Safety Data Sheet

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

1.1. Product identifier

ECO-SOL MAX, ESL3-YE
ECO-SOL MAX, ESL3-4YE

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

Inkjet Printing

1.3. Details of the supplier of the safety data sheet

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

E-mail:
Revised date: 19-Jul-2019

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is classified as hazardous according to GHS.

Flammable liquids	Category 4
Acute toxicity (oral)	Category 5
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Reproductive toxicity	Category 1B

2.2. GHS label elements, including precautionary statements

Pictgram(s)

Signal word Danger

Hazard Statement(s):
Combustible liquid.
May be harmful if swallowed.
Causes skin irritation.
Causes serious eye damage.
May damage fertility or the unborn child.

Precautionary Statement(s):

Prevention	Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear protective gloves/protective clothing/eye protection/face protection.
Response	IF ON SKIN: Wash with plenty of soap and water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention.

2.3. Other hazards

Potential Health Effects:

Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic sensitization.
Inhalation:	Exposure to vapors (mist) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.
Ingestion:	May cause injury of mouth, throat, and stomach.
Chronic Health Hazards:	Repeated skin contact may cause a persistent irritation or dermatitis.
Carcinogenicity:	This product contains Nickel compounds. IARC evaluated printing ink as a Group 3 (Not classifiable as to carcinogenicity to humans).
Others:	No information.

3. Composition/information on ingredients

Chemical nature: mixture

Composition	CAS No.	EC No.	EU regis-tration No.	% By Weight	Classification EC No. 1272/2008
Colorant	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	203-963-7	01-2119969946-13	55-65	Skin Irrit. 2: H315
gamma-butyrolactone	96-48-0	202-509-5	01-2119471839-21	<20	Acute Tox. 4: H302 Eye Damage 1: H318
Tetraethylene glycol dimethyl ether	143-24-8	205-594-7	01-2119958965-16	10-20	Repr. 1B: H360
Tetraethylene glycol monobutyl ether	1559-34-8	216-322-1	01-2120768763-41	1-5	Eye Irrit. 2: H319

† C.B.I.: Confidential Business Information
‡ For the full text of the H-Statements mentioned in this Section, see Section 16.

4. First aid measures

4.1. Description of first aid measures

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

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

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

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

4.2. Most important symptoms and effects, both acute and delayed

Eyes: Causes severe eye injury which may persist for several days.

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

Inhalation: Exposure to vapors (mist) may be harmful to the unborn child and at the risk of impaired fertility and irritate nose, throat/respiratory system.

Ingestion: May cause injury of mouth, throat, and stomach.

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

no information

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray.

Unsuitable extinguishing media:

Water, High-pressure water jet.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products: Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.
Flash Point: approximately 71deg.C (closed Cup)

5.3. Advice for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus (SCBA). Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Decontaminate or discard any clothing that may contain chemical residues. Applying direct water may be dangerous because fire may expand to surroundings.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. Environmental precautions

Wipe off spillage. Prevent liquid from entering sewers, waterways or low areas.

6.3. Methods and material for containment and cleaning up

Sweep up material and dispose as waste following local regulations.

6.4. Reference to other sections

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

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with eyes, skin and clothing. Use proper ventilation and no fire in work place. Put protection wear that has electrical conductivity in case of work. Keep out of reach of children and do not drink.

7.2 Conditions for safe storage, including any incompatibilities

Keep containers tightly closed. Do not store the product in high or freezing temperatures. Keep the product out of direct sunlight. Do not store the product with metals, amines, free radical initiators, oxidising agents.

7.3 Specific end use(s): Inkjet Printing

8. Exposure controls/ personal protection

8.1. Control parameters

Occupational Exposure Limits:

Derived No-Effect Level (DNEL)

Diethylene glycol diethyl ether:

[Long term exposure] 50.05 mg/m³

[Short term exposure] no hazard identified

gamma-butyrolactone:

[Long term exposure] 130 mg/m³

[Short term exposure] 958 mg/m³

Tetraethylene glycol dimethyl ether:

[Long term exposure] 22 mg/m³

[Short term exposure] no hazard identified

8.2. Exposure controls

Appropriate engineering controls

Provide general and/or local exhaust ventilation.

Respiratory protection:

In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory equipment. Use a half facepiece respirator (with goggles) or full face-piece respirator (without goggles) filtered with organic vapor cartridge.For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self contained air supply. WARNING: Air-purifying respirators do not protect workers

in oxygen-deficient atmospheres.

Hand protection:

Not required under suitable use as setting the ink on the printer. However, in case of direct contact to the ink, use protective gloves. Recommended impervious gloves is butyl rubber glove.

Eye protection:

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

Skin protection:

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

Hygiene measures:

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

Environmental exposure control:

Avoid release to the environment.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Yellow Liquid
Odour:	Slightly odour
Odour threshold:	No data available
pH:	Not applicable
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point:	approximately 71deg.C (closed Cup)
Evaporation rate:	No data available
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits:	Explosive limits: 0.3-16.0v/v% as γ-Butyrolactone
Vapor pressure:	No data available
Vapor density:	>1
Relative density:	0.9-1.0
Solubility(ies):	soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	No data available
Explosive properties:	No data available
Oxidizing properties:	No data available

Volatile organic compounds (VOC) content: 950 grams/liter

9.2 Other information

No information.

10. Stability and reactivity

10.1 Reactivity:

No reactivity under normal temperature.

10.2 Chemical stability:

Stable under normal temperature.

10.3 Possibility of hazardous reactions:

Not expected.

10.4 Conditions to avoid:

Elevated temperatures/heat, UV light, when not in use.

10.5 Incompatible materials:

Avoid contact with acids, amines, free radical initiators, oxidizing agents.

10.6 Hazardous decomposition products:

Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity:

LD50 (Oral)	>2500mg/kg(Rat)
LD50 (Dermal)	>2000mg/kg(Rat)

Serious eye damage/eye irritation:

Causes serious eye damage.

- gamma-butyrolactone

Causes serious eye irritation.

- Tetraethylene glycol monobutyl ether

Skin corrosion/irritation:

Causes skin irritation.

- Diethylene glycol diethyl ether

Respiratory or skin sensitisation:

Non-sensitizer (LLNA, OECD429)

Germ cell mutagenicity:

Negative (by Ames Test)

Reproductive toxicity:

May damage fertility or the unborn child.

- Tetraethylene glycol dimethyl ether

Carcinogenicity:

This product contains Nickel compounds. IARC evaluated printing ink as a Group 3 (Not classifiable as to carcinogenicity to humans).

Specific target organ toxicity - single exposure, (STOT-SE):

May cause drowsiness or dizziness.

- gamma-butyrolactone

Specific target organ toxicity - repeat exposure, (STOT-RE):

no data available.

Aspiration hazard:

no data available.

12. Ecological information

12.1. Toxicity: No data available.

12.2. Persistence and degradability:

No data available

12.3. Bioaccumulative potential:

No data available

12.4. Mobility in soil:

No data available

12.5. Results of PBT and vPvB assessment:

Has not carried out PBT and vPvB assessment.

12.6. Other adverse effects:

No data available

13. Disposal considerations

13.1. Waste treatment methods

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

14. Transport information

14.1 UN Class/UN Number

ADR/ADG/DOT, IMDG, or IATA : Not regulated

14.2 UN proper shipping name

ADR/ADG/DOT, IMDG, or IATA : Not regulated

14.3 Transport hazard class(es)

ADR/ADG/DOT, IMDG, or IATA : Not regulated

14.4 Packing group

ADR/ADG/DOT, IMDG, or IATA : Not regulated

14.5 Environmental hazards

ADR/ADG/DOT, IMDG, or IATA : Not regulated

14.6. Special precautions for user

ADR/ADG/DOT, IMDG, or IATA : Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.

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

15. Regulatory information

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

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

Australia Information:

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

International Information:

This product contains Nickel compounds. IARC evaluated printing ink as a Group 3 (Not classifiable as to carcinogenicity to humans).

16. Other information

List of relevant H-Statements:

(Reference for Section 3. "Composition/information on ingredients")

— H302: Harmful if swallowed.

— H315: Causes skin irritation.

— H318: Causes serious eye damage.

— H319: Causes serious eye irritation.
— H336: May cause drowsiness or dizziness.
— H360: May damage fertility or the unborn child.

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