Roland

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:
ECO-SOL MAX, ESL3-BK/ESL3-4BK

INK

1.2. Manufacturer/Distributor:

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:	+ 81-53-484-1221

1.3. Medical Emergency Number
Not Available

2. Composition Information

This is a solvent ink formulation

Ink Composition	CAS No.	% By Weight
Carbon black	1333-86-4	1-5
Synthetic polymer	-	1-5
Diethylene glycol diethyl ether	112-36-7	55-65
Gamma-butyrolactone	96-48-0	10-20
Tetraethylene glycol, dimethyl ether	143-24-8	10-20
Tetraethylene glycol, monobutyl ether	1559-34-8	1-5
Additives	-	1-5

3. Hazard Identification

3.1 Emergency Overview:

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

3.2 Potential Health Effects:

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

Roland

4. First Aid Measures

4.1 Eyes:	Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
4.2 Skin:	Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
4.3 Inhalation:	Remove subject to ventilated fresh air. If not breathing, give artificial respiration right away. If breathing is difficult, give oxygen. Seek immediate medical attention
4.4 Ingestion:	Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

5.1 Flammability:	Combustible liquid under Hazard Communication Standard (HCS, U.S.A) See Section 9 for Flash Point.
5.2 Extinguishing Media:	Water spray, dry chemical, carbon dioxide or alcohol foam
5.3 Fire Fighting Instructions:	Extinguish to use fire fighting media or plentiful fog water. Put protection wear without fail in case of fire fighting work; do not work in the leeward.

6. Accidental Release Measures

6.1 Personal protections:	Remove the person of the leeward. Keep away the person from periphery of the place of the leakage. Ventilate sufficiently during clean-up in case of inside of a house.
6.2 Methods for cleaning up:	If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

7.1 Handling:	Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
7.2 Storage:	Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
7.3 Specific use(s):	Not specified

8. Exposure Controls and Personal Protection

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

Roland

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Black Liquid
Odor:	Slightly

9.2 Important health, safety and environmental information

pH:	Not applicable
Boiling point:	No data available
Melting point:	No data available
Flash point:	about 71 deg.C (closed cup)
Autoflammability:	None
Explosive properties:	1.4-6.9v/v% as Gamma-butyrolactone
Oxidizing properties:	None
Vapor density:	Greater than 1 (air=1)
Relative density:	No data available
Solubility in water:	Soluble
Solubility in fat:	No data available
Partition coefficient:	No data available
Viscosity:	No data available

9.3 Other information: Not specified

10. Stability and Reactivity

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

10.1 Conditions to avoid: High and freezing temperatures
10.2 Materials to avoid: Oxidizers and explosives
10.3 Hazardous decomposition products: No data available

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar materia

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

Acute Health Hazards:

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

Chronic Health Hazards: None Known
Mugtagenicity: Negative (by Ames Test)*

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

Toxicity Data:

Oral LD_{50}	Dermal LD_{50}	Inhalant LC_{50}
>2500mg/kg(Rat)*	>2000mg/kg(Rat)*	No data available

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

Roland

12. Ecological Information

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

13. Disposal Considerations

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

14. Transportation Information

UN Class/UN Number: Not applicable

15. Regulatory Considerations

US Regulation:

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

EU Information

Symbols and indication according to 1999/45/EC: This ink does not meet the criteria for classification as dangerous.

16. Other Information

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

Roland

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:
ECO-SOL MAX, ESL3-YE/ESL3-4YE

1.2. Manufacturer/Distributor:

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:	+ 81-53-484-1221

1.3. Medical Emergency Number
Not Available

2. Composition Information

This is a solvent ink formulation

Ink Composition	CAS No.	% By Weight
Proprietary pigment	-	1-5
Synthetic polymer	-	1-5
Diethylene glycol diethyl ether	112-36-7	55-65
Gamma-butyrolactone	96-48-0	10-20
Tetraethylene glycol, dimethyl ether	143-24-8	10-20
Tetraethylene glycol, monobutyl ether	1559-34-8	1-5
Additives	-	1-5

3. Hazard Identification

3.1 Emergency Overview:

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

3.2 Potential Health Effects:

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

Roland

4. First Aid Measures

4.1 Eyes:	Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
4.2 Skin:	Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
4.3 Inhalation:	Remove subject to ventilated fresh air. If not breathing, give artificial respiration right away. If breathing is difficult, give oxygen. Seek immediate medical attention.
4.4 Ingestion:	Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

5.1 Flammability:	Combustible liquid under Hazard Communication Standard (HCS, U.S.A) See Section 9 for Flash Point.
5.2 Extinguishing Media:	Water spray, dry chemical, carbon dioxide or alcohol foam
5.3 Fire Fighting Instructions:	Extinguish to use fire fighting media or plentiful fog water. Put protection wear without fail in case of fire fighting work; do not work in the leeward.

6. Accidental Release Measures

6.1 Personal protections:	Remove the person of the leeward. Keep away the person from periphery of the place of the leakage. Ventilate sufficiently during clean-up in case of inside of a house.
6.2 Methods for cleaning up:	If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

7.1 Handling:	Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
7.2 Storage:	Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
7.3 Specific use(s):	Not specified

8. Exposure Controls and Personal Protection

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

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Yellow Liquid
Odor:	Slightly

9.2 Important health, safety and environmental information

pH:	Not applicable
Boiling point:	No data available
Melting point:	No data available
Flash point:	about 71 deg.C (closed cup)
Autoflammability:	None
Explosive properties:	1.4-6.9v/v% as Gamma-butyrolactone
Oxidizing properties:	None
Vapor density:	Greater than 1 (air=1)
Relative density:	No data available
Solubility in water:	Soluble
Solubility in fat:	No data available
Partition coefficient:	No data available
Viscosity:	No data available

9.3 Other information Not specified

10. Stability and Reactivity

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

10.1 Conditions to avoid: High and freezing temperatures
10.2 Materials to avoid: Oxidizers and explosives
10.3 Hazardous decomposition products: No data available

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

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

Acute Health Hazards:

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

Chronic Health Hazards: None Known
Mugtagenicity: Negative (by Ames Test)*

Carcinogenicity: Contains Nickel compounds
IARC: Group 1
NTP: Known to be human carcinogen
Pro.65: Known to cause cancer

Toxicity Data:

Oral LD_{50}	Dermal LD_{50}	Inhalant LC_{50}
>2500mg/kg(Rat)*	>2000mg/kg(Rat)*	No data available

Eye irritating: Moderate irritant (Rabbit, OECD405)*
However, risk of serious damage to eyes

Skin irritating: Mild irritant (Rabbit, OECD404)*
Skin sensitizing: Non-sensitizer (LLNA, OECD429)*

Roland

12. Ecological Information

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

13. Disposal Considerations

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

14. Transportation Information

UN Class/UN Number: Not applicable

15. Regulatory Considerations

US Regulation:

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

Wording of Risk and Safety Phrase: "WARNING: This product contains a chemical known to the State of California to cause cancer"

EU Information

Symbols and indication according to 1999/45/EC:

Wording of Risk and Safety Phrase: Xi  Irritant

R41: Risks of serious damage to eyes.
S25: Avoid contact with eyes.
S26: In case of contact with eyes, rinse immediately with plenty water and seek medical advice.
S39: Wear eye/face protection.

16. Other Information

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

Roland

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:
ECO-SOL MAX, ESL3-CY/ESL3-4CY

1.2. Manufacturer/Distributor:

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:	+ 81-53-484-1221

1.3. Medical Emergency Number
Not Available

2. Composition Information

This is a solvent ink formulation

Ink Composition	CAS No.	% By Weight
Proprietary pigment	-	1-5
Synthetic polymer	-	1-5
Diethylene glycol diethyl ether	112-36-7	55-65
Gamma-butyrolactone	96-48-0	10-20
Tetraethylene glycol, dimethyl ether	143-24-8	10-20
Tetraethylene glycol, monobutyl ether	1559-34-8	1-5
Additives	-	1-5

3. Hazard Identification

3.1 Emergency Overview:

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

3.2 Potential Health Effects:

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

Roland

4. First Aid Measures

4.1 Eyes:	Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
4.2 Skin:	Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
4.3 Inhalation:	Remove subject to ventilated fresh air. If not breathing, give artificial respiration right away. If breathing is difficult, give oxygen. Seek immediate medical attention.
4.4 Ingestion:	Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

5.1 Flammability:	Combustible liquid under Hazard Communication Standard (HCS, U.S.A) See Section 9 for Flash Point.
5.2 Extinguishing Media:	Water spray, dry chemical, carbon dioxide or alcohol foam
5.3 Fire Fighting Instructions:	Extinguish to use fire fighting media or plentiful fog water. Put protection wear without fail in case of fire fighting work; do not work in the leeward.

6. Accidental Release Measures

6.1 Personal protections:	Remove the person of the leeward. Keep away the person from periphery of the place of the leakage. Ventilate sufficiently during clean-up in case of inside of a house.
6.2 Methods for cleaning up:	If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

7.1 Handling:	Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
7.2 Storage:	Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
7.3 Specific use(s):	Not specified

8. Exposure Controls and Personal Protection

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

Roland

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Cyan Liquid
Odor:	Slightly

9.2 Important health, safety and environmental information

pH:	Not applicable
Boiling point:	No data available
Melting point:	No data available
Flash point:	about 71 deg.C (closed cup)
Autoflammability:	None
Explosive properties:	1.4-6.9v/v% as Gamma-butyrolactone
Oxidizing properties:	None
Vapor density:	Greater than 1 (air=1)
Relative density:	No data available
Solubility in water:	Soluble
Solubility in fat:	No data available
Partition coefficient:	No data available
Viscosity:	No data available

9.3 Other information Not specified

10. Stability and Reactivity

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

10.1 Conditions to avoid:	High and freezing temperatures
10.2 Materials to avoid:	Oxidizers and explosives
10.3 Hazardous decomposition products:	No data available

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

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

Acute Health Hazards:

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

Chronic Health Hazards:	None Known
Mugtagenicity:	Negative (by Ames Test)*
Carcinogenicity:	Not contain any substances listed in IARC Monogrhaphs(1,2A and 2B)

Toxicity Data:

Oral LD_{50}	Dermal LD_{50}	Inhalant LC_{50}
>2500mg/kg(Rat)*	>2000mg/kg(Rat)*	No data available

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

Roland

12. Ecological Information

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

13. Disposal Considerations

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

14. Transportation Information

UN Class/UN Number: Not applicable

15. Regulatory Considerations

US Regulation:

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

EU Information

Symbols and indication according to 1999/45/EC: This ink does not meet the criteria for classification as dangerous.

16. Other Information

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

Roland

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:
ECO-SOL MAX, ESL3-MG/ESL3-4MG

1.2. Manufacturer/Distributor:

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:	+ 81-53-484-1221

1.3. Medical Emergency Number
Not Available

2. Composition Information

This is a solvent ink formulation

Ink Composition	CAS No.	% By Weight
Proprietary pigment	-	1-5
Synthetic polymer	-	1-5
Diethylene glycol diethyl ether	112-36-7	55-65
Gamma-butyrolactone	96-48-0	10-20
Tetraethylene glycol, dimethyl ether	143-24-8	10-20
Tetraethylene glycol, monobutyl ether	1559-34-8	1-5
Additives	-	1-5

3. Hazard Identification

3.1 Emergency Overview:

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

3.2 Potential Health Effects:

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

Roland

4. First Aid Measures

4.1 Eyes:	Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
4.2 Skin:	Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
4.3 Inhalation:	Remove subject to ventilated fresh air. If not breathing, give artificial respiration right away. If breathing is difficult, give oxygen. Seek immediate medical attention.
4.4 Ingestion:	Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

5.1 Flammability:	Combustible liquid under Hazard Communication Standard (HCS, U.S.A) See Section 9 for Flash Point.
5.2 Extinguishing Media:	Water spray, dry chemical, carbon dioxide or alcohol foam
5.3 Fire Fighting Instructions:	Extinguish to use fire fighting media or plentiful fog water. Put protection wear without fail in case of fire fighting work; do not work in the leeward.

6. Accidental Release Measures

6.1 Personal protections:	Remove the person of the leeward. Keep away the person from periphery of the place of the leakage. Ventilate sufficiently during clean-up in case of inside of a house.
6.2 Methods for cleaning up:	If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

7.1 Handling:	Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
7.2 Storage:	Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
7.3 Specific use(s):	Not specified

8. Exposure Controls and Personal Protection

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

Roland

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Magenta Liquid
Odor:	Slightly

9.2 Important health, safety and environmental information

pH:	Not applicable
Boiling point:	No data available
Melting point:	No data available
Flash point:	about 71 deg.C (closed cup)
Autoflammability:	None
Explosive properties:	1.4-6.9v/v% as Gamma-butyrolactone
Oxidizing properties:	None
Vapor density:	Greater than 1 (air=1)
Relative density:	No data available
Solubility in water:	Soluble
Solubility in fat:	No data available
Partition coefficient:	No data available
Viscosity:	No data available

9.3 Other information Not specified

10. Stability and Reactivity

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

10.1 Conditions to avoid: High and freezing temperatures
10.2 Materials to avoid: Oxidizers and explosives
10.3 Hazardous decomposition products: No data available

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

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

Acute Health Hazards:

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

Chronic Health Hazards:	None Known
Mugtagenicity:	Negative (by Ames Test)*
Carcinogenicity:	Not contain any substances listed in IARC Monogrhaphs(1,2A and 2B)

Toxicity Data:

Oral LD_{50}	Dermal LD_{50}	Inhalant LC_{50}
>2500mg/kg(Rat)*	>2000mg/kg(Rat)*	No data available

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

Roland

12. Ecological Information

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

13. Disposal Considerations

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

14. Transportation Information

UN Class/UN Number:	Not applicable

15. Regulatory Considerations

US Regulation:

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

EU Information

Symbols and indication according to 1999/45/EC:	This ink does not meet the criteria for classification as dangerous.

16. Other Information

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

Roland

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:
ECO-SOL MAX, ESL3-LC/ESL3-4LC

1.2. Manufacturer/Distributor:

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:	+ 81-53-484-1221

1.3. Medical Emergency Number
Not Available

2. Composition Information

This is a solvent ink formulation

Ink Composition	CAS No.	% By Weight
Proprietary pigment	-	<1
Synthetic polymer	-	1-5
Diethylene glycol diethyl ether	112-36-7	55-70
Gamma-butyrolactone	96-48-0	10-20
Tetraethylene glycol, dimethyl ether	143-24-8	10-20
Tetraethylene glycol, monobutyl ether	1559-34-8	1-5
Additives	-	<1

3. Hazard Identification

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

3.2 Potential Health Effects:

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

Roland

4. First Aid Measures

4.1 Eyes:	Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
4.2 Skin:	Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
4.3 Inhalation:	Remove subject to ventilated fresh air. If not breathing, give artificial respiration right away. If breathing is difficult, give oxygen. Seek immediate medical attention.
4.4 Ingestion:	Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

5.1 Flammability:	Combustible liquid under Hazard Communication Standard (HCS, U.S.A) See Section 9 for Flash Point.
5.2 Extinguishing Media:	Water spray, dry chemical, carbon dioxide or alcohol foam
5.3 Fire Fighting Instructions:	Extinguish to use fire fighting media or plentiful fog water. Put protection wear without fail in case of fire fighting work; do not work in the leeward.

6. Accidental Release Measures

6.1 Personal protections:	Remove the person of the leeward. Keep away the person from periphery of the place of the leakage. Ventilate sufficiently during clean-up in case of inside of a house.
6.2 Methods for cleaning up:	If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

7.1 Handling:	Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
7.2 Storage:	Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
7.3 Specific use(s):	Not specified

8. Exposure Controls and Personal Protection

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

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Cyan Liquid
Odor:	Slightly

9.2 Important health, safety and environmental information

pH:	Not applicable
Boiling point:	No data available
Melting point:	No data available
Flash point:	about 71 deg.C (closed cup)
Autoflammability:	None
Explosive properties:	1.4-6.9v/v% as Gamma-butyrolactone
Oxidizing properties:	None
Vapor density:	Greater than 1 (air=1)
Relative density:	No data available
Solubility in water:	Soluble
Solubility in fat:	No data available
Partition coefficient:	No data available
Viscosity:	No data available

9.3 Other information Not specified

10. Stability and Reactivity

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

10.1 Conditions to avoid: High and freezing temperatures
10.2 Materials to avoid: Oxidizers and explosives
10.3 Hazardous decomposition products: No data available

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

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

Acute Health Hazards:

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

Chronic Health Hazards:	None Known
Mugtagenicity:	Negative (by Ames Test)*
Carcinogenicity:	Not contain any substances listed in IARC Monogrhaphs(1,2A and 2B)

Toxicity Data:

Oral LD_{50}	Dermal LD_{50}	Inhalant LC_{50}
>2500mg/kg(Rat)*	>2000mg/kg(Rat)*	No data available

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

12. Ecological Information

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

13. Disposal Considerations

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

14. Transportation Information

UN Class/UN Number: Not applicable

15. Regulatory Considerations

US Regulation:

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

EU Information

Symbols and indication according to 1999/45/EC:

Wording of Risk and Safety Phrase: Xi  Irritant

R36: Irritating to eyes.

S25: Avoid contact with eyes.

S26: In case of contact with eyes, rinse immediately with plenty water and seek medical advice.

16. Other Information

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

Roland

Material Safety Data Sheet

1. Article and Corporate Identification

1.1. Product:

ECO-SOL MAX, ESL3-LM/ESL3-4LM

1.2. Manufacturer/Distributor:

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:	+ 81-53-484-1221

1.3. Medical Emergency Number

Not Available

2. Composition Information

This is a solvent ink formulation

Ink Composition	CAS No.	% By Weight
Proprietary pigment	-	<1
Synthetic polymer	-	1-5
Diethylene glycol diethyl ether	112-36-7	55-70
Gamma-butyrolactone	96-48-0	10-20
Tetraethylene glycol, dimethyl ether	143-24-8	10-20
Tetraethylene glycol, monobutyl ether	1559-34-8	1-5
Additives	-	<1

3. Hazard Identification

3.1 Emergency Overview:

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

3.2 Potential Health Effects:

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

Roland

4. First Aid Measures

4.1 Eyes:	Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.
4.2 Skin:	Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.
4.3 Inhalation:	Remove subject to ventilated fresh air. If not breathing, give artificial respiration right away. If breathing is difficult, give oxygen. Seek immediate medical attention.
4.4 Ingestion:	Seek medical advice; and attention if stomach continues to be upset.

5. Fire Fighting Measures

5.1 Flammability:	Combustible liquid under Hazard Communication Standard (HCS, U.S.A) See Section 9 for Flash Point.
5.2 Extinguishing Media:	Water spray, dry chemical, carbon dioxide or alcohol foam
5.3 Fire Fighting Instructions:	Extinguish to use fire fighting media or plentiful fog water. Put protection wear without fail in case of fire fighting work; do not work in the leeward.

6. Accidental Release Measures

6.1 Personal protections:	Remove the person of the leeward. Keep away the person from periphery of the place of the leakage. Ventilate sufficiently during clean-up in case of inside of a house.
6.2 Methods for cleaning up:	If a spill occurs, use sponges to wipe-up ink, then rinse area with damp cloth. Place waste in closed container for disposal. Do not dispose of waste to the sewer. Wash hands with soap and water.

7. Precautions for Safe Handling and Use

7.1 Handling:	Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink ink. Do not dismantle cartridge. Make sure cartridge is dry before insertion into printer housing.
7.2 Storage:	Do not store the cartridges in high or freezing temperatures. Keep cartridge out of direct sunlight. Do not store cartridges with oxidizing agents or explosives.
7.3 Specific use(s):	Not specified

8. Exposure Controls and Personal Protection

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

Roland

9. Physical and Chemical Properties of Ink Formulation

9.1 General information

Appearance	Magenta Liquid
Odor:	Slightly

9.2 Important health, safety and environmental information

pH:	Not applicable
Boiling point:	No data available
Melting point:	No data available
Flash point:	about 71 deg.C (closed cup)
Autoflammability:	None
Explosive properties:	1.4-6.9v/v% as Gamma-butyrolactone
Oxidizing properties:	None
Vapor density:	Greater than 1 (air=1)
Relative density:	No data available
Solubility in water:	Soluble
Solubility in fat:	No data available
Partition coefficient:	No data available
Viscosity:	No data available

9.3 Other information Not specified

10. Stability and Reactivity

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

10.1 Conditions to avoid: High and freezing temperatures
10.2 Materials to avoid: Oxidizers and explosives
10.3 Hazardous decomposition products: No data available

11. Toxicology and Health Hazards

*Based on toxicology data of chemically similar material

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

Acute Health Hazards:

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

Chronic Health Hazards: None Known
Mugtagenicity: Negative (by Ames Test)*
Carcinogenicity: Not contain any substances listed in IARC Monogrhaphs(1,2A and 2B)

Toxicity Data:

Oral LD_{50}	Dermal LD_{50}	Inhalant LC_{50}
>2500mg/kg(Rat)*	>2000mg/kg(Rat)*	No data available

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

Roland

12. Ecological Information

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

13. Disposal Considerations

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

14. Transportation Information

UN Class/UN Number: Not applicable

15. Regulatory Considerations

US Regulation:

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

EU Information

Symbols and indication according to 1999/45/EC: This ink does not meet the criteria for classification as dangerous.

16. Other Information

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