

# Roland DG

## Material Safety Data Sheet

### 1. Article and Corporate Identification

**Product:** ESL3-BK , ECO-SOL MAX Bk  
Experimental Sample Ink

**Manufacturer/Distributor:** Roland DG Corporation  
1-6-4 Shinmiyakoda Hamamatsu-shi  
Shizuoka 431-2103  
JAPAN  
TEL: +81-53-484-1224  
FAX: +81-53-484-1221

**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.

# Roland DG

*Inhalation:* Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.

*Ingestion:* May cause upset stomach. See Section 11 for Toxicology.

## 4. First Aid Measures

4.1 *Eyes:* Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.

4.2 *Skin:* Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.

4.3 *Inhalation:* Remove subject to ventilated fresh air. 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:* Removed 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 cartridge 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

# Roland DG

## 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; however, ventilation is sufficient during works in a room.

#### 8.2.1.2 Hand protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

#### 8.2.1.3 Eye protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

#### 8.2.1.4 Skin protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

### 8.2.2 Environmental exposure control Not established

## 9. Physical and Chemical Properties of Ink Formulation

### 9.1 General information

Appearance: Black Liquid  
Odor: 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°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

# Roland DG

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

*Mutagenicity:* No data available

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

<i>Toxicity Data:</i>	Oral LD <sub>50</sub>	Dermal LD <sub>50</sub>	Inhalant LC <sub>50</sub>
	No data available	No data available	No data available

*Eye irritating:* No data available

*Skin irritating:* No data available

*Skin sensitizing:* No data available

## 12. Ecological Information

12.1 *Ecotoxicity* No data available on the adverse effects of this ink on the environment

12.2 *Mobility* No data available on the adverse effects of this ink on the environment

12.3 *Presistence 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 requirements.

# Roland DG

## 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 preparation, 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 DG

## Material Safety Data Sheet

### 1. Article and Corporate Identification

**Product:** ESL3-CY , ECO-SOL MAX Cy  
Experimental Sample Ink

**Manufacturer/Distributor:** Roland DG Corporation  
1-6-4 Shinmiyakoda Hamamatsu-shi  
Shizuoka 431-2103  
JAPAN  
TEL: +81-53-484-1224  
FAX: +81-53-484-1221

**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 inhaled. Ink may flash, when under high temperature. Avoid contact with eyes or clothing. In the case of skin contact, wash with soap and water. Keep out of reach of children.

#### 3.2 Potential Health Effects:

**Eyes:** Ink contact with eye will be irritating. See Section 11 for Toxicology.

**Skin:** Ink contact with skin may cause minimally irritation. See Section 11 for Toxicology.

# Roland DG

*Inhalation:* Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.

*Ingestion:* May cause upset stomach. See Section 11 for Toxicology.

## 4. First Aid Measures

4.1 *Eyes:* Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.

4.2 *Skin:* Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.

4.3 *Inhalation:* Remove subject to ventilated fresh air. 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:* Removed 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 cartridge 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

# Roland DG

## 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; however, ventilation is sufficient during works in a room.

#### 8.2.1.2 Hand protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

#### 8.2.1.3 Eye protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

#### 8.2.1.4 Skin protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

### 8.2.2 Environmental exposure control

Not established

## 9. Physical and Chemical Properties of Ink Formulation

### 9.1 General information

Appearance: Cyan Liquid  
Odor: 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°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

# Roland DG

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

*Mutagenicity:* No data available

*Carcinogenicity:* No data available

<i>Toxicity Data:</i>	Oral LD <sub>50</sub>	Dermal LD <sub>50</sub>	Inhalant LC <sub>50</sub>
	No data available	No data available	No data available

*Eye irritating:* No data available

*Skin irritating:* No data available

*Skin sensitizing:* No data available

## 12. Ecological Information

12.1 *Ecotoxicity* No data available on the adverse effects of this ink on the environment

12.2 *Mobility* No data available on the adverse effects of this ink on the environment

12.3 *Presistence 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 requirements.

# Roland DG

## 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 preparation, 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 DG

## Material Safety Data Sheet

### 1. Article and Corporate Identification

**Product:** ESL3-MG , ECO-SOL MAX Mg  
Experimental Sample Ink

**Manufacturer/Distributor:** Roland DG Corporation  
1-6-4 Shinmiyakoda Hamamatsu-shi  
Shizuoka 431-2103  
JAPAN  
TEL: +81-53-484-1224  
FAX: +81-53-484-1221

**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 inhaled. Ink may flash, when under high temperature. Avoid contact with eyes or clothing. In the case of skin contact, wash with soap and water. Keep out of reach of children.

#### 3.2 Potential Health Effects:

**Eyes:** Ink contact with eye will be irritating. See Section 11 for Toxicology.

**Skin:** Ink contact with skin may cause minimally irritation. See Section 11 for Toxicology.

# Roland DG

*Inhalation:* Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.

*Ingestion:* May cause upset stomach. See Section 11 for Toxicology.

## 4. First Aid Measures

4.1 *Eyes:* Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.

4.2 *Skin:* Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.

4.3 *Inhalation:* Remove subject to ventilated fresh air. 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:* Removed 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 cartridge 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

# Roland DG

## 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; however, ventilation is sufficient during works in a room.

#### 8.2.1.2 Hand protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

#### 8.2.1.3 Eye protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

#### 8.2.1.4 Skin protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

### 8.2.2 Environmental exposure control

Not established

## 9. Physical and Chemical Properties of Ink Formulation

### 9.1 General information

Appearance: Magenta Liquid  
Odor: 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°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

# Roland DG

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

*Mutagenicity:* No data available

*Carcinogenicity:* No data available

<i>Toxicity Data:</i>	Oral LD <sub>50</sub>	Dermal LD <sub>50</sub>	Inhalant LC <sub>50</sub>
	No data available	No data available	No data available

*Eye irritating:* No data available

*Skin irritating:* No data available

*Skin sensitizing:* No data available

## 12. Ecological Information

12.1 *Ecotoxicity* No data available on the adverse effects of this ink on the environment

12.2 *Mobility* No data available on the adverse effects of this ink on the environment

12.3 *Persistence and degradability*  
No data available on the adverse effects of this ink on the environment

12.4 *Bioaccumulative potential*  
No data available on the adverse effects of this ink on the environment

12.5 *Other adverse effects* No data available

## 13. Disposal Considerations

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

# Roland DG

## 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 preparation, 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 DG

## Material Safety Data Sheet

### 1. Article and Corporate Identification

**Product:** ESL3-YE , ECO-SOL MAX Ye  
Experimental Sample Ink

**Manufacturer/Distributor:** Roland DG Corporation  
1-6-4 Shinmiyakoda Hamamatsu-shi  
Shizuoka 431-2103  
JAPAN  
TEL: +81-53-484-1224  
FAX: +81-53-484-1221

**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 irritating. See Section 11 for Toxicology.

**Skin:** Ink contact with skin may cause minimally irritation. See Section 11 for Toxicology.

# Roland DG

*Inhalation:* Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.

*Ingestion:* May cause upset stomach. See Section 11 for Toxicology.

## 4. First Aid Measures

4.1 *Eyes:* Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.

4.2 *Skin:* Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.

4.3 *Inhalation:* Remove subject to ventilated fresh air. 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:* Removed 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 cartridge 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

# Roland DG

## 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; however, ventilation is sufficient during works in a room.

#### 8.2.1.2 Hand protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

#### 8.2.1.3 Eye protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

#### 8.2.1.4 Skin protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

### 8.2.2 Environmental exposure control

Not established

## 9. Physical and Chemical Properties of Ink Formulation

### 9.1 General information

Appearance: Yellow Liquid

Odor: 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°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

# Roland DG

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

*Mutagenicity:* No data available

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

<i>Toxicity Data:</i>	Oral LD <sub>50</sub>	Dermal LD <sub>50</sub>	Inhalant LC <sub>50</sub>
	No data available	No data available	No data available

*Eye irritating:* No data available

*Skin irritating:* No data available

*Skin sensitizing:* No data available

## 12. Ecological Information

12.1 *Ecotoxicity* No data available on the adverse effects of this ink on the environment

12.2 *Mobility* No data available on the adverse effects of this ink on the environment

12.3 *Persistence and degradability*  
No data available on the adverse effects of this ink on the environment

12.4 *Bioaccumulative potential*  
No data available on the adverse effects of this ink on the environment

12.5 *Other adverse effects* No data available

## 13. Disposal Considerations

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

# Roland DG

## 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:*

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 preparation, 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 DG

## Material Safety Data Sheet

### 1. Article and Corporate Identification

**Product:** ESL3-LC , ECO-SOL MAX Lc  
Experimental Sample Ink

**Manufacturer/Distributor:** Roland DG Corporation  
1-6-4 Shinmiyakoda Hamamatsu-shi  
Shizuoka 431-2103  
JAPAN  
TEL: +81-53-484-1224  
FAX: +81-53-484-1221

**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.

# Roland DG

*Inhalation:* Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.

*Ingestion:* May cause upset stomach. See Section 11 for Toxicology.

## 4. First Aid Measures

4.1 *Eyes:* Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.

4.2 *Skin:* Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.

4.3 *Inhalation:* Remove subject to ventilated fresh air. 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:* Removed 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 cartridge 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

# Roland DG

## 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; however, ventilation is sufficient during works in a room.

#### 8.2.1.2 Hand protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

#### 8.2.1.3 Eye protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

#### 8.2.1.4 Skin protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

### 8.2.2 Environmental exposure control Not established

## 9. Physical and Chemical Properties of Ink Formulation

### 9.1 General information

Appearance: Cyan Liquid  
Odor: 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°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

# Roland DG

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

*Mutagenicity:* No data available

*Carcinogenicity:* No data available

<i>Toxicity Data:</i>	Oral LD <sub>50</sub>	Dermal LD <sub>50</sub>	Inhalant LC <sub>50</sub>
	No data available	No data available	No data available

*Eye irritating:* No data available

*Skin irritating:* No data available

*Skin sensitizing:* No data available

## 12. Ecological Information

12.1 *Ecotoxicity* No data available on the adverse effects of this ink on the environment

12.2 *Mobility* No data available on the adverse effects of this ink on the environment

12.3 *Presistence 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 requirements.

# Roland DG

## 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 preparation, 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 DG

## Material Safety Data Sheet

### 1. Article and Corporate Identification

**Product:** ESL3-LM, ECO-SOL MAX Lm  
Experimental Sample Ink

**Manufacturer/Distributor:** Roland DG Corporation  
1-6-4 Shinmiyakoda Hamamatsu-shi  
Shizuoka 431-2103  
JAPAN  
TEL: +81-53-484-1224  
FAX: +81-53-484-1221

**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.

# Roland DG

*Inhalation:* Intentional exposure to ink vapors (mist) will cause respiratory irritation and anesthesia. See Section 11 for Toxicology.

*Ingestion:* May cause upset stomach. See Section 11 for Toxicology.

## 4. First Aid Measures

4.1 *Eyes:* Immediately flush with room temperature, low pressure, clean water for at least 15 minutes. Seek medical attention if eye irritation continues.

4.2 *Skin:* Wash surface areas with soap and water. Wash soiled clothing before rewearing. Consult a physician if irritation continues.

4.3 *Inhalation:* Remove subject to ventilated fresh air. 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:* Removed 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 cartridge 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

# Roland DG

## 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; however, ventilation is sufficient during works in a room.

#### 8.2.1.2 Hand protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

#### 8.2.1.3 Eye protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

#### 8.2.1.4 Skin protection

Not required under suitable use as setting the cartridge on the printer; however, wearing gloves is sufficient.

### 8.2.2 Environmental exposure control

Not established

## 9. Physical and Chemical Properties of Ink Formulation

### 9.1 General information

Appearance: Magenta Liquid  
Odor: 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°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

# Roland DG

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

*Mutagenicity:* No data available

*Carcinogenicity:* No data available

<i>Toxicity Data:</i>	Oral LD <sub>50</sub> No data available	Dermal LD <sub>50</sub> No data available	Inhalant LC <sub>50</sub> No data available
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*Eye irritating:* No data available

*Skin irritating:* No data available

*Skin sensitizing:* No data available

## 12. Ecological Information

12.1 *Ecotoxicity* No data available on the adverse effects of this ink on the environment

12.2 *Mobility* No data available on the adverse effects of this ink on the environment

12.3 *Persistence and degradability*  
No data available on the adverse effects of this ink on the environment

12.4 *Bioaccumulative potential*  
No data available on the adverse effects of this ink on the environment

12.5 *Other adverse effects* No data available

## 13. Disposal Considerations

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

# Roland DG

## 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 preparation, 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.*