Safety Data Sheet

1. Product and Company Identification

Product name:
Dye-based Ink, FDY-CY

Manufacture:	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
Importer/Supplier:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	949-727-2100
Fax:	949 727 2112
Emergency telephone:	949-727-2100
Use of the product:	Inkjet Printing
Date of issue:	20 March, 2014

2. Hazard Identification

2.1 Emergency Overview:

Appearance and odor:	Cyan liquid and slight odor

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral	Category 5

GHS label elements, incliding precautionary statements

Pictogram	None
Signal word(s)	Warning
Hazard statement(s)	Harmful if swallowed.
Precautionary statement(s)	
Response	Call a POISON CENTER or doctor/physician if you feel unwell.

2.2. OSHA regulatory status

This product is not considered hazardous material by the OSHA Communication Standard (29 CFR 1910.1200)

2.3. Potential health effects

Likely route of exposure:	Eye, skin, inhalation or oral.
Eyes:	Contact with eye may be mildly irritating.
Skin:	Contact with skin may cause irritation, swelling or redness.
Inhalation:	Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
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. (1,2A and 2B)

See section 11 for more information.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/Information on Ingredients

Composition	CAS No.	% By Weight	Classification HCS
Diethylene glycol	111-46-6	10-15	Acute Tox. 4: H302

4. First Aid Measures

4.1. First aid procedures

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

4.2. Note to physicians

May cause skin and eye irritation. Excessive inhalation of mist will cause respiratory irritation.

5. Fire Fighting Measures

5.1. Flammable properties:

Not Flammable

Flash point: Not detected until 110°C/230°F (closed cup, ASTM D3278)

5.2. Extinguishing media

Suitable extinguishing media:

Dry chemical or CO_2

Unsuitable extinguishing media:

No information

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

Toxic and irritating fume and/or gases may generate by combustion.

Protective equipment and precautions for firefighters

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

6. Accidental Release Measures

General:

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

6.1. Personal precautions

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 containment

Dike spilled product.

6.4. Methods for Clean-up

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

6.5. Other information

No information

6.6. Spill or leak statements by type of chemical

Eliminate all ignition sources. Use appropriate personal protective equipment (PPE). Absorb and/or contain spill with inert sand, then place in suitable container. For large spills; use water spray to disperse vapers and dilute spill to a nonflamable mixture. Do not flush to sewer. Prevent run-off from entering drains, sewers or waterways.

7. Handling And Storage

7.1. Handling

Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Keep out of reach of children and do not drink. Do not dismantle container.

7.2. Storage

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

8. Exposure Controls/Personal Protection

8.1. Exposure Guidelines

Occupational Exposure Limits:

EU: DNEL

components	Long term exposure	Short term exposure
Diethylene glycol	60mg/m^3	-
Triethylene glycol monobutyl ether	195mg/m^3	-
Triethanolamine	5mg/m^3	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

US:

components	OSHA:PEL	ACGIH:TLV
Triethanolamine	-	5mg/m^3
Glycerol (mist)	15mg/m^3	10mg/m^3

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

components	PEL
Triethanolamine	5mg/m^3

Australia: OELs

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

8.2. Engineering controls

Control the airborne concentrations below the exposure limits. Use only with adequate ventilation.

8.3. Personal protective equipment (PPE)

Eye/face protection: Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear safety glasses or chemical splash goggles.

Hand protection: Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, use protective gloves.

Skin protection: Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear protective clothing.

Respiratory protection: Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection.

General hygiene measures: Wash hands after handling. In case contact with clothing, wash before reuse.
Do not eat, drink or smoke in handling or storage area.

9. Physical and Chemical Properties

Appearance:	Cyan Liquid
Odor:	Slightly
pH:	9.3 ± 0.5 at 20°C / 68 °F
Boiling point:	No data available
Flash point:	Not detected until 110°C / 230°F (closed cup, ASTM D3278)
Flammability(solid,gas):	Not applicable (liquid)
Explosive properties:	None
Oxidizing properties:	None

Vapor pressure:	No data available
Relative density:	About 1.07 at 20°C / 68 °F
Solubility:	No data available
Water Solubility:	Complete
Partition coefficient: n-octanol/water:	No data available
Viscosity:	Less than 5 mPa·s at 20°C / 68 °F
Vapor density:	No data available
Evaporation rate:	No data available
Melting point:	No data available
Volatile organic compounds (VOC) content:	360.0 gram/liter (maximum value)

10. Stability and Reactivity

10.1. Reactivity:	No reactivity under normal temperature
10.2. Possibility of hazardous reactions:	Not expected
10.3. Chemical stability:	Stable under normal temperature
10.4. Conditions to avoid:	High and freezing temperatures
10.5. Incompatible materials:	Oxidizers and explosives
10.6. Hazardous decomposition products:	None under normal temperature

11. Toxicological Information

Acute toxicity:

Oral LD50	>5000mg/kg (Rat)
Dermal LD50	>2000mg/kg (Rat)
Inhalant LC50	No data available

Skin corrosion/irritation:	Non-irritant (Rabbit, OECD404)
Serious eye damage/eye irritation:	Mild-irritant (Rabbit, OECD405)
Respiratory or skin sensitisation:	Non-sensitizer (Guinea Pig, OECD 406)
Germ cell mutagenicity:	Negative (by Ames Test)
Reproductive toxicity:	No data available
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)
STOT-single exposure:	Overexposure of eye may be mildly irritating. Overexposure of skin may cause irritation and in some people swelling and Inhalation may result in respiratory irritation and anesthesia. Ingestion may cause an upset stomach.
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available

12. Ecological Information

Ecotoxicity:	No data available
Persistence/Degradability:	No data available
Bioaccumulation/Accumulation:	No data available
Mobility in environment media:	No data available
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. Transport Information

14.1. UN Class/UN Number:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.2. UN proper shipping name:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.3. Transport hazard class(es):
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.4. Packing group:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.5. Environmental hazards:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.6. Special precautions for user: Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:
Not applicable

15. Regulatory Information

EU Information:
Chemical Safety Assessment according to (EC)1907/2006:
This product has not carried out any Chemical Safety Assessment yet.

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: Triethylene glycol monobutyl ether (Chemical Category N230)

Australia Information:
Hazardous statement: Not classified as hazardous according to NOHSC criteria.

16. Other Information

NFPA 704: Hazard Rating System
Health - 1 , Flammable - 0 , Reactivity - 0
0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

The information in this Safety Data Sheet (SDS) is believed to be correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is subject to revision as additional knowledge and experience is gained. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Safety Data Sheet

1. Product and Company Identification

Product name:
Dye-based Ink, FDY-MG

Manufacture:	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
Importer/Supplier:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	949-727-2100
Fax:	949 727 2112
Emergency telephone:	949-727-2100
Use of the product:	Inkjet Printing
Date of issue:	20 March, 2014

2. Hazard Identification

2.1 Emergency Overview:

Appearance and odor:	Magenta Liquid and slight odor

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral	Category 5

GHS label elements, incliding precautionary statements

Pictogram	None
Signal word(s)	Warning
Hazard statement(s)	Harmful if swallowed.
Precautionary statement(s)	
Response	Call a POISON CENTER or doctor/physician if you feel unwell.

2.2. OSHA regulatory status

This product is not considered hazardous material by the OSHA Communication Standard (29 CFR 1910.1200)

2.3. Potential health effects

Likely route of exposure:	Eye, skin, inhalation or oral.
Eyes:	Contact with eye may be mildly irritating.
Skin:	Contact with skin may cause irritation, swelling or redness.
Inhalation:	Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
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. (1,2A and 2B)

See section 11 for more information.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/Information on Ingredients

Composition	CAS No.	% By Weight	Classification HCS
Diethylene glycol	111-46-6	5-10	Acute Tox. 4: H302
Colorant*	-*	1-5	Eye Irrit. 2: H319

*Exact chemical name and EC number of colorant

Chemical name: Tetra-ammonium 2-[6-[7-(2-carboxylato-phenylazo)-8-hydroxy-3, 6-disulfonato-1-naphthylamino]-4-hydroxy-1,3,5-triazin-2-ylamino]benzoate

EC number: 418-520-5

4. First Aid Measures

4.1. First aid procedures

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

4.2. Note to physicians

May cause skin and eye irritation. Excessive inhalation of mist will cause respiratory irritation.

5. Fire Fighting Measures

5.1. Flammable properties:

Not Flammable

Flash point: Not detected until 110°C/230°F (closed cup, ASTM D3278)

5.2. Extinguishing media

Suitable extinguishing media:

Dry chemical or CO_2

Unsuitable extinguishing media:

No information

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

Toxic and irritating fume and/or gases may generate by combustion.

Protective equipment and precautions for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective equipment.

Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental Release Measures

General:

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

6.1. Personal precautions

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 containment

Dike spilled product.

6.4. Methods for Clean-up

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

6.5. Other information

No information

6.6. Spill or leak statements by type of chemical

Eliminate all ignition sources. Use appropriate personal protective equipment (PPE). Absorb and/or contain spill with inert sand, then place in suitable container. For large spills; use water spray to disperse vapers and dilute spill to a nonflamable mixture. Do not flush to sewer. Prevent run-off from entering drains, sewers or waterways.

7. Handling And Storage

7.1. Handling

Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Keep out of reach of children and do not drink. Do not dismantle container.

7.2. Storage

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

8. Exposure Controls/Personal Protection

8.1. Exposure Guidelines

Occupational Exposure Limits:

EU: DNEL

components	Long term exposure	Short term exposure
Diethylene glycol	60mg/m^3	-
Triethylene glycol monobutyl ether	195mg/m^3	-
Triethanolamine	5mg/m^3	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

US:

components	OSHA:PEL	ACGIH:TLV
Triethanolamine	-	5mg/m^3
Glycerol (mist)	15mg/m^3	10mg/m^3

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

components	PEL
Triethanolamine	5mg/m^3

Australia: OELs

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

8.2. Engineering controls

Control the airborne concentrations below the exposure limits. Use only with adequate ventilation.

8.3. Personal protective equipment (PPE)

Eye/face protection:	Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear safety glasses or chemical splash goggles.
Hand protection:	Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, use protective gloves.
Skin protection:	Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear protective clothing.
Respiratory protection:	Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection.
General hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.

9. Physical and Chemical Properties

Appearance:	Magenta Liquid
Odor:	Slightly
pH:	9.1 ± 0.5 at 20°C / 68 °F
Boiling point:	No data available
Flash point:	Not detected until 110°C/230°F (closed cup, ASTM D3278)
Flammability (solid, gas)	Not applicable (liquid)
Explosive properties:	None
Oxidizing properties:	None
Vapor pressure:	No data available
Relative density:	About 1.08 at 20°C / 68 °F
Water Solubility:	Complete
Solubility:	No data available
Partition coefficient: :n-octanol/water:	No data available
Viscosity:	Less than 5 mPa·s at 20°C / 68 °F
Evaporation rate:	No data available
Vapor density:	No data available
Melting point:	No data available
Volatile organic compounds (VOC) content:	360.0 gram/liter (maximum value)

10. Stability and Reactivity

10.1. Reactivity:	No reactivity under normal temperature
10.2. Possibility of hazardous reactions:	Not expected
10.3. Chemical stability:	Stable under normal temperature
10.4. Conditions to avoid:	High and freezing temperatures
10.5. Incompatible materials:	Oxidizers and explosives
10.6. Hazardous decomposition products:	None under normal temperature

11. Toxicological Information

Acute toxicity:

Oral LD50	>5000mg/kg (Rat)
Dermal LD50	>2000mg/kg (Rat)
Inhalant LC50	No data available

Skin corrosion/irritation:	Non-irritant (Rabbit, OECD404)
Serious eye damage/eye irritation:	Mild-irritant (Rabbit, OECD405)
Respiratory or skin sensitisation:	Non-sensitizer (Guinea Pig, OECD 406)
Germ cell mutagenicity:	Negative (by Ames Test)
Reproductive toxicity:	No data available
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)
STOT-single exposure:	Overexposure of eye may be mildly irritating. Overexposure of skin may cause irritation and in some people swelling and redness. Inhalation may result in respiratory irritation and anesthesia. Ingestion may cause an upset stomach.
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available

12. Ecological Information

Ecotoxicity:	No data available
Persistence/Degradability:	No data available
Bioaccumulation/Accumulation:	No data available
Mobility in environment media:	No data available
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. Transport Information

14.1. UN Class/UN Number:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.2. UN proper shipping name:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.3. Transport hazard class(es):
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.4. Packing group:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.5. Environmental hazards:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.6. Special precautions for user: Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:
Not applicable

15. Regulatory Information

EU Information:
Chemical Safety Assessment according to (EC)1907/2006:
This product has not carried out any Chemical Safety Assessment yet.

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: Triethylene glycol monobutyl ether (Chemical Category N230)

Australia Information:
Hazardous statement: Not classified as hazardous according to NOHSC criteria.

16. Other Information

NFPA 704: Hazard Rating System
Health - 1 , Flammable - 0 , Reactivity - 0
0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

The information in this Safety Data Sheet (SDS) is believed to be correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is subject to revision as additional knowledge and experience is gained. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Safety Data Sheet

1. Product and Company Identification

Product name:
Dye-based Ink, FDY-YE

Manufacture:	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
Importer/Supplier:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	949-727-2100
Fax:	949 727 2112
Emergency telephone:	949-727-2100
Use of the product:	Inkjet Printing
Date of issue:	20 March, 2014

2. Hazard Identification

2.1 Emergency Overview:

Appearance and odor:	Yellow Liquid and slight odor

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral	Category 5

GHS label elements, incliding precautionary statements

Pictogram	None
Signal word(s)	Warning
Hazard statement(s)	Harmful if swallowed.
Precautionary statement(s)	
Response	Call a POISON CENTER or doctor/physician if you feel unwell.

2.2. OSHA regulatory status

This product is not considered hazardous material by the OSHA Communication Standard (29 CFR 1910.1200)

2.3. Potential health effects

Likely route of exposure:	Eye, skin, inhalation or oral.
Eyes:	Contact with eye may be mildly irritating.
Skin:	Contact with skin may cause irritation, swelling or redness.
Inhalation:	Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
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. (1,2A and 2B)

See section 11 for more information.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/Information on Ingredients

Composition	CAS No.	% By Weight	Classification HCS
Diethylene glycol	111-46-6	10-15	Acute Tox. 4: H302

4. First Aid Measures

4.1. First aid procedures

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

4.2. Note to physicians

May cause skin and eye irritation. Excessive inhalation of mist will cause respiratory irritation.

5. Fire Fighting Measures

5.1. Flammable properties:

Not Flammable

Flash point: Not detected until 110°C/230°F (closed cup, ASTM D3278)

5.2. Extinguishing media

Suitable extinguishing media:

Dry chemical or CO_2

Unsuitable extinguishing media:

No information

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

Toxic and irritating fume and/or gases may generate by combustion.

Protective equipment and precautions for firefighters

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

6. Accidental Release Measures

General:

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

6.1. Personal precautions

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 containment

Dike spilled product.

6.4. Methods for Clean-up

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

6.5. Other information

No information

6.6. Spill or leak statements by type of chemical

Eliminate all ignition sources. Use appropriate personal protective equipment (PPE). Absorb and/or contain spill with inert sand, then place in suitable container. For large spills; use water spray to disperse vapers and dilute spill to a nonflamable mixture. Do not flush to sewer. Prevent run-off from entering drains, sewers or waterways.

7. Handling And Storage

7.1. Handling

Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Keep out of reach of children and do not drink. Do not dismantle container.

7.2. Storage

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

8. Exposure Controls/Personal Protection

8.1. Exposure Guidelines

Occupational Exposure Limits:

EU: DNEL

components	Long term exposure	Short term exposure
Diethylene glycol	60mg/m^3	-
Triethylene glycol monobutyl ether	195mg/m^3	-
Triethanolamine	5mg/m^3	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

US:

components	OSHA:PEL	ACGIH:TLV
Triethanolamine	-	5mg/m^3
Glycerol (mist)	15mg/m^3	10mg/m^3

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

components	PEL
Triethanolamine	5mg/m^3

Australia: OELs

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

8.2. Engineering controls

Control the airborne concentrations below the exposure limits. Use only with adequate ventilation.

8.3. Personal protective equipment (PPE)

Eye/face protection:	Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear safety glasses or chemical splash goggles.
Hand protection:	Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, use protective gloves.
Skin protection:	Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear protective clothing.
Respiratory protection:	Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection.
General hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.

9. Physical and Chemical Properties

Appearance:	Yellow Liquid
Odor:	Slightly
pH:	9.1 ± 0.5 at 20°C / 68 °F
Boiling point:	No data available
Flash point:	Not detected until 110°C / 230°F (closed cup, ASTM D3278)
Flammability (solid, gas)	Not applicable (liquid)
Explosive properties:	None
Oxidizing properties:	None
Vapor pressure:	No data available
Relative density:	About 1.06 at 20°C / 68 °F

Water Solubility:	Complete
Solubility:	No data available
Partition coefficient: :n-octanol/water:	No data available
Viscosity:	Less than 5 mPa·s at 20°C / 68 °F
Evaporation rate:	No data available
Vapor density:	No data available
Melting point:	No data available
Volatile organic compounds (VOC) content:	360.0 gram/liter (maximum value)

10. Stability and Reactivity

10.1. Reactivity:	No reactivity under normal temperature
10.2. Possibility of hazardous reactions:	Not expected
10.3. Chemical stability:	Stable under normal temperature
10.4. Conditions to avoid:	High and freezing temperatures
10.5. Incompatible materials:	Oxidizers and explosives
10.6. Hazardous decomposition products:	None under normal temperature

11. Toxicological Information

Acute toxicity:

Oral LD50	>5000mg/kg (Rat)
Dermal LD50	>2000mg/kg (Rat)
Inhalant LC50	No data available

Skin corrosion/irritation:	Non-irritant (Rabbit, OECD404)
Serious eye damage/eye irritation:	Mild-irritant (Rabbit, OECD405)
Respiratory or skin sensitisation:	Non-sensitizer (Guinea Pig, OECD 406)
Germ cell mutagenicity:	Negative (by Ames Test)
Reproductive toxicity:	No data available
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)
STOT-single exposure:	Overexposure of eye may be mildly irritating. Overexposure of skin may cause irritation and in some people swelling and redness. Inhalation may result in respiratory irritation and anesthesia. Ingestion may cause an upset stomach.
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available

12. Ecological Information

Ecotoxicity:	No data available
Persistence/Degradability:	No data available
Bioaccumulation/Accumulation:	No data available
Mobility in environment media:	No data available
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. Transport Information

14.1. UN Class/UN Number:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.2. UN proper shipping name:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.3. Transport hazard class(es):
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.4. Packing group:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.5. Environmental hazards:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.6. Special precautions for user: Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:
Not applicable

15. Regulatory Information

EU Information:
Chemical Safety Assessment according to (EC)1907/2006:
This product has not carried out any Chemical Safety Assessment yet.

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: Triethylene glycol monobutyl ether (Chemical Category N230)

Australia Information:
Hazardous statement: Not classified as hazardous according to NOHSC criteria.

16. Other Information

NFPA 704: Hazard Rating System
Health - 1 , Flammable - 0 , Reactivity - 0
0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

The information in this Safety Data Sheet (SDS) is believed to be correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is subject to revision as additional knowledge and experience is gained. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Safety Data Sheet

1. Product and Company Identification

Product name:

Dye-based Ink, FDY-BK

Manufacture:	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
Importer/Supplier:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	949-727-2100
Fax:	949 727 2112
Emergency telephone:	949-727-2100
Use of the product:	Inkjet Printing
Date of issue:	20 March, 2014

2. Hazard Identification

2.1 Emergency Overview:

Appearance and odor: Black liquid and slight odor

This product is classified as dangerous according to GHS criteria.

Eye damage/irritation Category 2

GHS label elements, incliding precautionary statements

Pictogram

Signal word(s) Warning

Hazard statement(s) Causes serious eye irritation.

Precautionary statement(s)

Prevention Wear protective gloves/protective clothing/eye protection/face protection.

Response IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

2.2. OSHA regulatory status

This product is considered hazardous material by the OSHA Communication Standard (29 CFR 1910.1200)

2.3. Potential health effects

Likely route of exposure:	Eye, skin, inhalation or oral.
Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness.
Inhalation:	Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
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. (1,2A and 2B)

See section 11 for more information.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/Information on Ingredients

Composition	CAS No.	% By Weight	Classification HCS
Diethylene glycol	111-46-6	1-5	Acute Tox. 4: H302
Diethylene glycol monobutyl ether	112-34-5	about10	Eye Irrit. 2: H319

4. First Aid Measures

4.1. First aid procedures

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

4.2. Note to physicians

May cause skin and eye irritation. Excessive inhalation of mist will cause respiratory irritation.

5. Fire Fighting Measures

5.1. Flammable properties:

Not Flammable

Flash point: Not detected until 100°C/230°F (closed cup, ASTM D3278)

5.2. Extinguishing media

Suitable extinguishing media:

Dry chemical or CO_2

Unsuitable extinguishing media:

No information

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

Toxic and irritating fume and/or gases may generate by combustion.

Protective equipment and precautions for firefighters

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

6. Accidental Release Measures

General:

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

6.1. Personal precautions

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 containment

Dike spilled product.

6.4. Methods for Clean-up

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

6.5. Other information

No information

6.6. Spill or leak statements by type of chemical

Eliminate all ignition sources. Use appropriate personal protective equipment (PPE). Absorb and/or contain spill with inert sand, then place in suitable container. For large spills; use water spray to disperse vapers and dilute spill to a nonflamable mixture. Do not flush to sewer. Prevent run-off from entering drains, sewers or waterways.

7. Handling And Storage

7.1. Handling

Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Keep out of reach of children and do not drink. Do not dismantle container.

7.2. Storage

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

8. Exposure Controls/Personal Protection

8.1. Exposure Guidelines

Occupational Exposure Limits:

EU:

components	The threshold limit	STEL
Diethylene glycol monobutyl ether	67.5mg/m^3, 10ppm	101.2mg/m^3, 15ppm

DNEL

components	Long term exposure	Short term exposure
Diethylene glycol	60mg/m^3	-
Diethylene glycol monobutyl ether	67.5mg/m^3	101.2mg/m3
Triethanolamine	5mg/m^3	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

US:

components	OSHA:PEL	ACGIH:TLV
Triethanolamine	-	5mg/m^3
Glycerol (mist)	15mg/m^3	10mg/m^3

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

components	PEL
Triethanolamine	5mg/m^3

Australia: OELs

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

8.2. Engineering controls

Control the airborne concentrations below the exposure limits. Use only with adequate ventilation.

8.3. Personal protective equipment (PPE)

Eye/face protection:	Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear safety glasses or chemical splash goggles.
Hand protection:	Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, use protective gloves.
Skin protection:	Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear protective clothing.
Respiratory protection:	In case ventilation is insufficient, wear respiratory protection. Use a half facepiece respirator (with gollges) or full face-piece respirator (without googles) filtered with organic vapor cartridge.
General hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.

9. Physical and Chemical Properties

Appearance:	Black Liquid
Odor:	Slightly
pH:	8.5 ± 0.5 at 20°C / 68 °F
Boiling point:	No data available
Flash point:	Not detected until 100°C / 230°F (closed cup, ASTM D3278)
Flammability (solid, gas)	Not applicable (liquid)
Explosive properties:	None
Oxidizing properties:	None
Vapor pressure:	No data available
Relative density:	About 1.07 at 20°C / 68 °F
Water Solubility:	Complete
Solubility:	No data available
Partition coefficient: :n-octanol/water:	No data available
Viscosity:	Less than 5 mPa·s at 20°C / 68 °F
Evaporation rate:	No data available
Vapor density:	No data available
Melting point:	No data available
Volatile organic compounds (VOC) content:	360.0 gram/liter (maximum value)

10. Stability and Reactivity

10.1. Reactivity:	No reactivity under normal temperature
10.2. Possibility of hazardous reactions:	Not expected
10.3. Chemical stability:	Stable under normal temperature
10.4. Conditions to avoid:	High and freezing temperatures
10.5. Incompatible materials:	Oxidizers and explosives
10.6. Hazardous decomposition products:	None under normal temperature

11. Toxicological Information

Acute toxicity:

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

Skin corrosion/irritation:	Non-irritant (Rabbit, OECD404)
Serious eye damage/eye irritation:	Minimal-irritant (Rabbit, OECD405)
Respiratory or skin sensitisation:	Non-sensitizer (Guinea Pig, OECD 406)
Germ cell mutagenicity:	Negative (by Ames Test)
Reproductive toxicity:	No data available
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)
STOT-single exposure:	Overexposure of eye may be mildly irritating.
	Overexposure of skin may cause irritation and in some people swelling and redness.
	Inhalation may result in respiratory irritation and anesthesia.
	Ingestion may cause an upset stomach.
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available

12. Ecological Information

Ecotoxicity:	No data available
Persistence/Degradability:	No data available
Bioaccumulation/Accumulation:	No data available
Mobility in environment media:	No data available
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. Transport Information

14.1. UN Class/UN Number:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.2. UN proper shipping name:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.3. Transport hazard class(es):
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.4. Packing group:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.5. Environmental hazards:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.6. Special precautions for user: Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:
Not applicable

15. Regulatory Information

EU Information:

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

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

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: Diethylene glycol monobutyl ether (Chemical Category N230)

16. Other Information

NFPA 704: Hazard Rating System

Health - 1 , Flammable - 0 , Reactivity - 0

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

The information in this Safety Data Sheet (SDS) is believed to be correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is subject to revision as additional knowledge and experience is gained. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Safety Data Sheet

1. Product and Company Identification

Product name:
Dye-based Ink, FDY-LC

Manufacture:	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
Importer/Supplier:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	949-727-2100
Fax:	949 727 2112
Emergency telephone:	949-727-2100
Use of the product:	Inkjet Printing
Date of issue:	20 March, 2014

2. Hazard Identification

2.1 Emergency Overview:

Appearance and odor:	Light Cyan liquid and slight odor

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral	Category 5

GHS label elements, incliding precautionary statements

Pictogram	None
Signal word(s)	Warning
Hazard statement(s)	Harmful if swallowed.
Precautionary statement(s)	
Response	Call a POISON CENTER or doctor/physician if you feel unwell.

2.2. OSHA regulatory status

This product is not considered hazardous material by the OSHA Communication Standard (29 CFR 1910.1200)

2.3. Potential health effects

Likely route of exposure:	Eye, skin, inhalation or oral.
Eyes:	Contact with eye may be mildly irritating.
Skin:	Contact with skin may cause irritation, swelling or redness.
Inhalation:	Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
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. (1,2A and 2B)

See section 11 for more information.

2.4. Potential environmental effects

See section 12 for Ecological information.

3. Composition/Information on Ingredients

Composition	CAS No.	% By Weight	Classification HCS
Diethylene glycol	111-46-6	about15	Acute Tox. 4: H302

4. First Aid Measures

4.1. First aid procedures

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

4.2. Note to physicians

May cause skin and eye irritation. Excessive inhalation of mist will cause respiratory irritation.

5. Fire Fighting Measures

5.1. Flammable properties:

Not Flammable

Flash point: Not detected until 110°C/230°F (closed cup, ASTM D3278)

5.2. Extinguishing media

Suitable extinguishing media:

Dry chemical or CO_2

Unsuitable extinguishing media:

No information

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

Toxic and irritating fume and/or gases may generate by combustion.

Protective equipment and precautions for firefighters

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

6. Accidental Release Measures

General:

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

6.1. Personal precautions

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 containment

Dike spilled product.

6.4. Methods for Clean-up

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

6.5. Other information

No information

6.6. Spill or leak statements by type of chemical

Eliminate all ignition sources. Use appropriate personal protective equipment (PPE). Absorb and/or contain spill with inert sand, then place in suitable container. For large spills; use water spray to disperse vapers and dilute spill to a nonflamable mixture. Do not flush to sewer. Prevent run-off from entering drains, sewers or waterways.

7. Handling And Storage

7.1. Handling

Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Keep out of reach of children and do not drink. Do not dismantle container.

7.2. Storage

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

8. Exposure Controls/Personal Protection

8.1. Exposure Guidelines

Occupational Exposure Limits:

EU: DNEL

components	Long term exposure	Short term exposure
Diethylene glycol	60mg/m^3	-
Triethylene glycol monobutyl ether	195mg/m^3	-
Triethanolamine	5mg/m^3	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

US:

components	OSHA:PEL	ACGIH:TLV
Triethanolamine	-	5mg/m^3
Glycerol (mist)	15mg/m^3	10mg/m^3

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

components	PEL
Triethanolamine	5mg/m^3

Australia: OELs

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

8.2. Engineering controls

Control the airborne concentrations below the exposure limits. Use only with adequate ventilation.

8.3. Personal protective equipment (PPE)

Eye/face protection:	Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear safety glasses or chemical splash goggles.
Hand protection:	Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, use protective gloves.
Skin protection:	Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear protective clothing.
Respiratory protection:	Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection.
General hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.

9. Physical and Chemical Properties

Appearance:	Light Cyan Liquid
Odor:	Slightly
pH:	9.4 ± 0.5 at 20°C / 68 °F
Boiling point:	No data available
Flash point:	Not detected until 110°C/230°F (closed cup, ASTM D3278)
Flammability (solid, gas)	Not applicable (liquid)
Explosive properties:	None
Oxidizing properties:	None
Vapor pressure:	No data available

Relative density:	About 1.06 at 20°C / 68 °F
Water Solubility:	Complete
Solubility:	No data available
Partition coefficient: :n-octanol/water:	No data available
Viscosity:	Less than 5 mPa·s at 20°C / 68 °F
Evaporation rate:	No data available
Vapor density:	No data available
Melting point:	No data available
Volatile organic compounds (VOC) content:	360.0 gram/liter (maximum value)

10. Stability and Reactivity

10.1. Reactivity:	No reactivity under normal temperature
10.2. Possibility of hazardous reactions:	Not expected
10.3. Chemical stability:	Stable under normal temperature
10.4. Conditions to avoid:	High and freezing temperatures
10.5. Incompatible materials:	Oxidizers and explosives
10.6. Hazardous decomposition products:	None under normal temperature

11. Toxicological Information

Acute toxicity:

Oral LD50	>5000mg/kg (Rat)
Dermal LD50	>2000mg/kg (Rat)
Inhalant LC50	No data available

Skin corrosion/irritation:	Non-irritant (Rabbit, OECD404)
Serious eye damage/eye irritation:	Mild-irritant (Rabbit, OECD405)
Respiratory or skin sensitisation:	Non-sensitizer (Guinea Pig, OECD 406)
Germ cell mutagenicity:	Negative (by Ames Test)
Reproductive toxicity:	No data available
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)
STOT-single exposure:	Overexposure of eye may be mildly irritating. Overexposure of skin may cause irritation and in some people swelling and redness. Inhalation may result in respiratory irritation and anesthesia. Ingestion may cause an upset stomach.
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available

12. Ecological Information

Ecotoxicity:	No data available
Persistence/Degradability:	No data available
Bioaccumulation/Accumulation:	No data available
Mobility in environment media:	No data available
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. Transport Information

14.1. UN Class/UN Number:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.2. UN proper shipping name:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.3. Transport hazard class(es):
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.4. Packing group:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.5. Environmental hazards:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.6. Special precautions for user: Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:
Not applicable

15. Regulatory Information

EU Information:
Chemical Safety Assessment according to (EC)1907/2006:
This product has not carried out any Chemical Safety Assessment yet.

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: Triethylene glycol monobutyl ether (Chemical Category N230)

Australia Information:
Hazardous statement: Not classified as hazardous according to NOHSC criteria.

16. Other Information

NFPA 704: Hazard Rating System
Health - 1 , Flammable - 0 , Reactivity - 0
0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

The information in this Safety Data Sheet (SDS) is believed to be correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is subject to revision as additional knowledge and experience is gained. Roland DG does not warrant the completeness or accuracy of the information contained herein.

Safety Data Sheet

1. Product and Company Identification

Product name:
Dye-based Ink, FDY-LM

Manufacture:	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
Importer/Supplier:	Roland DGA Corporation
Address:	15363 Barranca Parkway Irvine, CA 92618-2201 U.S.A.
Phone:	949-727-2100
Fax:	949 727 2112
Emergency telephone:	949-727-2100
Use of the product:	Inkjet Printing
Date of issue:	20 March, 2014

2. Hazard Identification

2.1 Emergency Overview:

Appearance and odor:	Light Magenta Liquid and slight odor

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral	Category 5

GHS label elements, incliding precautionary statements

Pictogram	None
Signal word(s)	Warning
Hazard statement(s)	Harmful if swallowed.
Precautionary statement(s)	
Response	Call a POISON CENTER or doctor/physician if you feel unwell.

2.2. OSHA regulatory status

This product is not considered hazardous material by the OSHA Communication Standard (29 CFR 1910.1200)

2.3. Potential health effects

Likely route of exposure:	Eye, skin, inhalation or oral.
Eyes:	Contact with eye may be mildly irritating.
Skin:	Contact with skin may cause irritation, swelling or redness.
Inhalation:	Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
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. (1,2A and 2B)

3. Composition/Information on Ingredients

Composition	CAS No.	% By Weight	Classification HCS
Diethylene glycol	111-46-6	10-15	Acute Tox. 4: H302

4. First Aid Measures

4.1. First aid procedures

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

Skin: In case of contact, immediately flush with plenty of water while removing contaminated clothing and shoes. Wash contaminated clothing before reuse. If swelling or redness occurs, call a physician.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion: If swallowed, DO NOT induce vomiting. Seek immediate medical advice.

4.2. Note to physicians

May cause skin and eye irritation. Excessive inhalation of mist will cause respiratory irritation.

5. Fire Fighting Measures

5.1. Flammable properties:

Not Flammable

Flash point: Not detected until 110°C/230°F (closed cup, ASTM D3278)

5.2. Extinguishing media

Suitable extinguishing media:

Dry chemical or CO_2

Unsuitable extinguishing media:

No information

5.3. Protection of fire fighters

Special hazards arising from the substance or mixture

Toxic and irritating fume and/or gases may generate by combustion.

Protective equipment and precautions for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective equipment.

Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental Release Measures

General:

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

6.1. Personal precautions
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 containment
Dike spilled product.

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

6.5. Other information
No information

6.6. Spill or leak statements by type of chemical
Eliminate all ignition sources. Use appropriate personal protective equipment (PPE). Absorb and/or contain spill with inert sand, then place in suitable container. For large spills; use water spray to disperse vapers and dilute spill to a nonflamable mixture. Do not flush to sewer. Prevent run-off from entering drains, sewers or waterways.

7. Handling And Storage

7.1. Handling
Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Keep out of reach of children and do not drink. Do not dismantle container.

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

8. Exposure Controls/Personal Protection

8.1. Exposure Guidelines
Occupational Exposure Limits:
EU: DNEL

components	Long term exposure	Short term exposure
Diethylene glycol	60mg/m^3	-
Triethylene glycol monobutyl ether	195mg/m^3	-
Triethanolamine	5mg/m^3	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

US:

components	OSHA:PEL	ACGIH:TLV
Triethanolamine	-	5mg/m^3
Glycerol (mist)	15mg/m^3	10mg/m^3

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

components	PEL
Triethanolamine	5mg/m^3

Australia: OELs

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

8.2. Engineering controls

Control the airborne concentrations below the exposure limits. Use only with adequate ventilation.

8.3. Personal protective equipment (PPE)

Eye/face protection: Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear safety glasses or chemical splash goggles.

Hand protection: Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, use protective gloves.

Skin protection: Not required under suitable use as setting the cartridge on the printer. However, in case of direct contact to ink, wear protective clothing.

Respiratory protection: Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection.

General hygiene measures: Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.

9. Physical and Chemical Properties

Appearance:	Light Magenta Liquid
Odor:	Slightly
pH:	9.1 ± 0.5 at 20°C / 68 °F
Boiling point:	No data available
Flash point:	Not detected until 110°C / 230°F (closed cup, ASTM D3278)
Flammability (solid, gas)	Not applicable (liquid)
Explosive properties:	None
Oxidizing properties:	None
Vapor pressure:	No data available
Relative density:	About 1.08 at 20°C / 68 °F
Water Solubility:	Complete
Solubility:	No data available
Partition coefficient: :n-octanol/water:	No data available
Viscosity:	Less than 5 mPa·s at 20°C / 68 °F
Evaporation rate:	No data available
Vapor density:	No data available
Melting point:	No data available
Volatile organic compounds (VOC) content:	360.0 gram/liter (maximum value)

10. Stability and Reactivity

10.1. Reactivity:	No reactivity under normal temperature
10.2. Possibility of hazardous reactions:	Not expected
10.3. Chemical stability:	Stable under normal temperature
10.4. Conditions to avoid:	High and freezing temperatures
10.5. Incompatible materials:	Oxidizers and explosives
10.6. Hazardous decomposition products:	None under normal temperature

11. Toxicological Information

Acute toxicity:

Oral LD50	>5000mg/kg (Rat)
Dermal LD50	>2000mg/kg (Rat)
Inhalant LC50	No data available

Skin corrosion/irritation:	Non-irritant (Rabbit, OECD404)
Serious eye damage/eye irritation:	Mild-irritant (Rabbit, OECD405)
Respiratory or skin sensitisation:	Non-sensitizer (Guinea Pig, OECD 406)
Germ cell mutagenicity:	Negative (by Ames Test)
Reproductive toxicity:	No data available
Carcinogenicity:	None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B)
STOT-single exposure:	Overexposure of eye may be mildly irritating. Overexposure of skin may cause irritation and in some people swelling and redness. Inhalation may result in respiratory irritation and anesthesia. Ingestion may cause an upset stomach.
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available

12. Ecological Information

Ecotoxicity:	No data available
Persistence/Degradability:	No data available
Bioaccumulation/Accumulation:	No data available
Mobility in environment media:	No data available
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. Transport Information

14.1. UN Class/UN Number:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.2. UN proper shipping name:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.3. Transport hazard class(es):
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.4. Packing group:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.5. Environmental hazards:
ADR/ADG/DOT, IMDG, or IATA : Not applicable

14.6. Special precautions for user: Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:
Not applicable

15. Regulatory Information

EU Information:

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

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

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: Triethylene glycol monobutyl ether (Chemical Category N230)

Australia Information:

Hazardous statement: Not classified as hazardous according to NOHSC criteria.

16. Other Information

NFPA 704: Hazard Rating System

Health - 1 , Flammable - 0 , Reactivity - 0

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

The information in this Safety Data Sheet (SDS) is believed to be correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is subject to revision as additional knowledge and experience is gained. Roland DG does not warrant the completeness or accuracy of the information contained herein.