

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:

Pigment Ink, FPG-BK

1.2. Manufacturer/Distributor:

Manufacture's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda Hamamatsu-shi
Shizuoka 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1221

1.3. Medical Emergency Number

Not Available

2. Composition Information

This is an aqueous ink formulation

Ink Composition	CAS No.	% By Weight	Risk Phrases
Carbon black	1333-86-4	<5	-
Proprietary dyes and pigments	-	<5	-
Proprietary organic materials	-	15-20	-
Glycerols	-	15-20	-
Water	7732-18-5	balance	-

3. Hazard Identification

3.1 Emergency Overview:

Ink component is a black liquid that causes eye, nose or throat irritation, and that effects anesthesia, if inhales. Ink may flash, when under high temperature. Avoid contact with eyes or clothing. In the case of skin contact, wash with soap and water. Keep out of reach of children.

3.2 Potential Health Effects:

Eyes: Ink contact with eye will be irritating. See Section 11 for Toxicology.
Skin: Ink contact with skin may cause minimally irritation. See Section 11 for Toxicology.
Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.
Ingestion: May cause upset stomach. See Section 11 for Toxicology.

4. First Aid Measures

- 4.1 Eyes: Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
- 4.2 Skin: Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
- 4.3 Inhalation: Remove subject to ventilated fresh air. Consult physician if necessary.
- 4.4 Ingestion: Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

- 5.1 Flammability: Not flammable
- 5.2 Extinguishing Media: Dry chemical or carbon dioxide
- 5.3 Fire Fighting Instructions: No special fire fighting procedures are required other than breathing apparatus. No special explosion hazards are known.

6. Accidental Release Measures

- 6.1 Personal protections: No eye or skin protection required during clean-up. Use proper ventilation.
- 6.2 Methods for cleaning up: If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

- 7.1 Handling: Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
- 7.2 Storage: Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
- 7.3 Specific use(s): Not specified

8. Exposure Controls and Personal Protection

- 8.1 Engineering controls: Not special measures required.
- 8.2 Exposure controls:
- 8.2.1 Occupational exposure controls: Not established
- 8.2.1.1 Respiratory protection: Not required under suitable use as setting the cartridge on the printer; however, self-contained breathing apparatus or organic canister mask is sufficient when used for work.
- 8.2.1.2. Hand protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.1.3 Eye protection: Not required under suitable use as setting the cartridge on the printer; however, wearing safety goggle is sufficient.
- 8.2.1.4 Skin protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.2 Environmental exposure control: Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Black Liquid
Odor:	None

9.2 Important health, safety and environmental information

pH:	8.5-10.0 at 20 deg.C / 68 deg.F
Boiling point:	No data available
Melting point:	No data available
Flash point:	Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Autoflammability:	None
Explosive properties:	None
Oxidizing properties:	None
Vapor density:	Greater than 1 (air=1)
Relative density:	1.06 at 20 deg.C / 68 deg.F
Solubility in water:	Complete
Solubility in fat:	No data available
Partition coefficient:	No data available
Viscosity:	No data available

9.3 Other information

Not specified

10. Stability and Reactivity

Stability:	Stable under normal temperature
Hazardous polymerization:	No data available

10.1 Condition to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

Routes Of Overexposure: Eye, skin, inhalation, and oral

Acute Health Hazards:

- Overexposure of eye surface to ink may be mildly irritating
- Overexposure of skin to ink contact may cause irritation and in some people swelling and redness
- Intentional inhalation overexposure to ink vapors may result in respiratory tract irritation and anesthesia
- Intentional or accidental oral ingestion may cause an upset stomach

Chronic Health Hazards: None Known

Mutagenicity: Negative (Ames assay)*

Carcinogenicity: With excessive exposure, carbon black has been listed as a possible human carcinogen. However, as engineered within this ink cartridges, emissions to air of carbon black during normal printing use have not been found. IARC, the International Agency for Research on Cancer, has found printing inks to be not classifiable as human carcinogens as group 3.

Toxicity Data: Oral LD₅₀ >2500mg/kg(Rats)* Dermal LD₅₀ >2000mg/kg(Rats)* Inhalant LC₅₀ No data available

Eye irritating:	Non-irritating (Rabbit, OECD405)*
Skin irritating:	Non-irritating (Rabbit, OECD404)*
Skin sensitizing:	Non-sensitizing (LLNA, OECD429)*

12. Ecological Information

12.1 Ecotoxicity:	No data available on the adverse effects of this ink on the environment
12.2 Mobility:	No data available on the adverse effects of this ink on the environment
12.3 Persistence and degradability:	No data available on the adverse effects of this ink on the environment
12.4 Bioaccumulative potential:	No data available on the adverse effects of this ink on the environment
12.5 Other adverse effects:	No data available

13. Disposal Considerations

Disposal should be in accordance with federal, state, and local requirement.

14. Transportation Information

UN Class/UN Number:	Not applicable
DOT, IMO, or IATA:	Not hazardous classification

15. Regulatory Considerations

US Regulation:	
TSCA Section 4(a) Final Test Rules Regulated	Not regulated
TSCA Section 8(a) Preliminary Assessment Information Rule (PAIR)	Not regulated
TSCA Section 12(b) One-Time Export Notification Regulated	Not regulated
California Proposition 65	Not regulated

EU Information:

Symbols and indication according to 1999/45/EC;
The material does not meet the criteria for classification as dangerous.

16. Other Information

This "Material Safety Data Sheet" contains health, safety, and environmental information. It does not replace any precautionary language or use and disposal information which accompanies the product. The information contained herein is believed to be accurate at the time of precaution, but should only be used as a guide. It is subject to revision from time to time. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:

Pigment Ink, FPG-CY

1.2. Manufacturer/Distributor:

Manufacture's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda Hamamatsu-shi
Shizuoka 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1221

1.3. Medical Emergency Number

Not Available

2. Composition Information

This is an aqueous ink formulation

Ink Composition	CAS No.	% By Weight	Risk Phrases
Proprietary dyes and pigments	-	<5	-
Proprietary organic materials	-	10-15	-
Glycerols	-	10-15	-
Ethylene glycol	107-21-1	5-10	Xn R-22
Water	7732-18-5	balance	-

3. Hazard Identification

3.1 Emergency Overview:

Ink component is a cyan liquid that causes eye, nose or throat irritation, and that effects anesthesia, if inhaled. Ink may flash, when under high temperature. Avoid contact with eyes or clothing. In the case of skin contact, wash with soap and water. Keep out of reach of children.

3.2 Potential Health Effects:

Eyes: Ink contact with eye will be irritating. See Section 11 for Toxicology.
Skin: Ink contact with skin may cause minimally irritation. See Section 11 for Toxicology.
Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.
Ingestion: May cause upset stomach. See Section 11 for Toxicology.

4. First Aid Measures

- 4.1 Eyes: Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
- 4.2 Skin: Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
- 4.3 Inhalation: Remove subject to ventilated fresh air. Consult physician if necessary.
- 4.4 Ingestion: Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

- 5.1 Flammability: Not flammable
- 5.2 Extinguishing Media: Dry chemical or carbon dioxide
- 5.3 Fire Fighting Instructions: No special fire fighting procedures are required other than breathing apparatus. No special explosion hazards are known.

6. Accidental Release Measures

- 6.1 Personal protections: No eye or skin protection required during clean-up. Use proper ventilation.
- 6.2 Methods for cleaning up: If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

- 7.1 Handling: Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
- 7.2 Storage: Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
- 7.3 Specific use(s): Not specified

8. Exposure Controls and Personal Protection

- 8.1 Engineering controls: Not special measures required.
- 8.2 Exposure controls:
- 8.2.1 Occupational exposure controls:

Substance(s)	EU: ELV	ACGIH: TLV	OSHA: PEL
Ethylene glycol	308mg/m ³ , 50ppm	100m ³ ,	-

- 8.2.1.1 Respiratory protection: Not required under suitable use as setting the cartridge on the printer; however, self-contained breathing apparatus or organic canister mask is sufficient when used for work.
- 8.2.1.2. Hand protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.1.3 Eye protection: Not required under suitable use as setting the cartridge on the printer; however, wearing safety goggle is sufficient.
- 8.2.1.4 Skin protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.2 Environmental exposure control: Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance: Cyan Liquid
 Odor: None

9.2 Important health, safety and environmental information

pH: 8.5-10.5 at 20 deg.C / 68 deg.F
 Boiling point: No data available
 Melting point: No data available
 Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
 Autoflammability: None
 Explosive properties: None
 Oxidizing properties: None
 Vapor density: No data available
 Relative density: No data available
 Solubility in water: Complete
 Solubility in fat: No data available
 Partition coefficient: No data available
 Viscosity: No data available

9.3 Other information: Not specified

10. Stability and Reactivity

Stability: Stable under normal temperature
 Hazardous polymerization: No data available

10.1 Condition to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

Routes Of Overexposure: Eye, skin, inhalation, and oral

Acute Health Hazards:

- Overexposure of eye surface to ink may be mildly irritating
- Overexposure of skin to ink contact may cause irritation and in some people swelling and redness
- Intentional inhalation overexposure to ink vapors may result in respiratory tract irritation and anesthesia
- Intentional or accidental oral ingestion may cause an upset stomach

Chronic Health Hazards: None Known

Mutagenicity: Negative (Ames assay)*

Carcinogenicity: None Known

Toxicity Data: Oral LD₅₀ Dermal LD₅₀ Inhalant LC₅₀
 >2000mg/kg(Rats)* >2000mg/kg(Rats)* No data available

Eye irritating: Non-irritating (Rabbit, OECD405)*

Skin irritating: Non-irritating (Rabbit, OECD404)*

Skin sensitizing: Non-sensitizing (Guinea pig, OECD406)*

12. Ecological Information

12.1 Ecotoxicity:	No data available on the adverse effects of this ink on the environment
12.2 Mobility:	No data available on the adverse effects of this ink on the environment
12.3 Persistence and degradability:	No data available on the adverse effects of this ink on the environment
12.4 Bioaccumulative potential:	No data available on the adverse effects of this ink on the environment
12.5 Other adverse effects:	No data available

13. Disposal Considerations

Disposal should be in accordance with federal, state, and local requirement.

14. Transportation Information

UN Class/UN Number:	Not applicable
DOT, IMO, or IATA:	Not hazardous classification

15. Regulatory Considerations

US Regulation:

TSCA Section 4(a) Final Test Rules Regulated	Not regulated
TSCA Section 8(a) Preliminary Assessment Information Rule (PAIR)	Not regulated
TSCA Section 12(b) One-Time Export Notification Regulated	Not regulated
California Proposition 65	Not regulated

EU Information:

Symbols and indication according to 1999/45/EC;
The material does not meet the criteria for classification as dangerous.

16. Other Information

This "Material Safety Data Sheet" contains health, safety, and environmental information. It does not replace any precautionary language or use and disposal information which accompanies the product. The information contained herein is believed to be accurate at the time of precaution, but should only be used as a guide. It is subject to revision from time to time. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:

Pigment Ink, FPG-MG

1.2. Manufacturer/Distributor:

Manufacture's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda Hamamatsu-shi
Shizuoka 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1221

1.3. Medical Emergency Number

Not Available

2. Composition Information

This is an aqueous ink formulation

Ink Composition	CAS No.	% By Weight	Risk Phrases
Proprietary dyes and pigments	-	<5	-
Proprietary organic materials	-	5-10	-
Glycerols	-	15-20	-
Ethylene glycol	107-21-1	5-10	Xn R-22
Water	7732-18-5	balance	-

3. Hazard Identification

3.1 Emergency Overview:

Ink component is a magenta liquid that causes eye, nose or throat irritation, and that effects anesthesia, if inhales. Ink may flash, when under high temperature. Avoid contact with eyes or clothing. In the case of skin contact, wash with soap and water.

3.2 Potential Health Effects:

Eyes: Ink contact with eye will be irritating. See Section 11 for Toxicology.
Skin: Ink contact with skin may cause minimally irritation. See Section 11 for Toxicology.
Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.
Ingestion: May cause upset stomach. See Section 11 for Toxicology.

4. First Aid Measures

- 4.1 Eyes: Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
- 4.2 Skin: Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
- 4.3 Inhalation: Remove subject to ventilated fresh air. Consult physician if necessary.
- 4.4 Ingestion: Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

- 5.1 Flammability: Not flammable
- 5.2 Extinguishing Media: Dry chemical or carbon dioxide
- 5.3 Fire Fighting Instructions: No special fire fighting procedures are required other than breathing apparatus. No special explosion hazards are known.

6. Accidental Release Measures

- 6.1 Personal protections: No eye or skin protection required during clean-up. Use proper ventilation.
- 6.2 Methods for cleaning up: If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

- 7.1 Handling: Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
- 7.2 Storage: Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
- 7.3 Specific use(s): Not specified

8. Exposure Controls and Personal Protection

- 8.1 Engineering controls: Not special measures required.
- 8.2 Exposure controls:
- 8.2.1 Occupational exposure controls:

Substance(s)	EU: ELV	ACGIH: TLV	OSHA: PEL
Ethylene glycol	308mg/m ³ , 50ppm	100m ³ ,	-

- 8.2.1.1 Respiratory protection: Not required under suitable use as setting the cartridge on the printer; however, self-contained breathing apparatus or organic canister mask is sufficient when used for work.
- 8.2.1.2. Hand protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.1.3 Eye protection: Not required under suitable use as setting the cartridge on the printer; however, wearing safety goggle is sufficient.
- 8.2.1.4 Skin protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.2 Environmental exposure control: Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Magenta Liquid
Odor:	None

9.2 Important health, safety and environmental information

pH:	8.0-10.0 at 20 deg.C / 68 deg.F
Boiling point:	No data available
Melting point:	No data available
Flash point:	Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Autoflammability:	None
Explosive properties:	None
Oxidizing properties:	None
Vapor density:	No data available
Relative density:	No data available
Solubility in water:	Complete
Solubility in fat:	No data available
Partition coefficient:	No data available
Viscosity:	No data available

9.3 Other information

Not specified

10. Stability and Reactivity

Stability:	Stable under normal temperature
Hazardous polymerization:	No data available

10.1 Condition to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

Routes Of Overexposure: Eye, skin, inhalation, and oral

Acute Health Hazards:

- Overexposure of eye surface to ink may be mildly irritating
- Overexposure of skin to ink contact may cause irritation and in some people swelling and redness
- Intentional inhalation overexposure to ink vapors may result in respiratory tract irritation and anesthesia
- Intentional or accidental oral ingestion may cause an upset stomach

Chronic Health Hazards:	None Known
Mutagenicity:	Negative (Ames assay)*
Carcinogenicity:	Not contain any substance listed in IARC Monographs(1,2A and 2B)

Toxicity Data:	Oral LD ₅₀	Dermal LD ₅₀	Inhalant LC ₅₀
	>2000mg/kg(Rats)*	>2000mg/kg(Rats)*	No data available

Eye irritating:	Non-irritating (Rabbit, OECD405)*
Skin irritating:	Non-irritating (Rabbit, OECD404)*
Skin sensitizing:	Non-sensitizing (Guinea pig, OECD406)*

12. Ecological Information

12.1 Ecotoxicity:	No data available on the adverse effects of this ink on the environment
12.2 Mobility:	No data available on the adverse effects of this ink on the environment
12.3 Persistence and degradability:	No data available on the adverse effects of this ink on the environment
12.4 Bioaccumulative potential:	No data available on the adverse effects of this ink on the environment
12.5 Other adverse effects:	No data available

13. Disposal Considerations

Disposal should be in accordance with federal, state, and local requirement.

14. Transportation Information

UN Class/UN Number:	Not applicable
DOT, IMO, or IATA:	Not hazardous classification

15. Regulatory Considerations

US Regulation:

TSCA Section 4(a) Final Test Rules Regulated	Not regulated
TSCA Section 8(a) Preliminary Assessment Information Rule (PAIR)	Not regulated
TSCA Section 12(b) One-Time Export Notification Regulated	Not regulated
California Proposition 65	Not regulated

EU Information:

Symbols and indication according to 1999/45/EC;
The material does not meet the criteria for classification as dangerous.

16. Other Information

This "Material Safety Data Sheet" contains health, safety, and environmental information. It does not replace any precautionary language or use and disposal information which accompanies the product. The information contained herein is believed to be accurate at the time of precaution, but should only be used as a guide. It is subject to revision from time to time. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:

Pigment Ink, FPG-YE

1.2. Manufacturer/Distributor:

Manufacture's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda Hamamatsu-shi
Shizuoka 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1221

1.3. Medical Emergency Number

Not Available

2. Composition Information

This is an aqueous ink formulation

Ink Composition	CAS No.	% By Weight	Risk Phrases
Proprietary dyes and pigments	-	5-10	-
Proprietary organic materials	-	15-20	-
Glycerols	-	About 15	-
Diethylene glycol	111-46-6	About 5	Xn R-22
Ethylene glycol	107-21-1	<5	Xn R-22
Water	7732-18-5	balance	-

3. Hazard Identification

3.1 Emergency Overview:

Ink component is a yellow liquid that causes eye, nose or throat irritation, and that effects anesthesia, if inhales. Ink may flash, when under high temperature. Avoid contact with eyes or clothing. In the case of skin contact, wash with soap and wate

3.2 Potential Health Effects:

Eyes: Ink contact with eye will be irritating. See Section 11 for Toxicology.
Skin: Ink contact with skin may cause minimally irritation. See Section 11 for Toxicology.
Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.
Ingestion: May cause upset stomach. See Section 11 for Toxicology.

4. First Aid Measures

- 4.1 Eyes: Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
- 4.2 Skin: Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
- 4.3 Inhalation: Remove subject to ventilated fresh air. Consult physician if necessary.
- 4.4 Ingestion: Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

- 5.1 Flammability: Not flammable
- 5.2 Extinguishing Media: Dry chemical or carbon dioxide
- 5.3 Fire Fighting Instructions: No special fire fighting procedures are required other than breathing apparatus. No special explosion hazards are known.

6. Accidental Release Measures

- 6.1 Personal protections: No eye or skin protection required during clean-up. Use proper ventilation.
- 6.2 Methods for cleaning up: If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

- 7.1 Handling: Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
- 7.2 Storage: Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
- 7.3 Specific use(s): Not specified

8. Exposure Controls and Personal Protection

- 8.1 Engineering controls: Not special measures required.
- 8.2 Exposure controls:
- 8.2.1 Occupational exposure controls:

Substance(s)	EU: ELV	ACGIH: TLV	OSHA: PEL
Ethylene glycol	308mg/m ³ , 50ppm	100m ³ ,	-

- 8.2.1.1 Respiratory protection: Not required under suitable use as setting the cartridge on the printer; however, self-contained breathing apparatus or organic canister mask is sufficient when used for work.
- 8.2.1.2. Hand protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.1.3 Eye protection: Not required under suitable use as setting the cartridge on the printer; however, wearing safety goggle is sufficient.
- 8.2.1.4 Skin protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.2 Environmental exposure control: Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance: Yellow Liquid
 Odor: None

9.2 Important health, safety and environmental information

pH: 8.0-10.0 at 20 deg.C / 68 deg.F
 Boiling point: No data available
 Melting point: No data available
 Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
 Autoflammability: None
 Explosive properties: None
 Oxidizing properties: None
 Vapor density: No data available
 Relative density: No data available
 Solubility in water: Complete
 Solubility in fat: No data available
 Partition coefficient: No data available
 Viscosity: No data available

9.3 Other information: Not specified

10. Stability and Reactivity

Stability: Stable under normal temperature
 Hazardous polymerization: No data available

10.1 Condition to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

Routes Of Overexposure: Eye, skin, inhalation, and oral

Acute Health Hazards:

- Overexposure of eye surface to ink may be mildly irritating
- Overexposure of skin to ink contact may cause irritation and in some people swelling and redness
- Intentional inhalation overexposure to ink vapors may result in respiratory tract irritation and anesthesia
- Intentional or accidental oral ingestion may cause an upset stomach

Chronic Health Hazards: None Known

Mutagenicity: Negative (Ames assay)*

Carcinogenicity: Not contain any substance listed in IARC Monographs(1,2A and 2B)

Toxicity Data:	Oral LD ₅₀	Dermal LD ₅₀	Inhalant LC ₅₀
	No data available	No data available	No data available

Eye irritating: No data available

Skin irritating: No data available

Skin sensitizing: No data available

12. Ecological Information

12.1 Ecotoxicity:	No data available on the adverse effects of this ink on the environment
12.2 Mobility:	No data available on the adverse effects of this ink on the environment
12.3 Persistence and degradability:	No data available on the adverse effects of this ink on the environment
12.4 Bioaccumulative potential:	No data available on the adverse effects of this ink on the environment
12.5 Other adverse effects:	No data available

13. Disposal Considerations

Disposal should be in accordance with federal, state, and local requirement.

14. Transportation Information

UN Class/UN Number:	Not applicable
DOT, IMO, or IATA:	Not hazardous classification

15. Regulatory Considerations

US Regulation:

TSCA Section 4(a) Final Test Rules Regulated	Not regulated
TSCA Section 8(a) Preliminary Assessment Information Rule (PAIR)	Not regulated
TSCA Section 12(b) One-Time Export Notification Regulated	Not regulated
California Proposition 65	Not regulated

EU Information:

Symbols and indication according to 1999/45/EC;
The material does not meet the criteria for classification as dangerous.

16. Other Information

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Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:

Pigment Ink, FPG-LC

1.2. Manufacturer/Distributor:

Manufacture's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda Hamamatsu-shi
Shizuoka 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1221

1.3. Medical Emergency Number

Not Available

2. Composition Information

This is an aqueous ink formulation

Ink Composition	CAS No.	% By Weight	Risk Phrases
Proprietary dyes and pigments	-	<5	-
Proprietary organic materials	-	5-10	-
Glycerols	-	10-15	-
Diethylene glycol	111-46-6	10-15	Xn R-22
Water	7732-18-5	balance	-

3. Hazard Identification

3.1 Emergency Overview:

Ink component is a cyan liquid that causes eye, nose or throat irritation, and that effects anesthesia, if inhaled. Ink may flash, when under high temperature. Avoid contact with eyes or clothing. In the case of skin contact, wash with soap and water.

3.2 Potential Health Effects:

Eyes: Ink contact with eye will be irritating. See Section 11 for Toxicology.
Skin: Ink contact with skin may cause minimally irritation. See Section 11 for Toxicology.
Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.
Ingestion: May cause upset stomach. See Section 11 for Toxicology.

4. First Aid Measures

- 4.1 Eyes: Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
- 4.2 Skin: Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
- 4.3 Inhalation: Remove subject to ventilated fresh air. Consult physician if necessary.
- 4.4 Ingestion: Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

- 5.1 Flammability: Not flammable
- 5.2 Extinguishing Media: Dry chemical or carbon dioxide
- 5.3 Fire Fighting Instructions: No special fire fighting procedures are required other than breathing apparatus. No special explosion hazards are known.

6. Accidental Release Measures

- 6.1 Personal protections: No eye or skin protection required during clean-up. Use proper ventilation.
- 6.2 Methods for cleaning up: If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

- 7.1 Handling: Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
- 7.2 Storage: Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
- 7.3 Specific use(s): Not specified

8. Exposure Controls and Personal Protection

- 8.1 Engineering controls: Not special measures required.
- 8.2 Exposure controls:
- 8.2.1 Occupational exposure controls: Not established
- 8.2.1.1 Respiratory protection: Not required under suitable use as setting the cartridge on the printer; however, self-contained breathing apparatus or organic canister mask is sufficient when used for work.
- 8.2.1.2. Hand protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.1.3 Eye protection: Not required under suitable use as setting the cartridge on the printer; however, wearing safety goggle is sufficient.
- 8.2.1.4 Skin protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.2 Environmental exposure control: Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance: Cyan Liquid
 Odor: None

9.2 Important health, safety and environmental information

pH: 9.0-11.0 at 20 deg.C / 68 deg.F
 Boiling point: No data available
 Melting point: No data available
 Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
 Autoflammability: None
 Explosive properties: None
 Oxidizing properties: None
 Vapor density: No data available
 Relative density: No data available
 Solubility in water: Complete
 Solubility in fat: No data available
 Partition coefficient: No data available
 Viscosity: No data available

9.3 Other information: Not specified

10. Stability and Reactivity

Stability: Stable under normal temperature
 Hazardous polymerization: No data available

10.1 Condition to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

Routes Of Overexposure: Eye, skin, inhalation, and oral

Acute Health Hazards:

- Overexposure of eye surface to ink may be mildly irritating
- Overexposure of skin to ink contact may cause irritation and in some people swelling and redness
- Intentional inhalation overexposure to ink vapors may result in respiratory tract irritation and anesthesia
- Intentional or accidental oral ingestion may cause an upset stomach

Chronic Health Hazards: None Known

Mutagenicity: Negative (Ames assay)*

Carcinogenicity: Not contain any substance listed in IARC Monographs(1,2A and 2B)

Toxicity Data:

Oral LD ₅₀	Dermal LD ₅₀	Inhalant LC ₅₀
>2000mg/kg(Rats)*	>2000mg/kg(Rats)*	No data available

Eye irritating: Non-irritating (Rabbit, OECD405)*

Skin irritating: Non-irritating (Rabbit, OECD404)*

Skin sensitizing: Non-sensitizing (Guinea pig, OECD406)*

12. Ecological Information

12.1 Ecotoxicity:	No data available on the adverse effects of this ink on the environment
12.2 Mobility:	No data available on the adverse effects of this ink on the environment
12.3 Persistence and degradability:	No data available on the adverse effects of this ink on the environment
12.4 Bioaccumulative potential:	No data available on the adverse effects of this ink on the environment
12.5 Other adverse effects:	No data available

13. Disposal Considerations

Disposal should be in accordance with federal, state, and local requirement.

14. Transportation Information

UN Class/UN Number:	Not applicable
DOT, IMO, or IATA:	Not hazardous classification

15. Regulatory Considerations

US Regulation:

TSCA Section 4(a) Final Test Rules Regulated	Not regulated
TSCA Section 8(a) Preliminary Assessment Information Rule (PAIR)	Not regulated
TSCA Section 12(b) One-Time Export Notification Regulated	Not regulated
California Proposition 65	Not regulated

EU Information:

Symbols and indication according to 1999/45/EC;
The material does not meet the criteria for classification as dangerous.

16. Other Information

This "Material Safety Data Sheet" contains health, safety, and environmental information. It does not replace any precautionary language or use and disposal information which accompanies the product. The information contained herein is believed to be accurate at the time of precaution, but should only be used as a guide. It is subject to revision from time to time. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:

Pigment Ink, FPG-LM

1.2. Manufacturer/Distributor:

Manufacture's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda Hamamatsu-shi
Shizuoka 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1221

1.3. Medical Emergency Number

Not Available

2. Composition Information

This is an aqueous ink formulation

Ink Composition	CAS No.	% By Weight	Risk Phrases
Proprietary dyes and pigments	-	<5	-
Proprietary organic materials	-	5-10	-
Glycerols	-	10-15	-
Ethylene glycol	107-21-1	About 10	Xn R-22
Diethylene glycol	111-46-6	<10	Xn R-22
Water	7732-18-5	balance	-

3. Hazard Identification

3.1 Emergency Overview:

Ink component is a magenta liquid that causes eye, nose or throat irritation, and that effects anesthesia, if inhales. Ink may flash, when under high temperature. Avoid contact with eyes or clothing. In the case of skin contact, wash with soap and wate

3.2 Potential Health Effects:

Eyes: Ink contact with eye will be irritating. See Section 11 for Toxicology.
Skin: Ink contact with skin may cause minimally irritation. See Section 11 for Toxicology.
Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.
Ingestion: May cause upset stomach. See Section 11 for Toxicology.

4. First Aid Measures

- 4.1 Eyes: Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
- 4.2 Skin: Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
- 4.3 Inhalation: Remove subject to ventilated fresh air. Consult physician if necessary.
- 4.4 Ingestion: Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

- 5.1 Flammability: Not flammable
- 5.2 Extinguishing Media: Dry chemical or carbon dioxide
- 5.3 Fire Fighting Instructions: No special fire fighting procedures are required other than breathing apparatus. No special explosion hazards are known.

6. Accidental Release Measures

- 6.1 Personal protections: No eye or skin protection required during clean-up. Use proper ventilation.
- 6.2 Methods for cleaning up: If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

- 7.1 Handling: Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
- 7.2 Storage: Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
- 7.3 Specific use(s): Not specified

8. Exposure Controls and Personal Protection

- 8.1 Engineering controls: Not special measures required.
- 8.2 Exposure controls:
- 8.2.1 Occupational exposure controls:

Substance(s)	EU: ELV	ACGIH: TLV	OSHA: PEL
Ethylene glycol	308mg/m ³ , 50ppm	100m ³ ,	-

- 8.2.1.1 Respiratory protection: Not required under suitable use as setting the cartridge on the printer; however, self-contained breathing apparatus or organic canister mask is sufficient when used for work.
- 8.2.1.2. Hand protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.1.3 Eye protection: Not required under suitable use as setting the cartridge on the printer; however, wearing safety goggle is sufficient.
- 8.2.1.4 Skin protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.2 Environmental exposure control: Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Magenta Liquid
Odor:	None

9.2 Important health, safety and environmental information

pH:	8.0-10.0 at 20 deg.C / 68 deg.F
Boiling point:	No data available
Melting point:	No data available
Flash point:	Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Autoflammability:	None
Explosive properties:	None
Oxidizing properties:	None
Vapor density:	No data available
Relative density:	No data available
Solubility in water:	Complete
Solubility in fat:	No data available
Partition coefficient:	No data available
Viscosity:	No data available

9.3 Other information

Not specified

10. Stability and Reactivity

Stability:	Stable under normal temperature
Hazardous polymerization:	No data available

10.1 Condition to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

Routes Of Overexposure: Eye, skin, inhalation, and oral

Acute Health Hazards:

- Overexposure of eye surface to ink may be mildly irritating
- Overexposure of skin to ink contact may cause irritation and in some people swelling and redness
- Intentional inhalation overexposure to ink vapors may result in respiratory tract irritation and anesthesia
- Intentional or accidental oral ingestion may cause an upset stomach

Chronic Health Hazards:	None Known
Mutagenicity:	Negative (Ames assay)*
Carcinogenicity:	Not contain any substance listed in IARC Monographs(1,2A and 2B)

Toxicity Data:	Oral LD ₅₀	Dermal LD ₅₀	Inhalant LC ₅₀
	>2000mg/kg(Rats)*	>2000mg/kg(Rats)*	No data available

Eye irritating:	Non-irritating (Rabbit, OECD405)*
Skin irritating:	Non-irritating (Rabbit, OECD404)*
Skin sensitizing:	Non-sensitizing (Guinea pig, OECD406)*

12. Ecological Information

12.1 Ecotoxicity:	No data available on the adverse effects of this ink on the environment
12.2 Mobility:	No data available on the adverse effects of this ink on the environment
12.3 Persistence and degradability:	No data available on the adverse effects of this ink on the environment
12.4 Bioaccumulative potential:	No data available on the adverse effects of this ink on the environment
12.5 Other adverse effects:	No data available

13. Disposal Considerations

Disposal should be in accordance with federal, state, and local requirement.

14. Transportation Information

UN Class/UN Number:	Not applicable
DOT, IMO, or IATA:	Not hazardous classification

15. Regulatory Considerations

US Regulation:

TSCA Section 4(a) Final Test Rules Regulated	Not regulated
TSCA Section 8(a) Preliminary Assessment Information Rule (PAIR)	Not regulated
TSCA Section 12(b) One-Time Export Notification Regulated	Not regulated
California Proposition 65	Not regulated

EU Information:

Symbols and indication according to 1999/45/EC;
The material does not meet the criteria for classification as dangerous.

16. Other Information

This "Material Safety Data Sheet" contains health, safety, and environmental information. It does not replace any precautionary language or use and disposal information which accompanies the product. The information contained herein is believed to be accurate at the time of precaution, but should only be used as a guide. It is subject to revision from time to time. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:

Pigment Ink, FPG-OR

1.2. Manufacturer/Distributor:

Manufacture's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda Hamamatsu-shi
Shizuoka 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1221

1.3. Medical Emergency Number

Not Available

2. Composition Information

This is an aqueous ink formulation

Ink Composition	CAS No.	% By Weight	Risk Phrases
Proprietary dyes and pigments	-	5-10	-
Proprietary organic materials	-	10-15	-
Glycerols	-	About 20	-
Diethylene glycol	111-46-6	About 5	Xn R-22
Water	7732-18-5	balance	-

3. Hazard Identification

3.1 Emergency Overview:

Ink component is an orange liquid that causes eye, nose or throat irritation, and that effects anesthesia, if inhales. Ink may flash, when under high temperature. Avoid contact with eyes or clothing. In the case of skin contact, wash with soap and water.

3.2 Potential Health Effects:

Eyes: Ink contact with eye will be irritating. See Section 11 for Toxicology.
Skin: Ink contact with skin may cause minimally irritation. See Section 11 for Toxicology.
Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.
Ingestion: May cause upset stomach. See Section 11 for Toxicology.

4. First Aid Measures

- 4.1 Eyes: Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
- 4.2 Skin: Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
- 4.3 Inhalation: Remove subject to ventilated fresh air. Consult physician if necessary.
- 4.4 Ingestion: Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

- 5.1 Flammability: Not flammable
- 5.2 Extinguishing Media: Dry chemical or carbon dioxide
- 5.3 Fire Fighting Instructions: No special fire fighting procedures are required other than breathing apparatus. No special explosion hazards are known.

6. Accidental Release Measures

- 6.1 Personal protections: No eye or skin protection required during clean-up. Use proper ventilation.
- 6.2 Methods for cleaning up: If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

- 7.1 Handling: Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
- 7.2 Storage: Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
- 7.3 Specific use(s): Not specified

8. Exposure Controls and Personal Protection

- 8.1 Engineering controls: Not special measures required.
- 8.2 Exposure controls:
- 8.2.1 Occupational exposure controls: Not established
- 8.2.1.1 Respiratory protection: Not required under suitable use as setting the cartridge on the printer; however, self-contained breathing apparatus or organic canister mask is sufficient when used for work.
- 8.2.1.2. Hand protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.1.3 Eye protection: Not required under suitable use as setting the cartridge on the printer; however, wearing safety goggle is sufficient.
- 8.2.1.4 Skin protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.2 Environmental exposure control: Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance: Orange Liquid
Odor: None

9.2 Important health, safety and environmental information

pH: 8.0-10.5 at 20 deg.C / 68 deg.F
Boiling point: No data available
Melting point: No data available
Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Autoflammability: None
Explosive properties: None
Oxidizing properties: None
Vapor density: No data available
Relative density: No data available
Solubility in water: Complete
Solubility in fat: No data available
Partition coefficient: No data available
Viscosity: No data available

9.3 Other information: Not specified

10. Stability and Reactivity

Stability: Stable under normal temperature
Hazardous polymerization: No data available

10.1 Condition to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

Routes Of Overexposure: Eye, skin, inhalation, and oral

Acute Health Hazards:

- Overexposure of eye surface to ink may be mildly irritating
- Overexposure of skin to ink contact may cause irritation and in some people swelling and redness
- Intentional inhalation overexposure to ink vapors may result in respiratory tract irritation and anesthesia
- Intentional or accidental oral ingestion may cause an upset stomach

Chronic Health Hazards: None Known

Mutagenicity: None Known

Carcinogenicity: None Known

Toxicity Data:	Oral LD ₅₀	Dermal LD ₅₀	Inhalant LC ₅₀
	No data available	No data available	No data available

Eye irritating: No data available

Skin irritating: No data available

Skin sensitizing: No data available

12. Ecological Information

12.1 Ecotoxicity:	No data available on the adverse effects of this ink on the environment
12.2 Mobility:	No data available on the adverse effects of this ink on the environment
12.3 Persistence and degradability:	No data available on the adverse effects of this ink on the environment
12.4 Bioaccumulative potential:	No data available on the adverse effects of this ink on the environment
12.5 Other adverse effects:	No data available

13. Disposal Considerations

Disposal should be in accordance with federal, state, and local requirement.

14. Transportation Information

UN Class/UN Number:	Not applicable
DOT, IMO, or IATA:	Not hazardous classification

15. Regulatory Considerations

US Regulation:

TSCA Section 4(a) Final Test Rules Regulated	Not regulated
TSCA Section 8(a) Preliminary Assessment Information Rule (PAIR)	Not regulated
TSCA Section 12(b) One-Time Export Notification Regulated	Not regulated
California Proposition 65	Not regulated

EU Information:

Symbols and indication according to 1999/45/EC;
The material does not meet the criteria for classification as dangerous.

16. Other Information

This "Material Safety Data Sheet" contains health, safety, and environmental information. It does not replace any precautionary language or use and disposal information which accompanies the product. The information contained herein is believed to be accurate at the time of precaution, but should only be used as a guide. It is subject to revision from time to time. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:

Pigment Ink, FPG-GR

1.2. Manufacturer/Distributor:

Manufacture's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda Hamamatsu-shi
Shizuoka 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1221

1.3. Medical Emergency Number

Not Available

2. Composition Information

This is an aqueous ink formulation

Ink Composition	CAS No.	% By Weight	Risk Phrases
Proprietary dyes and pigments	-	5-10	-
Proprietary organic materials	-	10-15	-
Glycerols	-	20-25	-
Water	7732-18-5	balance	-

3. Hazard Identification

3.1 Emergency Overview:

Ink component is an orange liquid that causes eye, nose or throat irritation, and that effects anesthesia, if inhales. Ink may flash, when under high temperature. Avoid contact with eyes or clothing. In the case of skin contact, wash with soap and wate

3.2 Potential Health Effects:

Eyes: Ink contact with eye will be irritating. See Section 11 for Toxicology.
Skin: Ink contact with skin may cause minimally irritation. See Section 11 for Toxicology.
Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.
Ingestion: May cause upset stomach. See Section 11 for Toxicology.

4. First Aid Measures

- 4.1 Eyes: Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
- 4.2 Skin: Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
- 4.3 Inhalation: Remove subject to ventilated fresh air. Consult physician if necessary.
- 4.4 Ingestion: Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

- 5.1 Flammability: Not flammable
- 5.2 Extinguishing Media: Dry chemical or carbon dioxide
- 5.3 Fire Fighting Instructions: No special fire fighting procedures are required other than breathing apparatus. No special explosion hazards are known.

6. Accidental Release Measures

- 6.1 Personal protections: No eye or skin protection required during clean-up. Use proper ventilation.
- 6.2 Methods for cleaning up: If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

- 7.1 Handling: Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
- 7.2 Storage: Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
- 7.3 Specific use(s): Not specified

8. Exposure Controls and Personal Protection

- 8.1 Engineering controls: Not special measures required.
- 8.2 Exposure controls:
- 8.2.1 Occupational exposure controls: Not established
- 8.2.1.1 Respiratory protection: Not required under suitable use as setting the cartridge on the printer; however, self-contained breathing apparatus or organic canister mask is sufficient when used for work.
- 8.2.1.2. Hand protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.1.3 Eye protection: Not required under suitable use as setting the cartridge on the printer; however, wearing safety goggle is sufficient.
- 8.2.1.4 Skin protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.2 Environmental exposure control: Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance: Green Liquid
Odor: None

9.2 Important health, safety and environmental information

pH: 8.0-10.5 at 20 deg.C / 68 deg.F
Boiling point: No data available
Melting point: No data available
Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Autoflammability: None
Explosive properties: None
Oxidizing properties: None
Vapor density: No data available
Relative density: No data available
Solubility in water: Complete
Solubility in fat: No data available
Partition coefficient: No data available
Viscosity: No data available

9.3 Other information: Not specified

10. Stability and Reactivity

Stability: Stable under normal temperature
Hazardous polymerization: No data available

10.1 Condition to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

Routes Of Overexposure: Eye, skin, inhalation, and oral

Acute Health Hazards:

- Overexposure of eye surface to ink may be mildly irritating
- Overexposure of skin to ink contact may cause irritation and in some people swelling and redness
- Intentional inhalation overexposure to ink vapors may result in respiratory tract irritation and anesthesia
- Intentional or accidental oral ingestion may cause an upset stomach

Chronic Health Hazards: None Known

Mutagenicity: None Known

Carcinogenicity: None Known

Toxicity Data:	Oral LD ₅₀	Dermal LD ₅₀	Inhalant LC ₅₀
	No data available	No data available	No data available

Eye irritating: No data available

Skin irritating: No data available

Skin sensitizing: No data available

12. Ecological Information

12.1 Ecotoxicity:	No data available on the adverse effects of this ink on the environment
12.2 Mobility:	No data available on the adverse effects of this ink on the environment
12.3 Persistence and degradability:	No data available on the adverse effects of this ink on the environment
12.4 Bioaccumulative potential:	No data available on the adverse effects of this ink on the environment
12.5 Other adverse effects:	No data available

13. Disposal Considerations

Disposal should be in accordance with federal, state, and local requirement.

14. Transportation Information

UN Class/UN Number:	Not applicable
DOT, IMO, or IATA:	Not hazardous classification

15. Regulatory Considerations

US Regulation:

TSCA Section 4(a) Final Test Rules Regulated	Not regulated
TSCA Section 8(a) Preliminary Assessment Information Rule (PAIR)	Not regulated
TSCA Section 12(b) One-Time Export Notification Regulated	Not regulated
California Proposition 65	Not regulated

EU Information:

Symbols and indication according to 1999/45/EC;
The material does not meet the criteria for classification as dangerous.

16. Other Information

This "Material Safety Data Sheet" contains health, safety, and environmental information. It does not replace any precautionary language or use and disposal information which accompanies the product. The information contained herein is believed to be accurate at the time of precaution, but should only be used as a guide. It is subject to revision from time to time. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:

Pigment Ink, FPG-WBK

1.2. Manufacturer/Distributor:

Manufacture's name: Roland DG Corporation
Address: 1-6-4 Shinmiyakoda Hamamatsu-shi
Shizuoka 431-2103
JAPAN
Phone: + 81-53-484-1224
Fax: + 81-53-484-1221

1.3. Medical Emergency Number

Not Available

2. Composition Information

This is an aqueous ink formulation

Ink Composition	CAS No.	% By Weight	Risk Phrases
Carbon black	1333-86-4	<5	-
Proprietary organic materials	-	15-20	-
Glycerols	-	10-15	-
Water	7732-18-5	balance	-

3. Hazard Identification

3.1 Emergency Overview:

Ink component is a black liquid that causes eye, nose or throat irritation, and that effects anesthesia, if inhales. Ink may flash, when under high temperature. Avoid contact with eyes or clothing. In the case of skin contact, wash with soap and water.

3.2 Potential Health Effects:

Eyes: Ink contact with eye will be irritating. See Section 11 for Toxicology.
Skin: Ink contact with skin may cause minimally irritation. See Section 11 for Toxicology.
Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.
Ingestion: May cause upset stomach. See Section 11 for Toxicology.

4. First Aid Measures

- 4.1 Eyes: Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
- 4.2 Skin: Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
- 4.3 Inhalation: Remove subject to ventilated fresh air. Consult physician if necessary.
- 4.4 Ingestion: Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

- 5.1 Flammability: Not flammable
- 5.2 Extinguishing Media: Dry chemical or carbon dioxide
- 5.3 Fire Fighting Instructions: No special fire fighting procedures are required other than breathing apparatus. No special explosion hazards are known.

6. Accidental Release Measures

- 6.1 Personal protections: No eye or skin protection required during clean-up. Use proper ventilation.
- 6.2 Methods for cleaning up: If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

- 7.1 Handling: Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
- 7.2 Storage: Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
- 7.3 Specific use(s): Not specified

8. Exposure Controls and Personal Protection

- 8.1 Engineering controls: Not special measures required.
- 8.2 Exposure controls:
- 8.2.1 Occupational exposure controls: Not established
- 8.2.1.1 Respiratory protection: Not required under suitable use as setting the cartridge on the printer; however, self-contained breathing apparatus or organic canister mask is sufficient when used for work.
- 8.2.1.2. Hand protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.1.3 Eye protection: Not required under suitable use as setting the cartridge on the printer; however, wearing safety goggle is sufficient.
- 8.2.1.4 Skin protection: Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.
- 8.2.2 Environmental exposure control: Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance Black Liquid
Odor: None

9.2 Important health, safety and environmental information

pH: 8.0-10.0 at 20 deg.C / 68 deg.F
Boiling point: No data available
Melting point: No data available
Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Autoflammability: None
Explosive properties: None
Oxidizing properties: None
Vapor density: Greater than 1 (air=1)
Relative density: 1.07 at 20 deg.C / 68 deg.F
Solubility in water: Complete
Solubility in fat: No data available
Partition coefficient: No data available
Viscosity: No data available

9.3 Other information Not specified

10. Stability and Reactivity

Stability: Stable under normal temperature
Hazardous polymerization: No data available

10.1 Condition to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None

11. Toxicology and Health Hazards

Routes Of Overexposure: Eye, skin, inhalation, and oral

Acute Health Hazards:

- Overexposure of eye surface to ink may be mildly irritating
- Overexposure of skin to ink contact may cause irritation and in some people swelling and redness
- Intentional inhalation overexposure to ink vapors may result in respiratory tract irritation and anesthesia
- Intentional or accidental oral ingestion may cause an upset stomach

Chronic Health Hazards: None Known

Mutagenicity: Negative (Ames assay)

Carcinogenicity: With excessive exposure, carbon black has been listed as a possible human carcinogen. However, as engineered within this ink cartridges, emissions to air of carbon black during normal printing use have not been found. IARC, the International Agency for

Toxicity Data: Oral LD₅₀ Dermal LD₅₀ Inhalant LC₅₀
>2000mg/kg(Rats) >2000mg/kg(Rats)* No data available

Eye irritating:	Mild-irritating (Rabbit, OECD405)
Skin irritating:	Mild-irritating (Rabbit, OECD404)
Skin sensitizing:	Mild-irritating (LLNA, OECD429)

12. Ecological Information

12.1 Ecotoxicity:	No data available on the adverse effects of this ink on the environment
12.2 Mobility:	No data available on the adverse effects of this ink on the environment
12.3 Persistence and degradability:	No data available on the adverse effects of this ink on the environment
12.4 Bioaccumulative potential:	No data available on the adverse effects of this ink on the environment
12.5 Other adverse effects:	No data available

13. Disposal Considerations

Disposal should be in accordance with federal, state, and local requirement.

14. Transportation Information

UN Class/UN Number:	Not applicable
DOT, IMO, or IATA:	Not hazardous classification

15. Regulatory Considerations

US Regulation:	
TSCA Section 4(a) Final Test Rules Regulated	Not regulated
TSCA Section 8(a) Preliminary Assessment Information Rule (PAIR)	Not regulated
TSCA Section 12(b) One-Time Export Notification Regulated	Not regulated
California Proposition 65	Not regulated

EU Information:

Symbols and indication according to 1999/45/EC;
The material does not meet the criteria for classification as dangerous.

16. Other Information

This "Material Safety Data Sheet" contains health, safety, and environmental information. It does not replace any precautionary language or use and disposal information which accompanies the product. The information contained herein is believed to be accurate at the time of precaution, but should only be used as a guide. It is subject to revision from time to time. Roland DG does not warrant the completeness or accuracy of the information contained herein.