

# Safety Data Sheet

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

### 1.1. Product identifier

TH-CY

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

Inkjet Printing

### 1.3. Details of the supplier of the safety data sheet

Manufacturer's name: Roland DG Corporation

Address: 1-1-2 Shinmiyakoda, Hamana-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103

Phone: + 81-53-484-1224

FAX: + 81-53-484-1226

E-mail:

Revised date: 9-Jan-2024

### 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

### 2.2. GHS label elements, including precautionary statements

#### Pictogram(s)



#### Signal Word:

Danger

#### Hazard Statement:

Combustible liquid.

May be harmful if swallowed.

Causes skin irritation.

Causes serious eye damage.

**Precautionary statements — Prevention:**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statements — 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.  
Call a POISON CENTRE/doctor if you feel unwell.

**Precautionary statements — Storage:**

Store in a well-ventilated place. Keep cool.

**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) will cause respiratory irritation and anesthesia.  
Ingestion: May cause injury of mouth, throat, and stomach.  
Chronic Health Hazards: Repeated skin contact may cause a persistent irritation or dermatitis.  
Carcinogenicity: None of the ingredients in this ink is listed by IARC as a carcinogen. (1, 2A and 2B)  
Others: No information.

**3. Composition/information on ingredients**

Chemical nature: mixture

Composition	CAS No.	% By Weight	GHS Classification
Colorant	CBI	1-5	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	55-65	Skin Irrit. 2: H315
$\gamma$ -butyrolactone	96-48-0	<20	Acute Tox. 4: H302 Eye Damage 1: H318 STOT Single Exp. 3: H336
Dialkylene glycol dialkyl ether	CBI	10-20	Not classified as hazardous
2-(2-(2-butoxyethoxy)ethoxy)ethanol	143-22-6	1-10	Eye Dam. 1: H318
Synthetic Resin	CBI	1-10	Not classified as hazardous

† CBI: 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) will cause respiratory irritation and anesthesia.
- 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: > 71deg.C

### 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/m<sup>3</sup>
  - [Short term exposure] no hazard identified
- $\gamma$ -butyrolactone:
  - [Long term exposure] 130 mg/m<sup>3</sup>
  - [Short term exposure] 958 mg/m<sup>3</sup>
- 2-(2-(2-butoxyethoxy)ethoxy)ethanol:
  - [Long term exposure] 195 mg/m<sup>3</sup>
  - [Short term exposure] no hazard identified

### 8.2. Exposure controls

Appropriate engineering controls

Provide general and/or local exhaust ventilation.

Respiratory protection:

Not required when sufficient ventilation is provided. In case of inadequate ventilation and exposure limits are exceeded or if irritation or other symptoms are experienced, use a NIOSH/MSHA or European Standard EN149 approved respirator (with activated carbon layer for organic vapour).

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 EN420/374 approved 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 EN166 approved safety glasses.

**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:	Cyan Liquid
Odour:	Slightly odour
Odour threshold:	Not defined
pH:	Not applicable
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point:	> 71deg.C
Evaporation rate:	No data available
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
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/L

### 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:

$\gamma$ -butyrolactone

LD50 (oral) : 1582mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): LC50>5.1mg/L

#### Serious eye damage/eye irritation:

Causes serious eye damage.

- $\gamma$ -butyrolactone
- 2-(2-(2-butoxyethoxy)ethoxy)ethanol

#### Skin corrosion/irritation:

Causes skin irritation.

- Diethylene glycol diethyl ether

#### Respiratory or skin sensitisation:

no data available.

#### Germ cell mutagenicity:

no data available.

**Reproductive toxicity:**

no data available.

**Carcinogenicity:**

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

**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. Endocrine disrupting properties:**

No data available

**12.7. Other adverse effects:**

No data available

**13. Disposal considerations**

**13.1. Waste treatment methods**

Product: Dispose as hazardous waste. Packaging with product residues must be disposed of under the same conditions as the product itself.

Recommended waste code: 08 03 12\* (waste ink containing dangerous substances)

Uncleaned packaging: 15 01 10\* (packaging, the residues of dangerous substances or hazardous waste contain or are contaminated by dangerous substances or special wastes)

Recommendation: Uncontaminated packaging can be recycled. Non-cleanable packaging must be disposed of in the same way as the substance.

## 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.

International Information:

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

## 16. Other information

List of relevant H-Statements:

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

— H302: Harmful if swallowed.

— H315: Causes skin irritation.



- H318: Causes serious eye damage.
- H336: May cause drowsiness or dizziness.

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

# Safety Data Sheet

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

### 1.1. Product identifier

TH-MG

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

Inkjet Printing

### 1.3. Details of the supplier of the safety data sheet

Manufacturer's name: Roland DG Corporation

Address: 1-1-2 Shinmiyakoda, Hamana-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103

Phone: + 81-53-484-1224

FAX: + 81-53-484-1226

E-mail:

Revised date: 9-Jan-2024

### 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

### 2.2. GHS label elements, including precautionary statements

#### Pictogram(s)



#### Signal Word:

Danger

#### Hazard Statement:

- Combustible liquid.
- May be harmful if swallowed.
- Causes skin irritation.
- Causes serious eye damage.

**Precautionary statements — Prevention:**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statements — 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.  
Call a POISON CENTRE/doctor if you feel unwell.

**Precautionary statements — Storage:**

Store in a well-ventilated place. Keep cool.

**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) will cause respiratory irritation and anesthesia.  
Ingestion: May cause injury of mouth, throat, and stomach.  
Chronic Health Hazards: Repeated skin contact may cause a persistent irritation or dermatitis.  
Carcinogenicity: None of the ingredients in this ink is listed by IARC as a carcinogen. (1, 2A and 2B)  
Others: No information.

**3. Composition/information on ingredients**

Chemical nature: mixture

Composition	CAS No.	% By Weight	GHS Classification
Colorant	CBI	1-10	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	55-65	Skin Irrit. 2: H315
$\gamma$ -butyrolactone	96-48-0	<20	Acute Tox. 4: H302 Eye Damage 1: H318 STOT Single Exp. 3: H336
Dialkylene glycol dialkyl ether	CBI	10-20	Not classified as hazardous
2-(2-(2-butoxyethoxy)ethoxy)ethanol	143-22-6	1-10	Eye Dam. 1: H318
Synthetic Resin	CBI	1-10	Not classified as hazardous

† CBI: 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**

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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) will cause respiratory irritation and anesthesia.
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: > 71deg.C

#### 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/m<sup>3</sup>

[Short term exposure] no hazard identified

—  $\gamma$ -butyrolactone:

[Long term exposure] 130 mg/m<sup>3</sup>

[Short term exposure] 958 mg/m<sup>3</sup>

— 2-(2-(2-butoxyethoxy)ethoxy)ethanol:

[Long term exposure] 195 mg/m<sup>3</sup>

[Short term exposure] no hazard identified

### 8.2. Exposure controls

Appropriate engineering controls

Provide general and/or local exhaust ventilation.

Respiratory protection:

Not required when sufficient ventilation is provided. In case of inadequate ventilation and exposure limits are exceeded or if irritation or other symptoms are experienced, use a NIOSH/MSHA or European Standard EN149 approved respirator (with activated carbon layer for organic vapour).

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 EN420/374 approved 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 EN166 approved safety glasses.

**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:	Magenta Liquid
Odour:	Slightly odour
Odour threshold:	Not defined
pH:	Not applicable
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point:	> 71deg.C
Evaporation rate:	No data available
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
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:	950grams/L

### 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:

$\gamma$ -butyrolactone

LD50 (oral) : 1582mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): LC50>5.1mg/L

#### Serious eye damage/eye irritation:

Causes serious eye damage.

- $\gamma$ -butyrolactone
- 2-(2-(2-butoxyethoxy)ethoxy)ethanol

#### Skin corrosion/irritation:

Causes skin irritation.

- Diethylene glycol diethyl ether

#### Respiratory or skin sensitisation:

no data available.

#### Germ cell mutagenicity:

no data available.

#### Reproductive toxicity:

no data available.

**Carcinogenicity:**

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

**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. Endocrine disrupting properties:**

No data available

**12.7. Other adverse effects:**

No data available

**13. Disposal considerations****13.1. Waste treatment methods**

Product: Dispose as hazardous waste. Packaging with product residues must be disposed of under the same conditions as the product itself.

Recommended waste code: 08 03 12\* (waste ink containing dangerous substances)



Uncleaned packaging: 15 01 10\* (packaging, the residues of dangerous substances or hazardous waste contain or are contaminated by dangerous substances or special wastes)

Recommendation: Uncontaminated packaging can be recycled. Non-cleanable packaging must be disposed of in the same way as the substance.

## 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.

International Information:

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

## 16. Other information

List of relevant H-Statements:

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

- H302: Harmful if swallowed.
- H315: Causes skin irritation.
- H318: Causes serious eye damage.
- H336: May cause drowsiness or dizziness.

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

# Safety Data Sheet

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

### 1.1. Product identifier

TH-YE

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

Inkjet Printing

### 1.3. Details of the supplier of the safety data sheet

Manufacturer's name: Roland DG Corporation

Address: 1-1-2 Shinmiyakoda, Hamana-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103

Phone: + 81-53-484-1224

FAX: + 81-53-484-1226

E-mail:

Revised date: 9-Jan-2024

### 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

### 2.2. GHS label elements, including precautionary statements

#### Pictogram(s)



#### Signal Word:

Danger

#### Hazard Statement:

- Combustible liquid.
- May be harmful if swallowed.
- Causes skin irritation.
- Causes serious eye damage.

**Precautionary statements — Prevention:**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statements — 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.  
Call a POISON CENTRE/doctor if you feel unwell.

**Precautionary statements — Storage:**

Store in a well-ventilated place. Keep cool.

**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) will cause respiratory irritation and anesthesia.  
Ingestion: May cause injury of mouth, throat, and stomach.  
Chronic Health Hazards: Repeated skin contact may cause a persistent irritation or dermatitis.  
Carcinogenicity: None of the ingredients in this ink is listed by IARC as a carcinogen. (1, 2A and 2B)  
Others: No information.

**3. Composition/information on ingredients**

Chemical nature: mixture

Composition	CAS No.	% By Weight	GHS Classification
Colorant	CBI	1-10	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	55-65	Skin Irrit. 2: H315
$\gamma$ -butyrolactone	96-48-0	<20	Acute Tox. 4: H302 Eye Damage 1: H318 STOT Single Exp. 3: H336
Dialkylene glycol dialkyl ether	CBI	10-20	Not classified as hazardous
2-(2-(2-butoxyethoxy)ethoxy)ethanol	143-22-6	1-10	Eye Dam. 1: H318
Synthetic Resin	CBI	1-10	Not classified as hazardous

† CBI: 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) will cause respiratory irritation and anesthesia.
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: > 71deg.C

#### 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/m<sup>3</sup>

[Short term exposure] no hazard identified

—  $\gamma$ -butyrolactone:

[Long term exposure] 130 mg/m<sup>3</sup>

[Short term exposure] 958 mg/m<sup>3</sup>

— 2-(2-(2-butoxyethoxy)ethoxy)ethanol:

[Long term exposure] 195 mg/m<sup>3</sup>

[Short term exposure] no hazard identified

### 8.2. Exposure controls

Appropriate engineering controls

Provide general and/or local exhaust ventilation.

Respiratory protection:

Not required when sufficient ventilation is provided. In case of inadequate ventilation and exposure limits are exceeded or if irritation or other symptoms are experienced, use a NIOSH/MSHA or European Standard EN149 approved respirator (with activated carbon layer for organic vapour).

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 EN420/374 approved 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 EN166 approved safety glasses.

**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:	Not defined
pH:	Not applicable
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point:	> 71deg.C
Evaporation rate:	No data available
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
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:	950grams/L

### 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:

$\gamma$ -butyrolactone

LD50 (oral) : 1582mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): LC50>5.1mg/L

#### Serious eye damage/eye irritation:

Causes serious eye damage.

- $\gamma$ -butyrolactone
- 2-(2-(2-butoxyethoxy)ethoxy)ethanol

#### Skin corrosion/irritation:

Causes skin irritation.

- Diethylene glycol diethyl ether

#### Respiratory or skin sensitisation:

no data available.

#### Germ cell mutagenicity:

no data available.

#### Reproductive toxicity:

no data available.



**Carcinogenicity:**

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

**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. Endocrine disrupting properties:**

No data available

**12.7. Other adverse effects:**

No data available

**13. Disposal considerations****13.1. Waste treatment methods**

Product: Dispose as hazardous waste. Packaging with product residues must be disposed of under the same conditions as the product itself.

Recommended waste code: 08 03 12\* (waste ink containing dangerous substances)

Uncleaned packaging: 15 01 10\* (packaging, the residues of dangerous substances or hazardous waste contain or are contaminated by dangerous substances or special wastes)

Recommendation: Uncontaminated packaging can be recycled. Non-cleanable packaging must be disposed of in the same way as the substance.

## 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.

International Information:

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

## 16. Other information

List of relevant H-Statements:

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

— H302: Harmful if swallowed.

— H315: Causes skin irritation.

— H318: Causes serious eye damage.

— H336: May cause drowsiness or dizziness.

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

# Safety Data Sheet

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

### 1.1. Product identifier

TH-BK

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

Inkjet Printing

### 1.3. Details of the supplier of the safety data sheet

Manufacturer's name: Roland DG Corporation

Address: 1-1-2 Shinmiyakoda, Hamana-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103

Phone: + 81-53-484-1224

FAX: + 81-53-484-1226

E-mail:

Revised date: 9-Jan-2024

### 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

### 2.2. GHS label elements, including precautionary statements

#### Pictogram(s)



#### Signal Word:

Danger

#### Hazard Statement:

- Combustible liquid.
- May be harmful if swallowed.
- Causes skin irritation.
- Causes serious eye damage.

**Precautionary statements — Prevention:**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statements — 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.  
Call a POISON CENTRE/doctor if you feel unwell.

**Precautionary statements — Storage:**

Store in a well-ventilated place. Keep cool.

**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) will cause respiratory irritation and anesthesia.
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 Carbon black.IARC evaluated printing ink as a Group 3.(IARC Group 3: Not classifiable as to carcinogenicity to humans)
Others:	No information.

**3. Composition/information on ingredients**

Chemical nature: mixture

Composition	CAS No.	% By Weight	GHS Classification
Carbon Black	1333-86-4	1-10	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	55-65	Skin Irrit. 2: H315
$\gamma$ -butyrolactone	96-48-0	<20	Acute Tox. 4: H302 Eye Damage 1: H318 STOT Single Exp. 3: H336
Dialkylene glycol dialkyl ether	CBI	10-20	Not classified as hazardous
2-(2-(2-butoxyethoxy)ethoxy)ethanol	143-22-6	1-10	Eye Dam. 1: H318
Synthetic Resin	CBI	1-10	Not classified as hazardous

† CBI: 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) will cause respiratory irritation and anesthesia.
- 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: > 71deg.C

#### 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)

— Carbon Black:

[Long term exposure] no hazard identified

[Short term exposure] no hazard identified

— Diethylene glycol diethyl ether:

[Long term exposure] 50.05 mg/m<sup>3</sup>

[Short term exposure] no hazard identified

—  $\gamma$ -butyrolactone:

[Long term exposure] 130 mg/m<sup>3</sup>

[Short term exposure] 958 mg/m<sup>3</sup>

— 2-(2-(2-butoxyethoxy)ethoxy)ethanol:

[Long term exposure] 195 mg/m<sup>3</sup>

[Short term exposure] no hazard identified

### 8.2. Exposure controls

Appropriate engineering controls

Provide general and/or local exhaust ventilation.

Respiratory protection:

Not required when sufficient ventilation is provided. In case of inadequate ventilation and exposure limits are exceeded or if irritation or other symptoms are experienced, use a NIOSH/MSHA or European Standard EN149 approved respirator (with activated carbon layer for organic vapour).

**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 EN420/374 approved 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 EN166 approved safety glasses.

**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:	Black Liquid
Odour:	Slightly odour
Odour threshold:	Not defined
pH:	Not applicable
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point:	> 71deg.C
Evaporation rate:	No data available
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
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/L



## 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:

$\gamma$ -butyrolactone

LD50 (oral) : 1582mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): LC50>5.1mg/L

#### Serious eye damage/eye irritation:

Causes serious eye damage.

- $\gamma$ -butyrolactone
- 2-(2-(2-butoxyethoxy)ethoxy)ethanol

#### Skin corrosion/irritation:

Causes skin irritation.

- Diethylene glycol diethyl ether

#### Respiratory or skin sensitisation:

no data available.

#### Germ cell mutagenicity:

no data available.

**Reproductive toxicity:**

no data available.

**Carcinogenicity:**

This product contains Carbon black.

IARC evaluated printing ink as a Group 3.

(IARC 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. Endocrine disrupting properties:**

No data available

**12.7. Other adverse effects:**

No data available

## 13. Disposal considerations

### 13.1. Waste treatment methods

Product: Dispose as hazardous waste. Packaging with product residues must be disposed of under the same conditions as the product itself.

Recommended waste code: 08 03 12\* (waste ink containing dangerous substances)

Uncleaned packaging: 15 01 10\* (packaging, the residues of dangerous substances or hazardous waste contain or are contaminated by dangerous substances or special wastes)

Recommendation: Uncontaminated packaging can be recycled. Non-cleanable packaging must be disposed of in the same way as the substance.

## 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.

International Information:

This product contains Carbon black.

IARC evaluated printing ink as a Group 3.

(IARC 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.
- H336: May cause drowsiness or dizziness.

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

# Safety Data Sheet

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

### 1.1. Product identifier

TH-LK

### 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

Manufacturer's name: Roland DG Corporation

Address: 1-1-2 Shinmiyakoda, Hamana-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103

Phone: + 81-53-484-1224

FAX: + 81-53-484-1226

E-mail:

Revised date: 9-Jan-2024

### 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

### 2.2. GHS label elements, including precautionary statements

#### Pictogram(s)



#### Signal Word:

Danger

#### Hazard Statement:

- Combustible liquid.
- May be harmful if swallowed.
- Causes skin irritation.
- Causes serious eye damage.

**Precautionary statements — Prevention:**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statements — 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.  
Call a POISON CENTRE/doctor if you feel unwell.

**Precautionary statements — Storage:**

Store in a well-ventilated place. Keep cool.

**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) will cause respiratory irritation and anesthesia.
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 Carbon black.IARC evaluated printing ink as a Group 3.(IARC Group 3: Not classifiable as to carcinogenicity to humans)
Others:	No information.

**3. Composition/information on ingredients**

Chemical nature: mixture

Composition	CAS No.	% By Weight	GHS Classification
Carbon Black	1333-86-4	0-1	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	55-65	Skin Irrit. 2: H315
$\gamma$ -butyrolactone	96-48-0	<20	Acute Tox. 4: H302 Eye Damage 1: H318 STOT Single Exp. 3: H336
Dialkylene glycol dialkyl ether	CBI	10-20	Not classified as hazardous
2-(2-(2-butoxyethoxy)ethoxy)ethanol	143-22-6	1-10	Eye Dam. 1: H318
Synthetic Resin	CBI	1-10	Not classified as hazardous

† CBI: 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) will cause respiratory irritation and anesthesia.
- 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: > 71deg.C

### 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)

— Carbon Black:

[Long term exposure] no hazard identified

[Short term exposure] no hazard identified

— Diethylene glycol diethyl ether:

[Long term exposure] 50.05 mg/m<sup>3</sup>

[Short term exposure] no hazard identified

—  $\gamma$ -butyrolactone:

[Long term exposure] 130 mg/m<sup>3</sup>

[Short term exposure] 958 mg/m<sup>3</sup>

— 2-(2-(2-butoxyethoxy)ethoxy)ethanol:

[Long term exposure] 195 mg/m<sup>3</sup>

[Short term exposure] no hazard identified

### 8.2. Exposure controls

Appropriate engineering controls

Provide general and/or local exhaust ventilation.

Respiratory protection:

Not required when sufficient ventilation is provided. In case of inadequate ventilation and exposure



limits are exceeded or if irritation or other symptoms are experienced, use a NIOSH/MSHA or European Standard EN149 approved respirator (with activated carbon layer for organic vapour).

**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 EN420/374 approved 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 EN166 approved safety glasses.

**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:	Black Liquid
Odour:	slight odor
Odour threshold:	Not defined
pH:	Not applicable
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point:	> 71deg.C
Evaporation rate:	No data available
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	0.9-1.0
Solubility(ies):	Slightly 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

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Oxidizing properties: No data available  
Volatile organic compounds (VOC) content: 950grams/L

## 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:

$\gamma$ -butyrolactone

LD50 (oral) : 1582mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): LC50>5.1mg/L

#### Serious eye damage/eye irritation:

Causes serious eye damage.

- $\gamma$ -butyrolactone
- 2-(2-(2-butoxyethoxy)ethoxy)ethanol

#### Skin corrosion/irritation:

Causes skin irritation.

- Diethylene glycol diethyl ether

#### Respiratory or skin sensitisation:

no data available.

**Germ cell mutagenicity:**

no data available.

**Reproductive toxicity:**

no data available.

**Carcinogenicity:**

This product contains Carbon black.

IARC evaluated printing ink as a Group 3.

(IARC 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. Endocrine disrupting properties:**

No data available

**12.7. Other adverse effects:**

No data available

## 13. Disposal considerations

### 13.1. Waste treatment methods

Product: Dispose as hazardous waste. Packaging with product residues must be disposed of under the same conditions as the product itself.

Recommended waste code: 08 03 12\* (waste ink containing dangerous substances)

Uncleaned packaging: 15 01 10\* (packaging, the residues of dangerous substances or hazardous waste contain or are contaminated by dangerous substances or special wastes)

Recommendation: Uncontaminated packaging can be recycled. Non-cleanable packaging must be disposed of in the same way as the substance.

## 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.

International Information:

This product contains Carbon black.

IARC evaluated printing ink as a Group 3.

(IARC 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.
- H336: May cause drowsiness or dizziness.

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

# Safety Data Sheet

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

### 1.1. Product identifier

TH-OR

### 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

Manufacturer's name: Roland DG Corporation

Address: 1-1-2 Shinmiyakoda, Hamana-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103

Phone: + 81-53-484-1224

FAX: + 81-53-484-1226

E-mail:

Revised date: 9-Jan-2024

### 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

### 2.2. GHS label elements, including precautionary statements

#### Pictogram(s)



#### Signal Word:

Danger

#### Hazard Statement:

- Combustible liquid.
- May be harmful if swallowed.
- Causes skin irritation.
- Causes serious eye damage.

**Precautionary statements — Prevention:**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statements — 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.  
Call a POISON CENTRE/doctor if you feel unwell.

**Precautionary statements — Storage:**

Store in a well-ventilated place. Keep cool.

**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) will cause respiratory irritation and anesthesia.  
Ingestion: May cause injury of mouth, throat, and stomach.  
Chronic Health Hazards: Repeated skin contact may cause a persistent irritation or dermatitis.  
Carcinogenicity: None of the ingredients in this ink is listed by IARC as a carcinogen. (1, 2A and 2B)  
Others: No information.

**3. Composition/information on ingredients**

Chemical nature: mixture

Composition	CAS No.	% By Weight	GHS Classification
Colorant	CBI	1-5	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	55-65	Skin Irrit. 2: H315
$\gamma$ -butyrolactone	96-48-0	<20	Acute Tox. 4: H302 Eye Damage 1: H318 STOT Single Exp. 3: H336
Dialkylene glycol dialkyl ether	CBI	10-20	Not classified as hazardous
2-(2-(2-butoxyethoxy)ethoxy)ethanol	143-22-6	1-10	Eye Dam. 1: H318
Synthetic Resin	CBI	1-10	Not classified as hazardous

† CBI: 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) will cause respiratory irritation and anesthesia.
- 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: > 71deg.C

### 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/m<sup>3</sup>

[Short term exposure] no hazard identified

—  $\gamma$ -butyrolactone:

[Long term exposure] 130 mg/m<sup>3</sup>

[Short term exposure] 958 mg/m<sup>3</sup>

— 2-(2-(2-butoxyethoxy)ethoxy)ethanol:

[Long term exposure] 195 mg/m<sup>3</sup>

[Short term exposure] no hazard identified

### 8.2. Exposure controls

Appropriate engineering controls

Provide general and/or local exhaust ventilation.

Respiratory protection:

Not required when sufficient ventilation is provided. In case of inadequate ventilation and exposure limits are exceeded or if irritation or other symptoms are experienced, use a NIOSH/MSHA or European Standard EN149 approved respirator (with activated carbon layer for organic vapour).

**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 EN420/374 approved 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 EN166 approved safety glasses.

**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:	Orange Liquid
Odour:	Slightly odour
Odour threshold:	Not defined
pH:	Not applicable
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point:	> 71deg.C
Evaporation rate:	No data available
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
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/L

**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:**

$\gamma$ -butyrolactone

LD50 (oral) : 1582mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): LC50>5.1mg/L

**Serious eye damage/eye irritation:**

Causes serious eye damage.

- $\gamma$ -butyrolactone
- 2-(2-(2-butoxyethoxy)ethoxy)ethanol

**Skin corrosion/irritation:**

Causes skin irritation.

- Diethylene glycol diethyl ether

**Respiratory or skin sensitisation:**

no data available.

**Germ cell mutagenicity:**

no data available.

**Reproductive toxicity:**

no data available.

**Carcinogenicity:**

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

**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. Endocrine disrupting properties:**

No data available

**12.7. Other adverse effects:**

No data available

**13. Disposal considerations****13.1. Waste treatment methods**

Product: Dispose as hazardous waste. Packaging with product residues must be disposed of under the same conditions as the product itself.

Recommended waste code: 08 03 12\* (waste ink containing dangerous substances)

Uncleaned packaging: 15 01 10\* (packaging, the residues of dangerous substances or hazardous waste contain or are contaminated by dangerous substances or special wastes)

Recommendation: Uncontaminated packaging can be recycled. Non-cleanable packaging must be disposed of in the same way as the substance.

## 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.

International Information:

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

## 16. Other information

List of relevant H-Statements:

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

— H302: Harmful if swallowed.

- H315: Causes skin irritation.
- H318: Causes serious eye damage.
- H336: May cause drowsiness or dizziness.

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

# Safety Data Sheet

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

### 1.1. Product identifier

TH-GR

### 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

Manufacturer's name: Roland DG Corporation

Address: 1-1-2 Shinmiyakoda, Hamana-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103

Phone: + 81-53-484-1224

FAX: + 81-53-484-1226

E-mail:

Revised date: 9-Jan-2024

### 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

### 2.2. GHS label elements, including precautionary statements

#### Pictogram(s)



#### Signal Word:

Danger

#### Hazard Statement:

- Combustible liquid.
- May be harmful if swallowed.
- Causes skin irritation.
- Causes serious eye damage.

**Precautionary statements — Prevention:**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statements — 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.  
Call a POISON CENTRE/doctor if you feel unwell.

**Precautionary statements — Storage:**

Store in a well-ventilated place. Keep cool.

**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) will cause respiratory irritation and anesthesia.  
Ingestion: May cause injury of mouth, throat, and stomach.  
Chronic Health Hazards: Repeated skin contact may cause a persistent irritation or dermatitis.  
Carcinogenicity: None of the ingredients in this ink is listed by IARC as a carcinogen. (1, 2A and 2B)  
Others: No information.

**3. Composition/information on ingredients**

Chemical nature: mixture

Composition	CAS No.	% By Weight	GHS Classification
Colorant	CBI	1-5	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	55-65	Skin Irrit. 2: H315
$\gamma$ -butyrolactone	96-48-0	<20	Acute Tox. 4: H302 Eye Damage 1: H318 STOT Single Exp. 3: H336
Dialkylene glycol dialkyl ether	CBI	10-20	Not classified as hazardous
2-(2-(2-butoxyethoxy)ethoxy)ethanol	143-22-6	1-10	Eye Dam. 1: H318
Synthetic Resin	CBI	1-10	Not classified as hazardous

† CBI: 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) will cause respiratory irritation and anesthesia.
- 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: > 71deg.C

### 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/m<sup>3</sup>

[Short term exposure] no hazard identified

—  $\gamma$ -butyrolactone:

[Long term exposure] 130 mg/m<sup>3</sup>

[Short term exposure] 958 mg/m<sup>3</sup>

— 2-(2-(2-butoxyethoxy)ethoxy)ethanol:

[Long term exposure] 195 mg/m<sup>3</sup>

[Short term exposure] no hazard identified

## 8.2. Exposure controls

Appropriate engineering controls

Provide general and/or local exhaust ventilation.

Respiratory protection:

Not required when sufficient ventilation is provided. In case of inadequate ventilation and exposure limits are exceeded or if irritation or other symptoms are experienced, use a NIOSH/MSHA or European Standard EN149 approved respirator (with activated carbon layer for organic vapour).

**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 EN420/374 approved 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 EN166 approved safety glasses.

**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:	Green Liquid
Odour:	Slightly odour
Odour threshold:	Not defined
pH:	Not applicable
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point:	> 71deg.C
Evaporation rate:	No data available
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
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/L

**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:**

$\gamma$ -butyrolactone

LD50 (oral) : 1582mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): LC50>5.1mg/L

**Serious eye damage/eye irritation:**

Causes serious eye damage.

- $\gamma$ -butyrolactone
- 2-(2-(2-butoxyethoxy)ethoxy)ethanol

**Skin corrosion/irritation:**

Causes skin irritation.

- Diethylene glycol diethyl ether

**Respiratory or skin sensitisation:**

no data available.

**Germ cell mutagenicity:**

no data available.

**Reproductive toxicity:**

no data available.

**Carcinogenicity:**

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

**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. Endocrine disrupting properties:**

No data available

**12.7. Other adverse effects:**

No data available

**13. Disposal considerations**

**13.1. Waste treatment methods**

Product: Dispose as hazardous waste. Packaging with product residues must be disposed of under the same conditions as the product itself.

Recommended waste code: 08 03 12\* (waste ink containing dangerous substances)

Uncleaned packaging: 15 01 10\* (packaging, the residues of dangerous substances or hazardous waste contain or are contaminated by dangerous substances or special wastes)

Recommendation: Uncontaminated packaging can be recycled. Non-cleanable packaging must be disposed of in the same way as the substance.

## 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.

International Information:

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

## 16. Other information

List of relevant H-Statements:

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

— H302: Harmful if swallowed.

- H315: Causes skin irritation.
- H318: Causes serious eye damage.
- H336: May cause drowsiness or dizziness.

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

# Safety Data Sheet

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

### 1.1. Product identifier

TH-RE

### 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

Manufacturer's name: Roland DG Corporation

Address: 1-1-2 Shinmiyakoda, Hamana-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103

Phone: + 81-53-484-1224

FAX: + 81-53-484-1226

E-mail:

Revised date: 9-Jan-2024

### 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

### 2.2. GHS label elements, including precautionary statements

#### Pictogram(s)



#### Signal Word:

Danger

#### Hazard Statement:

- Combustible liquid.
- May be harmful if swallowed.
- Causes skin irritation.
- Causes serious eye damage.



**Precautionary statements — Prevention:**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statements — 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.  
Call a POISON CENTRE/doctor if you feel unwell.

**Precautionary statements — Storage:**

Store in a well-ventilated place. Keep cool.

**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) will cause respiratory irritation and anesthesia.  
Ingestion: May cause injury of mouth, throat, and stomach.  
Chronic Health Hazards: Repeated skin contact may cause a persistent irritation or dermatitis.  
Carcinogenicity: None of the ingredients in this ink is listed by IARC as a carcinogen. (1, 2A and 2B)  
Others: No information.

**3. Composition/information on ingredients**

Chemical nature: mixture

Composition	CAS No.	% By Weight	GHS Classification
Colorant	CBI	1-10	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	55-65	Skin Irrit. 2: H315
$\gamma$ -butyrolactone	96-48-0	<20	Acute Tox. 4: H302 Eye Damage 1: H318 STOT Single Exp. 3: H336
Dialkylene glycol dialkyl ether	CBI	10-20	Not classified as hazardous
2-(2-(2-butoxyethoxy)ethoxy)ethanol	143-22-6	1-10	Eye Dam. 1: H318
Synthetic Resin	CBI	1-10	Not classified as hazardous

† CBI: 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**

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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) will cause respiratory irritation and anesthesia.
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: > 71deg.C

#### 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/m<sup>3</sup>

[Short term exposure] no hazard identified

—  $\gamma$ -butyrolactone:

[Long term exposure] 130 mg/m<sup>3</sup>

[Short term exposure] 958 mg/m<sup>3</sup>

— 2-(2-(2-butoxyethoxy)ethoxy)ethanol:

[Long term exposure] 195 mg/m<sup>3</sup>

[Short term exposure] no hazard identified

### 8.2. Exposure controls

Appropriate engineering controls

Provide general and/or local exhaust ventilation.

Respiratory protection:

Not required when sufficient ventilation is provided. In case of inadequate ventilation and exposure limits are exceeded or if irritation or other symptoms are experienced, use a NIOSH/MSHA or European Standard EN149 approved respirator (with activated carbon layer for organic vapour).

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 EN420/374 approved 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 EN166 approved safety glasses.

**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:	Red Liquid
Odour:	Slightly odour
Odour threshold:	Not defined Not applicable
pH:	No
Melting point/freezing point:	data available No
Initial boiling point and boiling range:	data available
Flash point:	> 71deg.C
Evaporation rate:	No data available
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
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:	950grams/L

### 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:

$\gamma$ -butyrolactone

LD50 (oral) : 1582mg/kgbw, LD50 (dermal): no data available, LD50 (Inhal.): LC50>5.1mg/L

#### Serious eye damage/eye irritation:

Causes serious eye damage.

- $\gamma$ -butyrolactone
- 2-(2-(2-butoxyethoxy)ethoxy)ethanol

#### Skin corrosion/irritation:

Causes skin irritation.

- Diethylene glycol diethyl ether

#### Respiratory or skin sensitisation:

no data available.

#### Germ cell mutagenicity:

no data available.

#### Reproductive toxicity:

no data available.

**Carcinogenicity:**

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

May cause drowsiness or dizziness.

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**Aspiration hazard:**

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**12. Ecological information**

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**12.3. Bioaccumulative potential:**

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