

Safety Data Sheet

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

1.1. Product identifier

Dye-based Ink, FDY-CY

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

Inkjet Printing

1.3. Details of the supplier of the safety data sheet

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

E-mail Address:

Revision: 20 March, 2014

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

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

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral Category 5

2.2. GHS label elements, including precautionary statements

Pictogram None

Signal word(s) Warning

Hazard statement(s) Harmful if swallowed.

Precautionary statement(s)
Response Call a POISON CENTER or doctor/physician if you feel unwell.

2.3. Other hazards

Potential Health Effects:

Eyes: Contact with eye may be mildly irritating.
Skin: Contact with skin may cause irritation, swelling or redness.
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

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008	Classification 67/548/EEC
Colorants	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous	Not classified as hazardous
Diethylene glycol	111-46-6	203-872-2	N/A for the moment	10-15	Acute Tox. 4: H302	Xn: R22
Triethylene glycol monobutyl ether	143-22-6	205-592-6	N/A for the moment	about 10	Not classified as hazardous	Not classified as hazardous
Triethanolamine	102-71-6	203-049-8	N/A for the moment	<1	Not classified as hazardous	Not classified as hazardous
Proprietary organic materials	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous	Not classified as hazardous
Glycerols	C.B.I.	C.B.I.	N/A for the moment	about 10	Not classified as hazardous	Not classified as hazardous
Water	7732-18-5	231-791-2	N/A for the moment	<80	Not classified as hazardous	Not classified as hazardous

*C.B.I.: Confidential Business Information

*For the full text of the H-Statements and R-phrases mentioned in this Section, see Section 16.

4. First aid measures

4.1. Description of first aid measures

- Eyes:** In case of contact, immediately flush eyes with plenty of water for 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. Most important symptoms and effects, both acute and delayed

- Eyes:** Contact with eye may be mildly irritating.
- Skin:** Contact with skin may cause irritation, swelling or redness.
- Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- Ingestion:** May cause upset stomach.

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

No information

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Dry chemical or CO₂

Unsuitable extinguishing media:

No information

5.2. Special hazards arising from the substance or mixture
Not Flammable
Flash point: Not detected until 110°C/230°F (closed cup, ASTM D3278)

5.3. Advice 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, protective equipment and emergency procedures
Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.
- 6.2. Environmental precautions
Dike spill. Prevent liquid from entering sewers, waterways or low areas.
- 6.3. Methods and material for containment and 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.
- 6.4. Reference to other sections
Refer to “Section 8 Exposure controls/ personal protection” and “Section 13 Disposal consideration” as appropriate.

7. Handling and storage

- 7.1. Precautions for safe handling
Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Keep out of reach of children and do not drink. Do not dismantle container.
- 7.2. Conditions for safe storage, including any incompatibilities
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.
- 7.3. Specific end use(s): Inkjet printing

8. Exposure controls/ personal protection

8.1. Control parameters
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

Australia: OELs

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

8.2. Exposure controls:

Occupational exposure control:	Control the airborne concentrations below the exposure limits. Use only with adequate ventilation.
Personal protective equipment:	
Respiratory protection:	Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection.
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.
Eye 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.
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.
Hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.
Environmental exposure control:	Avoid release to the environment.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Cyan Liquid
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
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

9.2. Other information: No information

10. Stability and reactivity

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

11. Toxicological information

11.1. Information on toxicological effects

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

12.1. Toxicity:	No data available
12.2. Persistence and degradability:	No data available
12.3. Bioaccumulative potential:	No data available
12.4. Mobility in soil:	No data available
12.5. Results of PBT and vPvB assessment:	Has not carried out PBT and vPvB assessment.
12.6. Other adverse effects:	No data available

13. Disposal considerations

13.1. Waste treatment methods:

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

14. Transport information

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

International Information:

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

16. Other information

List of relevant H-Statements in section 3:

H302 Harmful if swallowed.

List of relevant R-phrases:

R22 Harmful if swallowed.

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

Safety Data Sheet

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

1.1. Product identifier

Dye-based Ink, FDY-MG

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

Inkjet Printing

1.3. Details of the supplier of the safety data sheet

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

E-mail Address:

Revision: 20 March, 2014

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

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

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral Category 5

2.2. GHS label elements, including precautionary statements

Pictogram None

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

Precautionary statement(s)
Response Call a POISON CENTER or doctor/physician if you feel unwell.

2.3. Other hazards

Potential Health Effects:

Eyes: Contact with eye may be mildly irritating.
Skin: Contact with skin may cause irritation, swelling or redness.
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

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008	Classification 67/548/EEC
Triethanolamine	102-71-6	203-049-8	N/A for the moment	<1	Not classified as hazardous	Not classified as hazardous
Proprietary organic materials	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous	Not classified as hazardous
Diethylene glycol	111-46-6	203-872-2	N/A for the moment	5-10	Acute Tox. 4: H302	Xn: R22
Triethylene glycol monobutyl ether	143-22-6	205-592-6	N/A for the moment	about10	Not classified as hazardous	Not classified as hazardous
Glycerols	C.B.I.	C.B.I.	N/A for the moment	about10	Not classified as hazardous	Not classified as hazardous
Colorant*	-*		N/A for the moment	1-5	Eye Irrit. 2: H319 Aquatic Chronic 3: H412	Xi: R36 R52/53
Water	7732-18-5	231-791-2	Exemption	<80	Not classified as hazardous	Not classified as hazardous

*C.B.I.: Confidential Business Information

*For the full text of the H-Statements and R-phrases mentioned in this Section, see Section 16.

*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. Description of first aid measures

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. Most important symptoms and effects, both acute and delayed

Eyes: Contact with eye may be mildly irritating.

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

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

Ingestion: May cause upset stomach.

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

No information

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Dry chemical or CO₂

Unsuitable extinguishing media:

No information

5.2. Special hazards arising from the substance or mixture

Not Flammable

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

5.3. Advice 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, protective equipment and emergency procedures

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.

6.2. Environmental precautions

Dike spill. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods and material for containment and 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.

6.4. Reference to other sections

Refer to "Section 8 Exposure controls/ personal protection" and "Section 13 Disposal consideration" as appropriate.

7. Handling and storage

7.1. Precautions for safe handling

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

7.2. Conditions for safe storage, including any incompatibilities

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.

7.3. Specific end use(s):

Inkjet printing

8. Exposure controls/ personal protection

8.1. Control parameters

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

Australia: OELs

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

8.2. Exposure controls:

Occupational exposure control:	Control the airborne concentrations below the exposure limits. Use only with adequate ventilation.
Personal protective equipment:	
Respiratory protection:	Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection.
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.
Eye 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.
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.
Hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.
Environmental exposure control:	Avoid release to the environment.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Magenta Liquid
Odor:	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

9.2. Other information: No information

10. Stability and reactivity

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

11. Toxicological information

11.1. Information on toxicological effects

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

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

12.1. Toxicity:	No data available
12.2. Persistence and degradability:	No data available
12.3. Bioaccumulative potential:	No data available
12.4. Mobility in soil:	No data available
12.5. Results of PBT and vPvB assessment:	Has not carried out PBT and vPvB assessment.
12.6. Other adverse effects:	No data available

13. Disposal considerations

13.1. Waste treatment methods:

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

14. Transport information

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

International Information:

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

16. Other information

List of relevant H-Statements in section 3:

H302 Harmful if swallowed.

H319 Causes serious eye irritation.

H412 Harmful to aquatic life with long lasting effects

List of relevant R-phrases:

R22 Harmful if swallowed.

R36 Irritating to eyes.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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

Safety Data Sheet

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

1.1. Product identifier

Dye-based Ink, FDY-YE

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

Inkjet Printing

1.3. Details of the supplier of the safety data sheet

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

E-mail Address:

Revision: 20 March, 2014

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

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

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral Category 5

2.2. GHS label elements, including precautionary statements

Pictogram None

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

Precautionary statement(s)
Response Call a POISON CENTER or doctor/physician if you feel unwell.

2.3. Other hazards

Potential Health Effects:

Eyes: Contact with eye may be mildly irritating.
Skin: Contact with skin may cause irritation, swelling or redness.
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

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008	Classification 67/548/EEC
Colorants	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous	Not classified as hazardous
Diethylene glycol	111-46-6	203-872-2	N/A for the moment	10-15	Acute Tox. 4: H302	Xn: R22
Triethylene glycol monobutyl ether	143-22-6	205-592-6	N/A for the moment	about 10	Not classified as hazardous	Not classified as hazardous
Triethanolamine	102-71-6	203-049-8	N/A for the moment	<1	Not classified as hazardous	Not classified as hazardous
Glycerols	C.B.I.	C.B.I.	N/A for the moment	about 10	Not classified as hazardous	Not classified as hazardous
Water	7732-18-5	231-791-2	Exemption	<80	Not classified as hazardous	Not classified as hazardous

*C.B.I.: Confidential Business Information

*For the full text of the H-Statements and R-phrases mentioned in this Section, see Section 16.

4. First aid measures

4.1. Description of first aid measures

- Eyes: In case of contact, immediately flush eyes with plenty of water for 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. Most important symptoms and effects, both acute and delayed

- Eyes: Contact with eye may be mildly irritating.
- Skin: Contact with skin may cause irritation, swelling or redness.
- Inhalation: Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- Ingestion: May cause upset stomach.

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

No information

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Dry chemical or CO₂

Unsuitable extinguishing media:

No information

5.2. Special hazards arising from the substance or mixture

Not Flammable

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

5.3. Advice 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, protective equipment and emergency procedures

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.

6.2. Environmental precautions

Dike spill. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods and material for containment and 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.

6.4. Reference to other sections

Refer to "Section 8 Exposure controls/ personal protection" and "Section 13 Disposal consideration" as appropriate.

7. Handling and storage

7.1. Precautions for safe handling

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

7.2. Conditions for safe storage, including any incompatibilities

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.

7.3. Specific end use(s):

Inkjet printing

8. Exposure controls/ personal protection

8.1. Control parameters

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

Australia: OELs

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

8.2. Exposure controls:

Occupational exposure control:	Control the airborne concentrations below the exposure limits. Use only with adequate ventilation.
Personal protective equipment:	
Respiratory protection:	Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection.
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.
Eye 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.
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.
Hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.
Environmental exposure control:	Avoid release to the environment.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Yellow Liquid
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

9.2. Other information: No information

10. Stability and reactivity

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

11. Toxicological information

11.1. Information on toxicological effects

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

12.1. Toxicity:	No data available
12.2. Persistence and degradability:	No data available
12.3. Bioaccumulative potential:	No data available
12.4. Mobility in soil:	No data available
12.5. Results of PBT and vPvB assessment:	Has not carried out PBT and vPvB assessment.
12.6. Other adverse effects:	No data available

13. Disposal considerations

13.1. Waste treatment methods:	Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.
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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.

International Information:

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

16. Other information

List of relevant H-Statements in section 3:
H302 Harmful if swallowed.

List of relevant R-phrases:
R22 Harmful if swallowed.

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

Safety Data Sheet

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

1.1. Product identifier

Dye-based Ink, FDY-BK

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

1.3. Details of the supplier of the safety data sheet

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

E-mail Address:

Revision: 20 March, 2014

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

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

This product is classified as dangerous according to GHS criteria.

Eye damage/irritation	Category 2
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2.2. GHS label elements, including 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.
----------	---

2.3. Other hazards

Potential Health Effects:

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)

3. Composition/information on ingredients

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008	Classification 67/548/EEC
Colorants	C.B.I.	C.B.I.	N/A for the moment	5-10	Not classified as hazardous	Not classified as hazardous
Triethanolamine	102-71-6	203-049-8	N/A for the moment	<1	Not classified as hazardous	Not classified as hazardous
Diethylene glycol	111-46-6	203-872-2	N/A for the moment	1-5	Acute Tox. 4: H302	Xn: R22
Proprietary organic materials	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous	Not classified as hazardous
Diethylene glycol monobutyl ether	112-34-5	203-961-6	N/A for the moment	about 10	Eye Irrit. 2: H319	Xi: R36
Glycerols	C.B.I.	C.B.I.	N/A for the moment	about 10	Not classified as hazardous	Not classified as hazardous
Water	7732-18-5	231-791-2	Exemption	<80	Not classified as hazardous	Not classified as hazardous

*C.B.I.: Confidential Business Information

*For the full text of the H-Statements and R-phrases mentioned in this Section, see Section 16.

4. First aid measures

4.1. Description of first aid measures

Eyes: In case of contact, immediately flush eyes with plenty of water for 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. Most important symptoms and effects, both acute and delayed

- 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.

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

No information

5. Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media:
Dry chemical or CO₂
- Unsuitable extinguishing media:
No information

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice 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, protective equipment and emergency procedures

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.

6.2. Environmental precautions

Dike spill. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods and material for containment and 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.

6.4. Reference to other sections

Refer to "Section 8 Exposure controls/ personal protection" and "Section 13 Disposal consideration" as appropriate.

7. Handling and storage

7.1. Precautions for safe handling

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

7.2. Conditions for safe storage, including any incompatibilities

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.

7.3. Specific end use(s):

Inkjet printing

8. Exposure controls/ personal protection

8.1. Control parameters

Occupational Exposure Limits:

EU:

components	The threshold limit	STEL
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/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

Australia: OELs

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

8.2. Exposure controls:

Occupational exposure control:

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

Personal protective equipment:

Respiratory protection:

In case ventilation is insufficient, wear respiratory protection. Use a half facepiece respirator (with goggles) or full face-piece respirator (without goggles) filtered with organic vapor cartridge.

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.

Eye 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.

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.

Hygiene measures:

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

Environmental exposure control:

Avoid release to the environment.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Black Liquid
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

9.2. Other information: No information

10. Stability and reactivity

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

11. Toxicological information

11.1. Information on toxicological effects

Routes Of Overexposure:	Eye, skin, inhalation, and oral						
Acute toxicity:	<table> <tr> <td>Oral LD50</td> <td>>2000mg/kg(Rat)</td> </tr> <tr> <td>Dermal LD50</td> <td>>2000mg/kg(Rat)</td> </tr> <tr> <td>Inhalant LC50</td> <td>No data available</td> </tr> </table>	Oral LD50	>2000mg/kg(Rat)	Dermal LD50	>2000mg/kg(Rat)	Inhalant LC50	No data available
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:	<p>Overexposure of eye may be mildly irritating.</p> <p>Overexposure of skin may cause irritation and in some people swelling and redness.</p> <p>Inhalation may result in respiratory irritation and anesthesia.</p> <p>Ingestion may cause an upset stomach.</p>						
STOT-repeated exposure:	No data available						
Aspiration hazard:	No data available						

12. Ecological information

12.1. Toxicity:	No data available
12.2. Persistence and degradability:	No data available
12.3. Bioaccumulative potential:	No data available
12.4. Mobility in soil:	No data available
12.5. Results of PBT and vPvB assessment:	Has not carried out PBT and vPvB assessment.
12.6. Other adverse effects:	No data available

13. Disposal considerations

- 13.1. Waste treatment methods:
Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

14. Transport information

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

Australia Information:

Hazardous statement: Classified as hazardous according to NOHSC criteria.

International Information:

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

16. Other information**List of relevant H-Statements in section 3:**

H302 Harmful if swallowed.

H319 Causes serious eye irritation.

List of relevant R-phrases:

R22 Harmful if swallowed.

R36 Irritating to eyes.

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

Safety Data Sheet

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

1.1. Product identifier

Dye-based Ink, FDY-LC

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

Inkjet Printing

1.3. Details of the supplier of the safety data sheet

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

E-mail Address:

Revision: 20 March, 2014

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

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

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral Category 5

2.2. GHS label elements, including precautionary statements

Pictogram None

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

Precautionary statement(s)
Response Call a POISON CENTER or doctor/physician if you feel unwell.

2.3. Other hazards

Potential Health Effects:

Eyes: Contact with eye may be mildly irritating.
Skin: Contact with skin may cause irritation, swelling or redness.
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

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008	Classification 67/548/EEC
Diethylene glycol	111-46-6	203-872-2	N/A for the moment	about 15	Acute Tox. 4: H302	Xn: R22
Triethylene glycol monobutyl ether	143-22-6	205-592-6	N/A for the moment	about 10	Not classified as hazardous	Not classified as hazardous
Triethanolamine	102-71-6	203-049-8	N/A for the moment	<1	Not classified as hazardous	Not classified as hazardous
Glycerols	C.B.I.	C.B.I.	N/A for the moment	about 10	Not classified as hazardous	Not classified as hazardous
Water	7732-18-5	231-791-2	Exemption	<80	Not classified as hazardous	Not classified as hazardous

*C.B.I.: Confidential Business Information

*For the full text of the H-Statements and R-phrases mentioned in this Section, see Section 16.

4. First aid measures

4.1. Description of first aid measures

- Eyes:** In case of contact, immediately flush eyes with plenty of water for 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. Most important symptoms and effects, both acute and delayed

- Eyes:** Contact with eye may be mildly irritating.
- Skin:** Contact with skin may cause irritation, swelling or redness.
- Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- Ingestion:** May cause upset stomach.

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

No information

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Dry chemical or CO₂

Unsuitable extinguishing media:

No information

5.2. Special hazards arising from the substance or mixture

Not Flammable

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

5.3. Advice 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, protective equipment and emergency procedures

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.

6.2. Environmental precautions

Dike spill. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods and material for containment and 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.

6.4. Reference to other sections

Refer to “Section 8 Exposure controls/ personal protection” and “Section 13 Disposal consideration” as appropriate.

7. Handling and storage

7.1. Precautions for safe handling

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

7.2. Conditions for safe storage, including any incompatibilities

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.

7.3. Specific end use(s):

Inkjet printing

8. Exposure controls/ personal protection

8.1. Control parameters

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

Australia: OELs

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

8.2. Exposure controls:

Occupational exposure control:	Control the airborne concentrations below the exposure limits. Use only with adequate ventilation.
Personal protective equipment:	
Respiratory protection:	Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection.
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.
Eye 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.
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.
Hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.
Environmental exposure control:	Avoid release to the environment.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Light cyan Liquid
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

9.2. Other information: No information

10. Stability and reactivity

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

11. Toxicological information

11.1. Information on toxicological effects

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

12.1. Toxicity:	No data available
12.2. Persistence and degradability:	No data available
12.3. Bioaccumulative potential:	No data available
12.4. Mobility in soil:	No data available
12.5. Results of PBT and vPvB assessment:	Has not carried out PBT and vPvB assessment.
12.6. Other adverse effects:	No data available

13. Disposal considerations

- 13.1. Waste treatment methods:
Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

14. Transport information

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

International Information:

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

16. Other information

List of relevant H-Statements in section 3:

H302 Harmful if swallowed.

List of relevant R-phrases:

R22 Harmful if swallowed.

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

Safety Data Sheet

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

1.1. Product identifier

Dye-based Ink, FDY-LM

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

Inkjet Printing

1.3. Details of the supplier of the safety data sheet

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

E-mail Address:

Revision: 20 March, 2014

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

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

This product is classified as dangerous according to GHS criteria.

Acute toxicity - oral Category 5

2.2. GHS label elements, including precautionary statements

Pictogram None

Signal word(s) Warning

Hazard statement(s) Harmful if swallowed.

Precautionary statement(s)
Response Call a POISON CENTER or doctor/physician if you feel unwell.

2.3. Other hazards

Potential Health Effects:

Eyes: Contact with eye may be mildly irritating.
Skin: Contact with skin may cause irritation, swelling or redness.
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

Chemical nature: mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008	Classification 67/548/EEC
Triethylene glycol monobutyl ether	143-22-6	205-592-6	N/A for the moment	about 10	Not classified as hazardous	Not classified as hazardous
Diethylene glycol	111-46-6	203-872-2	N/A for the moment	10-15	Acute Tox. 4: H302	Xn: R22
Triethanolamine	102-71-6	203-049-8	N/A for the moment	<1	Not classified as hazardous	Not classified as hazardous
Proprietary organic materials	C.B.I.	C.B.I.	N/A for the moment	5-10	Not classified as hazardous	Not classified as hazardous
Glycerols	C.B.I.	C.B.I.	N/A for the moment	about 10	Not classified as hazardous	Not classified as hazardous
Water	7732-18-5	231-791-2	Exemption	<80	Not classified as hazardous	Not classified as hazardous

*C.B.I.: Confidential Business Information

*For the full text of the H-Statements and R-phrases mentioned in this Section, see Section 16.

4. First aid measures

4.1. Description of first aid measures

- Eyes:** In case of contact, immediately flush eyes with plenty of water for 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. Most important symptoms and effects, both acute and delayed

- Eyes:** Contact with eye may be mildly irritating.
- Skin:** Contact with skin may cause irritation, swelling or redness.
- Inhalation:** Exposure to vapors (mist) will cause respiratory irritation and anesthesia.
- Ingestion:** May cause upset stomach.

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

No information

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Dry chemical or CO₂

Unsuitable extinguishing media:

No information

5.2. Special hazards arising from the substance or mixture

Not Flammable

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

5.3. Advice 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, protective equipment and emergency procedures

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus and wear appropriate personal protective equipment.

6.2. Environmental precautions

Dike spill. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods and material for containment and 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.

6.4. Reference to other sections

Refer to “Section 8 Exposure controls/ personal protection” and “Section 13 Disposal consideration” as appropriate.

7. Handling and storage

7.1. Precautions for safe handling

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

7.2. Conditions for safe storage, including any incompatibilities

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.

7.3. Specific end use(s):

Inkjet printing

8. Exposure controls/ personal protection

8.1. Control parameters

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

Australia: OELs

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

8.2. Exposure controls:

Occupational exposure control:	Control the airborne concentrations below the exposure limits. Use only with adequate ventilation.
Personal protective equipment:	
Respiratory protection:	Not required under suitable use as setting the cartridge on the printer. However, in case ventilation is not sufficient, wear respiratory protection.
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.
Eye 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.
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.
Hygiene measures:	Wash hands after handling. In case contact with clothing, wash before reuse. Do not eat, drink or smoke in handling or storage area.
Environmental exposure control:	Avoid release to the environment.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Light 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

9.2. Other information: No information

10. Stability and reactivity

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

11. Toxicological information

11.1. Information on toxicological effects

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

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

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- 14.3. Transport hazard class(es):
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- 14.4. Packing group:
ADR/ADG/DOT, IMDG, or IATA : Not applicable
- 14.5. Environmental hazards:
ADR/ADG/DOT, IMDG, or IATA : Not applicable
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SARA TITLE III:

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Australia Information:

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

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16. Other information

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List of relevant R-phrases:

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