressure water jet

5.2. Special hazards arising from the substance or mixture

Not Flammable

Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)

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	The threshold limit	STEL
Ethylene glycol	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm

Australia: OELs

components	TWA	STEL
Ethylene glycol (VAPOUR)	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm
Triethanolamine	5mg/m ³	-
Glycerol (mist)	10mg/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

Odour:

Slightly

Odour threshold:

No data available

pH:

8.5 - 9.9 at 20 deg.C / 68 deg.F

Melting point/freezing point:

No data available

Initial boiling point and boiling range:

No data available

Flash point:

Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)

Evaporation rate:

No data available

Flammability(solid,gas):

Not applicable

Upper/lower flammability or explosive limits:	None
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	About 1.07 at 20 deg.C / 68 deg.F
Solubility:	No data available
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	Less than 5 mPa·s
Explosive properties:	No data available
Oxidizing properties:	No data available
Volatile organic compounds (VOC) content:	370.0 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:	Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity:	Oral LD50	>2000mg/kg(Rat)
	Dermal LD50	>2000mg/kg(Rat)
	Inhalant LC50	No data available
Skin corrosion/irritation:	Non-irritant (Rabbit, OECD404)	
Serious eye damage/eye irritation:	Non-irritant (Rabbit, OECD405)	
Respiratory or skin sensitisation:	Non-sensitizer (Guinea Pig, OECD 406)	
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. (1,2A and 2B)	
STOT-single exposure:	Overexposure of eye may be mildly 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:

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: Not 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 in section 3:

H302 Harmful if swallowed.

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

Pigment Ink, FPG-YE

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

Inkjet Printing

1.3. Details of the supplier of the safety data sheet

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

E-mail Address:

Revised date: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral Category 5

2.2. GHS label elements, including precautionary statements

Pictogram None

Signal word(s) Warning

Hazard statement(s) Harmful if swallowed.

Contains 1,2-Benzisothiazol-3(2H)-one. May produce an allergic reaction.

Precautionary statement(s)

Response Call a POISON CENTER or doctor/physician if you feel unwell.

2.3. Other hazards

Potential Health Effects:

Eyes: Contact with eye may be mildly irritating.

Skin: Contact with skin may cause irritation, swelling or redness, allergic sensitization.

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

Ingestion: May cause upset 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
Colorants	C.B.I.	C.B.I.	N/A for the moment	5 - 10	Not classified as hazardous
Triethylene glycol monobutyl ether	143-22-6	205-592-6	N/A for the moment	5 - 10	Not classified as hazardous
Ethylene glycol	107-21-1	203-473-3	N/A for the moment	1 - 5	Acute Tox. 4: H302
Diethylene glycol	111-46-6	203-872-2	N/A for the moment	About 5	Acute Tox. 4: H302
Triethanolamine	102-71-6	203-049-8	N/A for the moment	< 1	Not classified as hazardous
Proprietary organic materials	C.B.I.	C.B.I.	N/A for the moment	5 - 10	Not classified as hazardous
Glycerols	C.B.I.	C.B.I.	N/A for the moment	About 15	Not classified as hazardous
Water	7732-18-5	231-791-2	Exemption	balance	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 may be mildly irritating.
- Skin: **Contact with skin may cause irritation, swelling or redness, allergic sensitization.**
- Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- Ingestion: **May cause injury of mouth, throat, and stomach.**

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

No information

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.

Unsuitable extinguishing media:

Water, High-pressure water jet

5.2. Special hazards arising from the substance or mixture

Not Flammable

Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)

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	The threshold limit	STEL
Ethylene glycol	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm

Australia: OELs

components	TWA	STEL
Ethylene glycol (VAPOUR)	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm
Triethanolamine	5mg/m ³	-
Diethylene glycol	100mg/m ³ , 23ppm	-
Glycerol (mist)	10mg/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:

Yellow Liquid

Odour:

Slightly

Odour threshold:

No data available

pH:

8.5 - 9.9 at 20 deg.C / 68 deg.F

Melting point/freezing point:

No data available

Initial boiling point and boiling range:

No data available

Flash point:

Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)

Evaporation rate:

No data available

Flammability(solid,gas):	Not applicable
Upper/lower flammability or explosive limits:	None
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	About 1.07 at 20 deg.C / 68 deg.F
Solubility:	No data available
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	Less than 5 mPa·s
Explosive properties:	No data available
Oxidizing properties:	No data available
Volatile organic compounds (VOC) content:	370.0 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:	Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological information

*Based on toxicology data of chemically similar material

11.1. Information on toxicological effects

Acute toxicity:	Oral LD50	>2000mg/kg(Rat)*
	Dermal LD50	>2000mg/kg(Rat)*
	Inhalant LC50	No data available
Skin corrosion/irritation:	Non-irritant (Rabbit, OECD404)*	
Serious eye damage/eye irritation:	Non-irritant (Rabbit, OECD405)*	
Respiratory or skin sensitisation:	Non-sensitizer (Guinea Pig, OECD 406)*	
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. (1,2A and 2B)	
STOT-single exposure:	Overexposure of eye may be mildly 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:

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: Not 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 in section 3:

H302 Harmful if swallowed.

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

Pigment Ink, FPG-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: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is not classified as hazardous according to GHS criteria.

2.2. GHS label elements, including precautionary statements

The product does not need to be labelled in accordance with GHS criteria.

Contains 1,2-Benzisothiazol-3(2H)-one. May produce an allergic reaction.

2.3. Other hazards

Potential Health Effects:

Eyes: Contact with eye may be mildly irritating.
Skin: Contact with skin may cause irritation, swelling or redness, allergic sensitization.
Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
Ingestion: May cause upset stomach.
Chronic Health Hazards: Repeated skin contact may cause a persistent irritation or dermatitis.
Carcinogenicity: The product contains Carbon black.
IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).

3. Composition/information on ingredients

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008
Carbon black	1333-86-4	215-609-9	N/A for the moment	1-5	Not classified as hazardous
Colorants	C.B.I.	C.B.I.	N/A for the moment	<1	Not classified as hazardous
Triethylene glycol monobutyl ether	143-22-6	205-592-6	N/A for the moment	About 10	Not classified as hazardous
Triethanolamine	102-71-6	203-049-8	N/A for the moment	<1	Not classified as hazardous
Proprietary organic materials	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Glycerols	C.B.I.	C.B.I.	N/A for the moment	15 - 20	Not classified as hazardous
Water	7732-18-5	231-791-2	Exemption	balance	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 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 may be mildly irritating.
- Skin: **Contact with skin may cause irritation, swelling or redness, allergic sensitization.**
- Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- Ingestion: **May cause injury of mouth, throat, and stomach.**

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

No information

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.

Unsuitable extinguishing media:

Water, High-pressure water jet

5.2. Special hazards arising from the substance or mixture

Not Flammable

Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)

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:

Australia: OELs

components	TWA
Carbon black	3mg/m ³
Triethanolamine	5mg/m ³
Glycerol (mist)	10mg/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:	Black Liquid
Odour:	Slightly
Odour threshold:	No data available
pH:	8.5 - 9.9 at 20 deg.C / 68 deg.F
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point:	Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Evaporation rate:	No data available
Flammability(solid,gas):	Not applicable
Upper/lower flammability or explosive limits:	None
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	About 1.07 at 20 deg.C / 68 deg.F
Solubility:	No data available

Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	Less than 5 mPa·s
Explosive properties:	No data available
Oxidizing properties:	No data available
Volatile organic compounds (VOC) content:	370.0 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:	Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity:

Oral LD50	>2000mg/kg(Rat)
Dermal LD50	>2000mg/kg(Rat)
Inhalant LC50	No data available

Skin corrosion/irritation: Non-irritant (Rabbit, OECD404)

Serious eye damage/eye irritation: Non-irritant (Rabbit, OECD405)

Respiratory or skin sensitisation: Non-sensitizer (Guinea Pig, OECD 406)

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 mildly 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:

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.

International Information:

The product contains Carbon black.

IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).

16. Other information

List of relevant H-Statements in section 3: None

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

Pigment Ink, FPG-LC

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

Inkjet Printing

1.3. Details of the supplier of the safety data sheet

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

E-mail Address:

Revised date: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is not classified as hazardous according to Directive 1999/45/EC.

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral Category 5

2.2. GHS label elements, including precautionary statements

Pictogram None

Signal word(s) Warning

Hazard statement(s) Harmful if swallowed.

Precautionary statement(s)

Response Call a POISON CENTER or doctor/physician if you feel unwell.

2.3. Other hazards

Potential Health Effects:

Eyes: Contact with eye may be mildly irritating.

Skin: Contact with skin may cause irritation, swelling or redness, allergic sensitization.

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

Ingestion: May cause upset 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
Colorants	C.B.I.	C.B.I.	N/A for the moment	< 1	Not classified as hazardous
Triethylene glycol monobutyl ether	143-22-6	205-592-6	N/A for the moment	About 5	Not classified as hazardous
Diethylene glycol	111-46-6	203-872-2	N/A for the moment	10 - 15	Acute Tox. 4: H302
Triethanolamine	102-71-6	203-049-8	N/A for the moment	< 1	Not classified as hazardous
Proprietary organic materials	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Glycerols	C.B.I.	C.B.I.	N/A for the moment	About 15	Not classified as hazardous
Water	7732-18-5	231-791-2	Exemption	balance	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 may be mildly irritating.
- Skin:** Contact with skin may cause irritation, swelling or redness, allergic sensitization.
- Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- Ingestion:** May cause injury of mouth, throat, and stomach.

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

No information

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.

Unsuitable extinguishing media:

Water, High-pressure water jet

5.2. Special hazards arising from the substance or mixture

Not Flammable

Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)

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:

Australia: OELs

components	TWA	STEL
Triethanolamine	5mg/m ³	-
Diethylene glycol	100mg/m ³ , 23ppm	-
Glycerol (mist)	10mg/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:

Light Cyan Liquid

Odour:

Slightly

Odour threshold:

No data available

pH:

8.5 - 9.9 at 20 deg.C / 68 deg.F

Melting point/freezing point:

No data available

Initial boiling point and boiling range:

No data available

Flash point:

Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)

Evaporation rate:

No data available

Flammability(solid,gas):

Not applicable

Upper/lower flammability or explosive limits:

None

Vapor pressure:

No data available

Vapor density:

No data available

Relative density:	About 1.07 at 20 deg.C / 68 deg.F
Solubility:	No data available
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	Less than 5 mPa·s
Explosive properties:	No data available
Oxidizing properties:	No data available
Volatile organic compounds (VOC) content:	370.0 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:	Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity:

Oral LD50	>2000mg/kg(Rat)
Dermal LD50	>2000mg/kg(Rat)
Inhalant LC50	No data available

Skin corrosion/irritation:	Non-irritant (Rabbit, OECD404)
Serious eye damage/eye irritation:	Non-irritant (Rabbit, OECD405)
Respiratory or skin sensitisation:	Non-sensitizer (Guinea Pig, OECD 406)
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. (1,2A and 2B)

STOT-single exposure: Overexposure of eye may be mildly 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:
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.

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 in section 3:
H302 Harmful if swallowed.

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

Pigment Ink, FPG-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: 30 August, 2017

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is not classified as hazardous according to Directive 1999/45/EC.

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral	Category 5
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2.2. GHS label elements, including precautionary statements

Pictogram	None
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Signal word(s)	Warning
Hazard statement(s)	Harmful if swallowed.

Contains 1,2-Benzisothiazol-3(2H)-one. May produce an allergic reaction.

Precautionary statement(s)

Response	Call a POISON CENTER or doctor/physician if you feel unwell.
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2.3. Other hazards

Potential Health Effects:

Eyes:	Contact with eye may be mildly irritating.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic sensitization.
Inhalation:	Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
Ingestion:	May cause upset 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
Colorants	C.B.I.	C.B.I.	N/A for the moment	< 1	Not classified as hazardous
Triethylene glycol monobutyl ether	143-22-6	205-592-6	N/A for the moment	About 5	Not classified as hazardous
Ethylene glycol	107-21-1	203-473-3	N/A for the moment	About 10	Acute Tox. 4: H302
Diethylene glycol	111-46-6	203-872-2	N/A for the moment	1-5	Acute Tox. 4: H302
Triethanolamine	102-71-6	203-049-8	N/A for the moment	< 1	Not classified as hazardous
Proprietary organic materials	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Glycerols	C.B.I.	C.B.I.	N/A for the moment	About 15	Not classified as hazardous
Water	7732-18-5	231-791-2	Exemption	balance	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 may be mildly irritating.
- Skin: **Contact with skin may cause irritation, swelling or redness, allergic sensitization.**
- Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- Ingestion: **May cause injury of mouth, throat, and stomach.**

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

No information

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.

Unsuitable extinguishing media:

Water, High-pressure water jet

5.2. Special hazards arising from the substance or mixture

Not Flammable

Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)

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	The threshold limit	STEL
Ethylene glycol	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm

Australia: OELs

components	TWA	STEL
Ethylene glycol (VAPOUR)	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm
Triethanolamine	5mg/m ³	-
Diethylene glycol	100mg/m ³ , 23ppm	-
Glycerol (mist)	10mg/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
Odour:	Slightly
Odour threshold:	No data available
pH:	8.5 - 9.9 at 20 deg.C / 68 deg.F
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point:	Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Evaporation rate:	No data available
Flammability(solid,gas):	Not applicable
Upper/lower flammability or explosive limits:	None

Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	About 1.07 at 20 deg.C / 68 deg.F
Solubility:	No data available
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	Less than 5 mPa·s
Explosive properties:	No data available
Oxidizing properties:	No data available
Volatile organic compounds (VOC) content:	370.0 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:	Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity:	Oral LD50	>2000mg/kg(Rat)
	Dermal LD50	>2000mg/kg(Rat)
	Inhalant LC50	No data available
Skin corrosion/irritation:	Non-irritant (Rabbit, OECD404)	
Serious eye damage/eye irritation:	Non-irritant (Rabbit, OECD405)	
Respiratory or skin sensitisation:	Non-sensitizer (Guinea Pig, OECD 406)	
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. (1,2A and 2B)	
STOT-single exposure:	Overexposure of eye may be mildly 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:

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
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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: Not 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 in section 3:

H302 Harmful if swallowed.

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.