

Material Safety Data Sheet

1. Identification of The Substance/Mixture and of The Company/Undertaking

- 1.1. Identification of the mixture: Pigment Ink, FPG-BK
- 1.2. Use of the substance/mixture: Inkjet Printing
- 1.3. Company/undertaking identification
- Manufacturer/Distributor: Roland DG Corporation
 Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
 Shizuoka-ken, 431-2103
 JAPAN
- Phone: + 81-53-484-1224
 Fax: + 81-53-484-1226
 Revision: 29 October 2009
 E-mail address:
- 1.4. Emergency telephone:

2. Hazard Identification

2.1 Emergency Overview:

This ink does not meet the criteria for dangerous classification according to EU Directive 1999/45/EC.
 Ink component is a black liquid that may cause eye irritation.

2.2 Potential Health Effects:

- Eyes: Ink contact with eye may be mildly irritating.
- Skin: Ink contact with skin may cause irritation, swelling or redness.
- Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation.
- Ingestion: May cause upset stomach
- Chronic Health Hazards: None Known
- Carcinogenicity: **One of the ingredients, carbon black, is classified by IARC as a 2B carcinogen, possibly carcinogenic to humans.** However, as engineered within this ink cartridge, 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.
None of the other ingredients of this product is listed by IARC as a carcinogen.

3. Composition/Information on Ingredients

This is an aqueous ink formulation

Ink Composition	CAS No.	EC No.	EU registration No.	% By Weight	EU Symbols	EU R-phrase	EU OELs	Remarks
Carbon black	1333-86-4	215-609-9	Not available for the moment	1-5	-	-	-	-
Colorants	Trade secret	Trade secret	Not available for the moment	<1	-	-	-	-
TEGBE	143-22-6	205-592-6	Not available for the moment	About 10	Xi	R41	-	-
Triethanolamine	102-71-6	203-049-8	Not available for the moment	<1	-	-	-	-
Proprietary organic materials	Trade secret	Trade secret	Not available for the moment	1-5	-	-	-	-
Glycerols	Trade secret	Trade secret	Not available for the moment	15 - 20	-	-	-	-
Water	7732-18-5	231-791-2	Exemption	balance	-	-	-	-

4. First Aid Measures

- 4.1 Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.
- 4.2 Skin: In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.
- 4.3 Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- 4.4 Ingestion: If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

5. Fire Fighting Measures

- 5.1 Flammability: Not Flammable
Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
- 5.2 Extinguishing Media: Dry chemical or CO₂
- 5.3 Special Fire Fighting Procedures: Wear self-contained breathing apparatus (SCBA) and full protective equipment.
- 5.4 Unusual Fire and Explosion Hazards: None.

6. Accidental Release Measures

- General: Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.
- 6.1 Personal precautions: **Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.**
- 6.2 Environmental precautions: Dike spill. Prevent liquid from entering sewers, waterways or low areas.
- 6.3 Methods for cleaning up: Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

7. Handling And Storage

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

8. Exposure Controls and Personal Protection

8.1. Exposure limit values:

US:

components	OSHA:PEL	ACGIH:TLV
Carbon black	3.5mg/m ³	3.5mg/m ³
Glycerols (mist)	15mg/m ³	10mg/m ³

8.2 Exposure controls:

- 8.2.1 Occupational exposure control Proper ventilation, in prevention
- 8.2.1.1 Respiratory protection Not required under suitable use as setting the cartridge on the printer.
- 8.2.1.2 Hand protection Not required under suitable use as setting the cartridge on the printer.
- 8.2.1.3 Eye protection Not required under suitable use as setting the cartridge on the printer.
- 8.2.1.4 Skin protection Not required under suitable use as setting the cartridge on the printer.
- 8.2.2 Environmental exposure control Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance: Black Liquid
 Odor: Slightly

9.2 Important health, safety and environmental information

pH: 8.6-10.0 at 20 deg.C / 68 deg.F
 Boiling point: No data available
 Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
 Flammability(solid,gas): None
 Explosive properties: None
 Oxidizing properties: None
 Vapor pressure: No data available
 Relative density: 1.06 at 20 deg.C / 68 deg.F
 Solubility: No data available
 Water Solubility: Complete
 Partition coefficient: n-octanol/water: No data available
 Viscosity: Less than 5 mPa·s
 Vapor density: No data available
 Evaporation rate: No data available

9.3 Other information

Melting point: No data available

10. Stability and Reactivity

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

10.1 Conditions to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None under normal temperature

11. Toxicological Information

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 (by Ames Test)

Carcinogenicity:

One of the ingredients, carbon black, is classified by IARC as a 2B carcinogen, possibly carcinogenic to humans. However, as engineered within this ink cartridge, 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.

None of the other ingredients of this product is listed by IARC as a carcinogen.

Toxicity Data:

Oral LD ₅₀	Dermal LD ₅₀	Inhalant LC ₅₀
>2000mg/kg(Rat)	>2000mg/kg(Rat)	Not applicable

Eye irritating: Non irritating (Rabbits, OECD 405)

Skin irritating: Non irritating (Rabbits, OECD 404)

Skin sensitizing: Non-sensitizing (Guinea Pig, OECD 406)

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 Result of PBT assessment	Has not carried out PBT assessment
12.6 Other adverse effects:	No data available

13. Disposal Considerations

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. Transportation Information

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

15. Regulatory Considerations

EU Information:

Chemical Safety Assessment according to (EC)1907/2006:

This ink has not carried out any Chemical Safety Assessment yet.

Symbols and indication according to 1999/45/EC:

This ink does not meet the criteria for classification as dangerous.

US Information:

Toxic Substances Control Act (TSCA): All components of this product are listed on the TSCA Inventory.

California Proposition 65: Not regulated

SARA TITLE III:

Section 313:

TEGBE(Chemical Category N230)

Canada Information:

WHMIS Controlled Product: Not applicable (Manufactured article)

Australia Information:

Statement of Hazardous Nature: Not classified as hazardous according to criteria of NOHSC

16. Other Information

List of relevant R-phrases: R41 Risk of serious damage to eyes.

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 mixture, 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. Identification of The Substance/Mixture and of The Company/Undertaking

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- 1.2. Use of the substance/mixture: Inkjet Printing
- 1.3. Company/undertaking identification
- Manufacturer/Distributor: Roland DG Corporation
- Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
Shizuoka-ken, 431-2103
JAPAN
- Phone: + 81-53-484-1224
- Fax: + 81-53-484-1226
- Revision: **29 October 2009**
- E-mail address:
- 1.4. Emergency telephone:

2. Hazard Identification

2.1 Emergency Overview:

This ink does not meet the criteria for dangerous classification according to EU Directive 1999/45/EC.
 Ink component is a cyan liquid that may cause eye irritation.

2.2 Potential Health Effects:

Eyes: Ink contact with eye may be mildly irritating.

Skin: Ink contact with skin may cause irritation, swelling or redness.

Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation.

Ingestion: May cause upset stomach

Chronic Health Hazards: None Known

Carcinogenicity: **None of the ingredients in this ink is listed by IARC as a carcinogen.**

3. Composition/Information on Ingredients

This is an aqueous ink formulation

Ink Composition	CAS No.	EC No.	EU registration No.	% By Weight	EU Symbols	EU R-phrase	EU OELs	Remarks
Colorants	Trade secret	Trade secret	Not available for the moment	1-5	-	-	-	-
TEGBE	143-22-6	205-592-6	Not available for the moment	About 10	Xi	R41	-	-
Ethylene glycol	107-21-1	203-473-3	Not available for the moment	5 - 10	Xn	R22	See section 8	-
Triethanol amine	102-71-6	203-049-8	Not available for the moment	< 1	-	-	-	-
Proprietary organic materials	Trade secret	Trade secret	Not available for the moment	1-5	-	-	-	-
Glycerols	Trade secret	Trade secret	Not available for the moment	10 - 15	-	-	-	-
Water	7732-18-5	231-791-2	Exemption	balance	-	-	-	-

4. First Aid Measures

- 4.1 Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.
- 4.2 Skin: In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.
- 4.3 Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- 4.4 Ingestion: If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

5. Fire Fighting Measures

- 5.1 Flammability: Not Flammable
Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
- 5.2 Extinguishing Media: Dry chemical or CO₂
- 5.3 Special Fire Fighting Procedures: Wear self-contained breathing apparatus (SCBA) and full protective equipment.
- 5.4 Unusual Fire and Explosion Hazards: None.

6. Accidental Release Measures

- General: Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.
- 6.1 Personal precautions: **Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.**
- 6.2 Environmental precautions: Dike spill. Prevent liquid from entering sewers, waterways or low areas.
- 6.3 Methods for cleaning up: Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

7. Handling And Storage

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

8. Exposure Controls and Personal Protection

8.1. Exposure limit values:

EU:

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

US:

components	OSHA:PEL	ACGIH:TLV
Ethylene glycol (Aerosol only)	Not applicable	100mg/m ³ (ceiling)
Glycerols (mist)	15mg/m³	10mg/m³

Australia: OELs

components	TWA	STEL
Ethylene glycol (VAPOUR)	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm

8.2 Exposure controls:	
8.2.1 Occupational exposure control	Proper ventilation, in prevention
8.2.1.1 Respiratory protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.2 Hand protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.3 Eye protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.4 Skin protection	Not required under suitable use as setting the cartridge on the printer.
8.2.2 Environmental exposure control	Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Cyan Liquid
Odor:	Slightly

9.2 Important health, safety and environmental information

pH:	8.9 - 10.3 at 20 deg.C / 68 deg.F
Boiling point:	No data available
Flash point:	Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Flammability(solid,gas):	None
Explosive properties:	None
Oxidizing properties:	None
Vapor pressure:	No data available
Relative density:	1.07 at 20 deg.C / 68 deg.F
Solubility	No data available
Water Solubility:	Complete
Partition coefficient: n-octanol/water:	No data available
Viscosity:	Less than 5 mPa·s
Vapor density:	No data available
Evaporation rate:	No data available

9.3 Other information

Melting point:	No data available
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10. Stability and Reactivity

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

10.1 Conditions to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None under normal temperature

11. Toxicological Information

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 (by Ames Test)

Carcinogenicity: **None of the ingredients in this ink is listed by IARC as a carcinogen.**

Toxicity Data:	Oral LD ₅₀	Dermal LD ₅₀	Inhalant LC ₅₀
	>2000mg/kg(Rat)	>2000mg/kg(Rat)	Not applicable

Eye irritating: Non irritating (Rabbits, OECD 405)

Skin irritating: Non irritating (Rabbits, OECD 404)

Skin sensitizing: Non-sensitizing (Guinea Pig, OECD 406)

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 Result of PBT assessment	Has not carried out PBT assessment
12.6 Other adverse effects:	No data available

13. Disposal Considerations

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. Transportation Information

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

15. Regulatory Considerations

EU Information:

Chemical Safety Assessment according to (EC)1907/2006:

This ink has not carried out any Chemical Safety Assessment yet.

Symbols and indication according to 1999/45/EC:

This ink does not meet the criteria for classification as dangerous.

US Information:

Toxic Substances Control Act (TSCA): All components of this product are listed on the TSCA Inventory.

California Proposition 65: Not regulated

SARA TITLE III:

Section 313:

Ethylene glycol

TEGBE(Chemical Category N230)

Canada Information:

WHMIS Controlled Product: Not applicable (Manufactured article)

Australia Information:

Statement of Hazardous Nature: Not classified as hazardous according to criteria of NOHSC

16. Other Information

List of relevant R-phrases:	R22 Harmful if swallowed. R41 Risk of serious damage to eyes.
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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 mixture, 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. Identification of The Substance/Mixture and of The Company/Undertaking

- 1.1. Identification of the mixture: Pigment Ink, FPG-MG
- 1.2. Use of the substance/mixture: Inkjet Printing
- 1.3. Company/undertaking identification
- Manufacturer/Distributor: Roland DG Corporation
 Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
 Shizuoka-ken, 431-2103
 JAPAN
- Phone: + 81-53-484-1224
 Fax: + 81-53-484-1226
 Revision: **29 October 2009**
 E-mail address:
- 1.4. Emergency telephone:

2. Hazard Identification

2.1 Emergency Overview:

This ink does not meet the criteria for dangerous classification according to EU Directive 1999/45/EC.
 Ink component is a magenta liquid that may cause eye irritation.

2.2 Potential Health Effects:

Eyes: Ink contact with eye may be mildly irritating.
 Skin: Ink contact with skin may cause irritation, swelling or redness.
 Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation.
 Ingestion: May cause upset stomach
 Chronic Health Hazards: None Known
 Carcinogenicity: **None of the ingredients in this ink is listed by IARC as a carcinogen.**

3. Composition/Information on Ingredients

This is an aqueous ink formulation

Ink Composition	CAS No.	EC No.	EU registration No.	% By Weight	EU Symbols	EU R-phrase	EU OELs	Remarks
Colorants	Trade secret	Trade secret	Not available for the moment	1-5	-	-	-	-
TEGBE	143-22-6	205-592-6	Not available for the moment	About 5	Xi	R41	-	-
Ethylene glycol	107-21-1	203-473-3	Not available for the moment	5 - 10	Xn	R22	See section 8	-
Triethanol amine	102-71-6	203-049-8	Not available for the moment	< 1	-	-	-	-
Proprietary organic materials	Trade secret	Trade secret	Not available for the moment	1-5	-	-	-	-
Glycerols	Trade secret	Trade secret	Not available for the moment	15 - 20	-	-	-	-
Water	7732-18-5	231-791-2	Exemption	balance	-	-	-	-

4. First Aid Measures

- 4.1 Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.
- 4.2 Skin: In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.
- 4.3 Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- 4.4 Ingestion: If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

5. Fire Fighting Measures

- 5.1 Flammability: Not Flammable
Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
- 5.2 Extinguishing Media: Dry chemical or CO₂
- 5.3 Special Fire Fighting Procedures: Wear self-contained breathing apparatus (SCBA) and full protective equipment.
- 5.4 Unusual Fire and Explosion Hazards: None.

6. Accidental Release Measures

- General: Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.
- 6.1 Personal precautions: **Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.**
- 6.2 Environmental precautions: Dike spill. Prevent liquid from entering sewers, waterways or low areas.
- 6.3 Methods for cleaning up: Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

7. Handling And Storage

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

8. Exposure Controls and Personal Protection

8.1. Exposure limit values:

EU:

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

US:

components	OSHA:PEL	ACGIH:TLV
Ethylene glycol (Aerosol only)	Not applicable	100mg/m ³ (ceiling)
Glycerols (mist)	15mg/m³	10mg/m³

Australia: OELs

components	TWA	STEL
Ethylene glycol (VAPOUR)	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm

8.2 Exposure controls:	
8.2.1 Occupational exposure control	Proper ventilation, in prevention
8.2.1.1 Respiratory protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.2 Hand protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.3 Eye protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.4 Skin protection	Not required under suitable use as setting the cartridge on the printer.
8.2.2 Environmental exposure control	Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information	
Appearance	Magenta Liquid
Odor:	Slightly
9.2 Important health, safety and environmental information	
pH:	8.5 - 9.9 at 20 deg.C / 68 deg.F
Boiling point:	No data available
Flash point:	Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Flammability(solid,gas):	None
Explosive properties:	None
Oxidizing properties:	None
Vapor pressure:	No data available
Relative density:	1.07 at 20 deg.C / 68 deg.F
Solubility	No data available
Water Solubility:	Complete
Partition coefficient: n-octanol/water:	No data available
Viscosity:	Less than 5 mPa·s
Vapor density:	No data available
Evaporation rate:	No data available
9.3 Other information	
Melting point:	No data available

10. Stability and Reactivity

Stability:	Stable under normal temperature
Hazardous polymerization:	No data available
10.1 Conditions to avoid:	High and freezing temperatures
10.2 Materials to avoid:	Oxidizers and explosives
10.3 Hazardous decomposition products:	None under normal temperature

11. Toxicological Information

Routes Of Overexposure:	Eye, skin, inhalation, and oral		
Acute Health Hazards:	<ul style="list-style-type: none"> - 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 (by Ames Test)		
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen.		
Toxicity Data:	Oral LD ₅₀	Dermal LD ₅₀	Inhalant LC ₅₀
	>2000mg/kg(Rat)	>2000mg/kg(Rat)	Not applicable
Eye irritating:	Non irritating (Rabbits, OECD 405)		
Skin irritating:	Non irritating (Rabbits, OECD 404)		
Skin sensitizing:	Non-sensitizing (Guinea Pig, OECD 406)		

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 Result of PBT assessment	Has not carried out PBT assessment
12.6 Other adverse effects:	No data available

13. Disposal Considerations

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. Transportation Information

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

15. Regulatory Considerations

EU Information:

Chemical Safety Assessment according to (EC)1907/2006:

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Symbols and indication according to 1999/45/EC:

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US Information:

Toxic Substances Control Act (TSCA): All components of this product are listed on the TSCA Inventory.

California Proposition 65: Not regulated

SARA TITLE III:

Section 313:

Ethylene glycol

TEGBE(Chemical Category N230)

Canada Information:

WHMIS Controlled Product: Not applicable (Manufactured article)

Australia Information:

Statement of Hazardous Nature: Not classified as hazardous according to criteria of NOHSC

16. Other Information

List of relevant R-phrases: R22 Harmful if swallowed.
R41 Risk of serious damage to eyes.

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- 1.2. Use of the substance/mixture: Inkjet Printing
- 1.3. Company/undertaking identification
- Manufacturer/Distributor: Roland DG Corporation
 Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
 Shizuoka-ken, 431-2103
 JAPAN
- Phone: + 81-53-484-1224
 Fax: + 81-53-484-1226
 Revision: **29 October 2009**
 E-mail address:
- 1.4. Emergency telephone:

2. Hazard Identification

2.1 Emergency Overview:

This ink does not meet the criteria for dangerous classification according to EU Directive 1999/45/EC.
 Ink component is a yellow liquid that may cause eye irritation.

2.2 Potential Health Effects:

Eyes: Ink contact with eye may be mildly irritating.
 Skin: Ink contact with skin may cause irritation, swelling or redness.
 Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation.
 Ingestion: May cause upset stomach
 Chronic Health Hazards: None Known
 Carcinogenicity: **None of the ingredients in this ink is listed by IARC as a carcinogen.**

3. Composition/Information on Ingredients

This is an aqueous ink formulation

Ink Composition	CAS No.	EC No.	EU registration No.	% By Weight	EU Symbols	EU R-phrase	EU OELs	Remarks
Colorants	Trade secret	Trade secret	Not available for the moment	5 - 10	-	-	-	-
TEGBE	143-22-6	205-592-6	Not available for the moment	5 - 10	Xi	R41	-	-
Ethylene glycol	107-21-1	203-473-3	Not available for the moment	1 - 5	Xn	R22	See section 8	-
Diethylene glycol	111-46-6	203-872-2	Not available for the moment	About 5	Xn	R22	-	-
Triethanol amine	102-71-6	203-049-8	Not available for the moment	< 1	-	-	-	-
Proprietary organic materials	Trade secret	Trade secret	Not available for the moment	5 - 10	-	-	-	-
Glycerols	Trade secret	Trade secret	Not available for the moment	About 15	-	-	-	-
Water	7732-18-5	231-791-2	Exemption	balance	-	-	-	-

4. First Aid Measures

- 4.1 Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.
- 4.2 Skin: In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.
- 4.3 Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- 4.4 Ingestion: If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

5. Fire Fighting Measures

- 5.1 Flammability: Not Flammable
Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
- 5.2 Extinguishing Media: Dry chemical or CO₂
- 5.3 Special Fire Fighting Procedures: Wear self-contained breathing apparatus (SCBA) and full protective equipment.
- 5.4 Unusual Fire and Explosion Hazards: None.

6. Accidental Release Measures

- General: Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.
- 6.1 Personal precautions: **Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.**
- 6.2 Environmental precautions: Dike spill. Prevent liquid from entering sewers, waterways or low areas.
- 6.3 Methods for cleaning up: Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

7. Handling And Storage

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

8. Exposure Controls and Personal Protection

8.1. Exposure limit values:

EU:

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

US:

components	OSHA:PEL	ACGIH:TLV
Ethylene glycol (Aerosol only)	Not applicable	100mg/m ³ (ceiling)
Glycerols (mist)	15mg/m³	10mg/m³

Australia: OELs

components	TWA	STEL
Ethylene glycol (VAPOUR)	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm
Diethylene glycol	100mg/m ³ , 23ppm	Not applicable

8.2 Exposure controls:	
8.2.1 Occupational exposure control	Proper ventilation, in prevention
8.2.1.1 Respiratory protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.2 Hand protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.3 Eye protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.4 Skin protection	Not required under suitable use as setting the cartridge on the printer.
8.2.2 Environmental exposure control	Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Yellow Liquid
Odor:	Slightly

9.2 Important health, safety and environmental information

pH:	8.6 - 10.0 at 20 deg.C / 68 deg.F
Boiling point:	No data available
Flash point:	Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Flammability(solid,gas):	None
Explosive properties:	None
Oxidizing properties:	None
Vapor pressure:	No data available
Relative density:	1.07 at 20 deg.C / 68 deg.F
Solubility	No data available
Water Solubility:	Complete
Partition coefficient: n-octanol/water:	No data available
Viscosity:	Less than 5 mPa·s
Vapor density:	No data available
Evaporation rate:	No data available

9.3 Other information

Melting point:	No data available
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10. Stability and Reactivity

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

10.1 Conditions to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None under normal temperature

11. Toxicological Information

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 of the ingredients in this ink is listed by IARC as a carcinogen.**

Toxicity Data:

Oral LD₅₀ No data available

Dermal LD₅₀ No data available

Inhalant LC₅₀ 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 Result of PBT assessment	Has not carried out PBT assessment
12.6 Other adverse effects:	No data available

13. Disposal Considerations

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. Transportation Information

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

15. Regulatory Considerations

EU Information:

Chemical Safety Assessment according to (EC)1907/2006:

This ink has not carried out any Chemical Safety Assessment yet.

Symbols and indication according to 1999/45/EC:

This ink does not meet the criteria for classification as dangerous.

US Information:

Toxic Substances Control Act (TSCA): All components of this product are listed on the TSCA Inventory.

California Proposition 65: Not regulated

SARA TITLE III:

Section 313:

Ethylene glycol

TEGBE(Chemical Category N230)

Canada Information:

WHMIS Controlled Product: Not applicable (Manufactured article)

Australia Information:

Statement of Hazardous Nature: Not classified as hazardous according to criteria of NOHSC

16. Other Information

List of relevant R-phrases: R22 Harmful if swallowed.
R41 Risk of serious damage to eyes.

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 mixture, 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. Identification of The Substance/Mixture and of The Company/Undertaking

- 1.1. Identification of the mixture: Pigment Ink, FPG-LC
- 1.2. Use of the substance/mixture: Inkjet Printing
- 1.3. Company/undertaking identification
- Manufacturer/Distributor: Roland DG Corporation
 Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
 Shizuoka-ken, 431-2103
 JAPAN
- Phone: + 81-53-484-1224
 Fax: + 81-53-484-1226
 Revision: **29 October 2009**
 E-mail address:
- 1.4. Emergency telephone:

2. Hazard Identification

2.1 Emergency Overview:

This ink does not meet the criteria for dangerous classification according to EU Directive 1999/45/EC.
 Ink component is a cyan liquid that may cause eye irritation.

2.2 Potential Health Effects:

Eyes: Ink contact with eye may be mildly irritating.
 Skin: Ink contact with skin may cause irritation, swelling or redness.
 Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation.
 Ingestion: May cause upset stomach
 Chronic Health Hazards: None Known
 Carcinogenicity: **None of the ingredients in this ink is listed by IARC as a carcinogen.**

3. Composition/Information on Ingredients

This is an aqueous ink formulation

Ink Composition	CAS No.	EC No.	EU registration No.	% By Weight	EU Symbols	EU R-phrase	EU OELs	Remarks
Colorants	Trade secret	Trade secret	Not available for the moment	< 1	-	-	-	-
TEGBE	143-22-6	205-592-6	Not available for the moment	About 5	Xi	R41	-	-
Diethylene glycol	111-46-6	203-872-2	Not available for the moment	10 - 15	Xn	R22	-	-
Triethanol amine	102-71-6	203-049-8	Not available for the moment	< 1	-	-	-	-
Proprietary organic materials	Trade secret	Trade secret	Not available for the moment	1-5	-	-	-	-
Glycerols	Trade secret	Trade secret	Not available for the moment	About 15	-	-	-	-
Water	7732-18-5	231-791-2	Exemption	balance	-	-	-	-

4. First Aid Measures

- 4.1 Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.
- 4.2 Skin: In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.
- 4.3 Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- 4.4 Ingestion: If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

5. Fire Fighting Measures

- 5.1 Flammability: Not Flammable
Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
- 5.2 Extinguishing Media: Dry chemical or CO₂
- 5.3 Special Fire Fighting Procedures: Wear self-contained breathing apparatus (SCBA) and full protective equipment.
- 5.4 Unusual Fire and Explosion Hazards: None.

6. Accidental Release Measures

- General: Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.
- 6.1 Personal precautions: **Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.**
- 6.2 Environmental precautions: Dike spill. Prevent liquid from entering sewers, waterways or low areas.
- 6.3 Methods for cleaning up: Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

7. Handling And Storage

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

8. Exposure Controls and Personal Protection

8.1. Exposure limit values:

US:

components	OSHA:PEL	ACGIH:TLV
Glycerols (mist)	15mg/m ³	10mg/m ³

Australia: OELs

components	TWA	STEL
Diethylene glycol	100mg/m ³ , 23ppm	Not applicable

8.2 Exposure controls:	
8.2.1 Occupational exposure control	Proper ventilation, in prevention
8.2.1.1 Respiratory protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.2 Hand protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.3 Eye protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.4 Skin protection	Not required under suitable use as setting the cartridge on the printer.
8.2.2 Environmental exposure control	Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Light Cyan Liquid
Odor:	Slightly

9.2 Important health, safety and environmental information

pH:	8.5 - 9.9 at 20 deg.C / 68 deg.F
Boiling point:	No data available
Flash point:	Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Flammability(solid,gas):	None
Explosive properties:	None
Oxidizing properties:	None
Vapor pressure:	No data available
Relative density:	1.07 at 20 deg.C / 68 deg.F
Solubility	No data available
Water Solubility:	Complete
Partition coefficient: n-octanol/water:	No data available
Viscosity:	Less than 5 mPa·s
Vapor density:	No data available
Evaporation rate:	No data available

9.3 Other information

Melting point:	No data available
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10. Stability and Reactivity

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

10.1 Conditions to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None under normal temperature

11. Toxicological Information

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 (by Ames Test)

Carcinogenicity: **None of the ingredients in this ink is listed by IARC as a carcinogen.**

Toxicity Data:	Oral LD ₅₀	Dermal LD ₅₀	Inhalant LC ₅₀
	>2000mg/kg(Rat)	>2000mg/kg(Rat)	Not applicable

Eye irritating: Non irritating (Rabbits, OECD 405)

Skin irritating: Non irritating (Rabbits, OECD 404)

Skin sensitizing: Non-sensitizing (Guinea Pig, OECD 406)

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 Result of PBT assessment	Has not carried out PBT assessment
12.6 Other adverse effects:	No data available

13. Disposal Considerations

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. Transportation Information

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

15. Regulatory Considerations

EU Information:

Chemical Safety Assessment according to (EC)1907/2006:

This ink has not carried out any Chemical Safety Assessment yet.

Symbols and indication according to 1999/45/EC:

This ink does not meet the criteria for classification as dangerous.

US Information:

Toxic Substances Control Act (TSCA): All components of this product are listed on the TSCA Inventory.

California Proposition 65: Not regulated

SARA TITLE III:

Section 313:

TEGBE(Chemical Category N230)

Canada Information:

WHMIS Controlled Product: Not applicable (Manufactured article)

Australia Information:

Statement of Hazardous Nature: Not classified as hazardous according to criteria of NOHSC

16. Other Information

List of relevant R-phrases: R22 Harmful if swallowed.
R41 Risk of serious damage to eyes.

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 mixture, 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. Identification of The Substance/Mixture and of The Company/Undertaking

- 1.1. Identification of the mixture: Pigment Ink, FPG-LM
- 1.2. Use of the substance/mixture: Inkjet Printing
- 1.3. Company/undertaking identification
- Manufacturer/Distributor: Roland DG Corporation
 Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
 Shizuoka-ken, 431-2103
 JAPAN
- Phone: + 81-53-484-1224
 Fax: + 81-53-484-1226
 Revision: 29 October 2009
 E-mail address:
- 1.4. Emergency telephone:

2. Hazard Identification

2.1 Emergency Overview:

This ink does not meet the criteria for dangerous classification according to EU Directive 1999/45/EC.
 Ink component is a magenta liquid that may cause eye irritation.

2.2 Potential Health Effects:

Eyes: Ink contact with eye may be mildly irritating.
 Skin: Ink contact with skin may cause irritation, swelling or redness.
 Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation.
 Ingestion: May cause upset stomach
 Chronic Health Hazards: None Known
 Carcinogenicity: **None of the ingredients in this ink is listed by IARC as a carcinogen.**

3. Composition/Information on Ingredients

This is an aqueous ink formulation

Ink Composition	CAS No.	EC No.	EU registration No.	% By Weight	EU Symbols	EU R-phrase	EU OELs	Remarks
Colorants	Trade secret	Trade secret	Not available for the moment	< 1	-	-	-	-
TEGBE	143-22-6	205-592-6	Not available for the moment	About 5	Xi	R41	-	-
Ethylene glycol	107-21-1	203-473-3	Not available for the moment	About 10	Xn	R22	See section 8	-
Diethylene glycol	111-46-6	203-872-2	Not available for the moment	1-5	Xn	R22	-	-
Triethanol amine	102-71-6	203-049-8	Not available for the moment	< 1	-	-	-	-
Proprietary organic materials	Trade secret	Trade secret	Not available for the moment	1-5	-	-	-	-
Glycerols	Trade secret	Trade secret	Not available for the moment	About 15	-	-	-	-
Water	7732-18-5	231-791-2	Exemption	balance	-	-	-	-

4. First Aid Measures

- 4.1 Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.
- 4.2 Skin: In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.
- 4.3 Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- 4.4 Ingestion: If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

5. Fire Fighting Measures

- 5.1 Flammability: Not Flammable
Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
- 5.2 Extinguishing Media: Dry chemical or CO₂
- 5.3 Special Fire Fighting Procedures: Wear self-contained breathing apparatus (SCBA) and full protective equipment.
- 5.4 Unusual Fire and Explosion Hazards: None.

6. Accidental Release Measures

- General: Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.
- 6.1 Personal precautions: **Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.**
- 6.2 Environmental precautions: Dike spill. Prevent liquid from entering sewers, waterways or low areas.
- 6.3 Methods for cleaning up: Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

7. Handling And Storage

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

8. Exposure Controls and Personal Protection

8.1. Exposure limit values:

EU:

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

US:

components	OSHA:PEL	ACGIH:TLV
Ethylene glycol (Aerosol only)	Not applicable	100mg/m ³ (ceiling)
Glycerols (mist)	15mg/m³	10mg/m³

Australia: OELs

components	TWA	STEL
Ethylene glycol (VAPOUR)	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm
Diethylene glycol	100mg/m ³ , 23ppm	Not applicable

8.2 Exposure controls:	
8.2.1 Occupational exposure control	Proper ventilation, in prevention
8.2.1.1 Respiratory protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.2 Hand protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.3 Eye protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.4 Skin protection	Not required under suitable use as setting the cartridge on the printer.
8.2.2 Environmental exposure control	Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Magenta Liquid
Odor:	Slightly

9.2 Important health, safety and environmental information

pH:	8.4 - 9.8 at 20 deg.C / 68 deg.F
Boiling point:	No data available
Flash point:	Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Flammability(solid,gas):	None
Explosive properties:	None
Oxidizing properties:	None
Vapor pressure:	No data available
Relative density:	1.07 at 20 deg.C / 68 deg.F
Solubility	No data available
Water Solubility:	Complete
Partition coefficient: n-octanol/water:	No data available
Viscosity:	Less than 5 mPa-s
Vapor density:	No data available
Evaporation rate:	No data available

9.3 Other information

Melting point:	No data available
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10. Stability and Reactivity

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

10.1 Conditions to avoid:	High and freezing temperatures
10.2 Materials to avoid:	Oxidizers and explosives
10.3 Hazardous decomposition products:	None under normal temperature

11. Toxicological Information

Routes Of Overexposure:	Eye, skin, inhalation, and oral
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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 (by Ames Test)

Carcinogenicity: **None of the ingredients in this ink is listed by IARC as a carcinogen.**

Toxicity Data:	Oral LD ₅₀	Dermal LD ₅₀	Inhalant LC ₅₀
	>2000mg/kg(Rat)	>2000mg/kg(Rat)	Not applicable

Eye irritating:	Non irritating (Rabbits, OECD 405)
Skin irritating:	Non irritating (Rabbits, OECD 404)
Skin sensitizing:	Non-sensitizing (Guinea Pig, OECD 406)

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 Result of PBT assessment	Has not carried out PBT assessment
12.6 Other adverse effects:	No data available

13. Disposal Considerations

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. Transportation Information

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

15. Regulatory Considerations

EU Information:

Chemical Safety Assessment according to (EC)1907/2006:

This ink has not carried out any Chemical Safety Assessment yet.

Symbols and indication according to 1999/45/EC:

This ink does not meet the criteria for classification as dangerous.

US Information:

Toxic Substances Control Act (TSCA): All components of this product are listed on the TSCA Inventory.

California Proposition 65: Not regulated

SARA TITLE III:

Section 313:

Ethylene glycol

TEGBE(Chemical Category N230)

Canada Information:

WHMIS Controlled Product: Not applicable (Manufactured article)

Australia Information:

Statement of Hazardous Nature: Not classified as hazardous according to criteria of NOHSC

16. Other Information

List of relevant R-phrases	R22 Harmful if swallowed. R41 Risk of serious damage to eyes.
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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 mixture, 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. Identification of The Substance/Mixture and of The Company/Undertaking

- 1.1. Identification of the mixture: Pigment Ink, FPG-OR
- 1.2. Use of the substance/mixture: Inkjet Printing
- 1.3. Company/undertaking identification
- Manufacturer/Distributor: Roland DG Corporation
 Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
 Shizuoka-ken, 431-2103
 JAPAN
- Phone: + 81-53-484-1224
 Fax: + 81-53-484-1226
 Revision: 29 October 2009
 E-mail address:
- 1.4. Emergency telephone:

2. Hazard Identification

2.1 Emergency Overview:

This ink does not meet the criteria for dangerous classification according to EU Directive 1999/45/EC.
 Ink component is a orange liquid that may cause eye irritation.

2.2 Potential Health Effects:

Eyes: Ink contact with eye may be mildly irritating.
 Skin: Ink contact with skin may cause irritation, swelling or redness.
 Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation.
 Ingestion: May cause upset stomach
 Chronic Health Hazards: None Known
 Carcinogenicity: **None of the ingredients in this ink is listed by IARC as a carcinogen.**

3. Composition/Information on Ingredients

This is an aqueous ink formulation

Ink Composition	CAS No.	EC No.	EU registration No.	% By Weight	EU Symbols	EU R-phrase	EU OELs	Remarks
Colorants	Trade secret	Trade secret	Not available for the moment	5 - 10	-	-	-	-
Diethylene glycol	111-46-6	203-872-2	Not available for the moment	About 5	Xn	R22	-	-
TEGBE	143-22-6	205-592-6	Not available for the moment	1-5	Xi	R41	-	-
Ethylene glycol	107-21-1	203-473-3	Not available for the moment	< 1	Xn	R22	See section 8	-
Ethanolamine	141-43-5	205-483-3	Not available for the moment	< 1	C	R20/21/22, R34	See section 8	-
Triethanol amine	102-71-6	203-049-8	Not available for the moment	< 1	-	-	-	-
Proprietary organic materials	Trade secret	Trade secret	Not available for the moment	5 - 10	-	-	-	-
Glycerols	Trade secret	Trade secret	Not available for the moment	About 20	-	-	-	-
Water	7732-18-5	231-791-2	Exemption	balance	-	-	-	-

4. First Aid Measures

- 4.1 Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.
- 4.2 Skin: In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.
- 4.3 Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- 4.4 Ingestion: If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

5. Fire Fighting Measures

- 5.1 Flammability: Not Flammable
Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
- 5.2 Extinguishing Media: Dry chemical or CO₂
- 5.3 Special Fire Fighting Procedures: Wear self-contained breathing apparatus (SCBA) and full protective equipment.
- 5.4 Unusual Fire and Explosion Hazards: None.

6. Accidental Release Measures

- General: Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.
- 6.1 Personal precautions: **Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.**
- 6.2 Environmental precautions: Dike spill. Prevent liquid from entering sewers, waterways or low areas.
- 6.3 Methods for cleaning up: Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

7. Handling And Storage

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

8. Exposure Controls and Personal Protection

8.1. Exposure limit values:

EU:

components	The threshold limit	STEL
Ethylene glycol	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm
Ethanolamine	2.5mg/m ³ , 1ppm	7.6mg/m ³ , 3ppm

US:

components	OSHA:PEL	ACGIH:TLV
Ethylene glycol (Aerosol only)	Not applicable	100mg/m ³ (ceiling)
Ethanolamine	6 mg/m ³ , 3 ppm	7.5 mg/m ³ , 3 ppm (TWA) 15 mg/m ³ , 6 ppm (STEL)
Glycerols (mist)	15mg/m³	10mg/m³

Australia: OELs

components	TWA	STEL
Ethylene glycol (VAPOUR)	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm
Ethanolamine	7.5mg/m ³ , 3ppm	15mg/m ³ , 6ppm
Diethylene glycol	100mg/m ³ , 23ppm	Not applicable

8.2 Exposure controls:	
8.2.1 Occupational exposure control	Proper ventilation, in prevention
8.2.1.1 Respiratory protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.2 Hand protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.3 Eye protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.4 Skin protection	Not required under suitable use as setting the cartridge on the printer.
8.2.2 Environmental exposure control	Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Orange Liquid
Odor:	Slightly

9.2 Important health, safety and environmental information

pH:	9.4 - 10.8 at 20 deg.C / 68 deg.F
Boiling point:	No data available
Flash point:	Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Flammability(solid,gas):	None
Explosive properties:	None
Oxidizing properties:	None
Vapor pressure:	No data available
Relative density:	1.08 at 20 deg.C / 68 deg.F
Solubility	No data available
Water Solubility:	Complete
Partition coefficient: n-octanol/water:	No data available
Viscosity:	Less than 5 mPa-s
Vapor density:	No data available
Evaporation rate:	No data available

9.3 Other information

Melting point:	No data available
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10. Stability and Reactivity

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

10.1 Conditions to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None under normal temperature

11. Toxicological Information

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 of the ingredients in this ink is listed by IARC as a carcinogen.**

Toxicity Data:

Oral LD₅₀ No data available

Dermal LD₅₀ No data available

Inhalant LC₅₀ 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 Result of PBT assessment	Has not carried out PBT assessment
12.6 Other adverse effects:	No data available

13. Disposal Considerations

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. Transportation Information

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

15. Regulatory Considerations

EU Information:

Chemical Safety Assessment according to (EC)1907/2006:

This ink has not carried out any Chemical Safety Assessment yet.

Symbols and indication according to 1999/45/EC:

This ink does not meet the criteria for classification as dangerous.

US Information:

Toxic Substances Control Act (TSCA): All components of this product are listed on the TSCA Inventory.

California Proposition 65: Not regulated

SARA TITLE III:

Section 313:

TEGBE(Chemical Category N230)

Canada Information:

WHMIS Controlled Product: Not applicable (Manufactured article)

Australia Information:

Statement of Hazardous Nature: Not classified as hazardous according to criteria of NOHSC

16. Other Information

List of relevant R-phrases	R22 Harmful if swallowed. R20/21/22 Harmful by inhalation, in contact with skin and if swallowed R34 Causes burns R41 Risk of serious damage to eyes.
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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 mixture, 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. Identification of The Substance/Mixture and of The Company/Undertaking

- 1.1. Identification of the mixture: Pigment Ink, FPG-GR
- 1.2. Use of the substance/mixture: Inkjet Printing
- 1.3. Company/undertaking identification
- Manufacturer/Distributor: Roland DG Corporation
 Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi,
 Shizuoka-ken, 431-2103
 JAPAN
- Phone: + 81-53-484-1224
 Fax: + 81-53-484-1226
 Revision: 29 October 2009
 E-mail address:
- 1.4. Emergency telephone:

2. Hazard Identification

2.1 Emergency Overview:

This ink does not meet the criteria for dangerous classification according to EU Directive 1999/45/EC.
 Ink component is a green liquid that may cause eye irritation.

2.2 Potential Health Effects:

Eyes: Ink contact with eye may be mildly irritating.
 Skin: Ink contact with skin may cause irritation, swelling or redness.
 Inhalation: Intentional exposure to ink vapors (mist) will cause respiratory irritation.
 Ingestion: May cause upset stomach
 Chronic Health Hazards: None Known
 Carcinogenicity: **None of the ingredients in this ink is listed by IARC as a carcinogen.**

Ink Composition	CAS No.	EC No.	EU registration No.	% By Weight	EU Symbols	EU R-phrase	EU OELs	Remarks
Colorants	Trade secret	Trade secret	Not available for the moment	5 - 10	-	-	-	-
TEGBE	143-22-6	205-592-6	Not available for the moment	About 5	Xi	R41	-	-
Ethylene glycol	107-21-1	203-473-3	Not available for the moment	< 1	Xn	R22	See section 8	-
Triethanol amine	102-71-6	203-049-8	Not available for the moment	< 1	-	-	-	-
Proprietary organic materials	Trade secret	Trade secret	Not available for the moment	5 - 10	-	-	-	-
Glycerols	Trade secret	Trade secret	Not available for the moment	20 - 25	-	-	-	-
Water	7732-18-5	231-791-2	Exemption	balance	-	-	-	-

4. First Aid Measures

- 4.1 Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during flushing. Call a physician.
- 4.2 Skin: In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.
- 4.3 Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- 4.4 Ingestion: If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

5. Fire Fighting Measures

- 5.1 Flammability: Not Flammable
Flash point: Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
- 5.2 Extinguishing Media: Dry chemical or CO₂
- 5.3 Special Fire Fighting Procedures: Wear self-contained breathing apparatus (SCBA) and full protective equipment.
- 5.4 Unusual Fire and Explosion Hazards: None.

6. Accidental Release Measures

- General: Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.
- 6.1 Personal precautions: **Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.**
- 6.2 Environmental precautions: Dike spill. Prevent liquid from entering sewers, waterways or low areas.
- 6.3 Methods for cleaning up: Soak up with sand or earth. Sweep up material and dispose as waste following local regulations. Scrub contaminated area with detergent and water.

7. Handling And Storage

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

8. Exposure Controls and Personal Protection

8.1. Exposure limit values:

EU:

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

US:

components	OSHA:PEL	ACGIH:TLV
Ethylene glycol (Aerosol only)	Not applicable	100mg/m ³ (ceiling)
Glycerols (mist)	15mg/m³	10mg/m³

Australia: OELs

components	TWA	STEL
Ethylene glycol (VAPOUR)	52mg/m ³ , 20ppm	104mg/m ³ , 40ppm

8.2 Exposure controls:	
8.2.1 Occupational exposure control	Proper ventilation, in prevention
8.2.1.1 Respiratory protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.2 Hand protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.3 Eye protection	Not required under suitable use as setting the cartridge on the printer.
8.2.1.4 Skin protection	Not required under suitable use as setting the cartridge on the printer.
8.2.2 Environmental exposure control	Not established

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Green Liquid
Odor:	Slightly

9.2 Important health, safety and environmental information

pH:	8.4 - 9.8 at 20 deg.C / 68 deg.F
Boiling point:	No data available
Flash point:	Not detected until 95 deg.C / 203 deg.F (closed cup, ASTM D3278)
Flammability(solid,gas):	None
Explosive properties:	None
Oxidizing properties:	None
Vapor pressure:	No data available
Relative density:	1.09 at 20 deg.C / 68 deg.F
Solubility	No data available
Water Solubility:	Complete
Partition coefficient: n-octanol/water:	No data available
Viscosity:	Less than 5 mPa·s
Vapor density:	No data available
Evaporation rate:	No data available

9.3 Other information

Melting point:	No data available
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10. Stability and Reactivity

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

10.1 Conditions to avoid: High and freezing temperatures

10.2 Materials to avoid: Oxidizers and explosives

10.3 Hazardous decomposition products: None under normal temperature

11. Toxicological Information

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

Acute Health Hazards:

- Overexposure of eye surface to ink may be mildly irritating
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- 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 of the ingredients in this ink is listed by IARC as a carcinogen.**

Toxicity Data:

Oral LD ₅₀	No data available
Dermal LD ₅₀	No data available
Inhalant LC ₅₀	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
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Section 313:

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Australia Information:

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16. Other Information

List of relevant R-phrases: R22 Harmful if swallowed.
R41 Risk of serious damage to eyes.

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