

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 10/28/2024 Version: 4.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form : Mixture
Trade name : TH-OR
UFI : ESVE-MWH5-9DKC-2FJP

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

Main use category : Professional use
Function or use category : Inkjet Printing ink

1.3. Details of the supplier of the safety data sheet**Manufacturer**

Roland DG Corporation
1-1-2 Shinmiyakoda, Hamana-ku,
Hamamatsu-shi, Shizuoka-ken, 431-2103 Japan
〒431-2103
T +81-53-484-1200

1.4. Emergency telephone number

Country/Area	Organisation/Company	Emergency number	Comment
Ireland	Poisons Information Centre of Ireland	+353 18 37 99 64 (medical professionals) +353 18 09 21 66 (public)	
Malta	Malta Competition and Consumer Affairs Authority (MCCAA)	+356 2395 2000 1774 helpline for accidental poisoning	
United Kingdom	Emergency number England	999 NHS 111	or call a doctor

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Skin corrosion/irritation, Category 2 H315
Serious eye damage/eye irritation, Category 1 H318
Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Causes skin irritation. Causes serious eye damage.

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2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS05

Signal word (CLP)

: Danger

Contains

: Ethane, 1,1'-oxybis[2-ethoxy-; 2(3H)-Furanone, dihydro-; Ethanol, 2-[2-(2-butoxyethoxy)ethoxy]-

Hazard statements (CLP)

: H315 - Causes skin irritation.
H318 - Causes serious eye damage.

Precautionary statements (CLP)

: P264 - Wash hands, forearms and face thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a POISON CENTER or doctor.
P321 - Specific treatment (see supplemental first aid instruction on this label).

2.3. Other hazards

Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Ethane, 1,1'-oxybis[2-ethoxy-	CAS-No.: 112-36-7 EC-No.: 203-963-7 REACH-no: 01-2119969946-13	55 – 65	Skin Irrit. 2, H315
2(3H)-Furanone, dihydro-	CAS-No.: 96-48-0 REACH-no: 01-2119471839-21	< 20	Acute Tox. 4 (Oral), H302 (ATE=800 mg/kg bodyweight) Eye Dam. 1, H318 STOT SE 3, H336
Dialkylene glycol dialkyl ether	-	10 – 20	Not classified
Ethanol, 2-[2-(2-butoxyethoxy)ethoxy]-	CAS-No.: 143-22-6 EC-No.: 205-592-6 EC Index-No.: 603-183-00-0	1 – 10	Eye Dam. 1, H318

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Resin	-	1 – 10	Not classified
Colourants	-	1 – 5	Not classified

Specific concentration limits:		
Name	Product identifier	Specific concentration limits (%)
Ethanol, 2-[2-(2-butoxyethoxy)ethoxy]-	CAS-No.: 143-22-6 EC-No.: 205-592-6 EC Index-No.: 603-183-00-0	(20 ≤ C < 30) Eye Irrit. 2; H319 (30 ≤ C ≤ 100) Eye Dam. 1; H318

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures
4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.
First-aid measures for first aider	: First aid workers will be equipped with suitable personal protective equipment.

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

Symptoms/effects after inhalation	: Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
Symptoms/effects after skin contact	: Irritation.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: None under normal conditions.

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

Treat symptomatically.

SECTION 5: Firefighting measures
5.1. Extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Explosion hazard	: No direct explosion hazard.
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

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5.3. Advice for firefighters

- Firefighting instructions : Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

- General measures : Stop leak if safe to do so. Absorb spillage to prevent material damage.

For non-emergency personnel

- Protective equipment : Wear recommended personal protective equipment.
- Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes.

For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
- Emergency procedures : Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.
- Methods for cleaning up : Take up liquid spill into absorbent material.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

- Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment.
- Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Keep in a cool, well-ventilated place away from heat.
- Storage conditions : Keep cool. Protect from sunlight.
- Packaging materials : Store always product in container of same material as original container.

7.3. Specific end use(s)

Inkjet Printing ink.

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SECTION 8: Exposure controls/personal protection
8.1. Control parameters
DNEL and PNEC

Ethane, 1,1'-oxybis[2-ethoxy- (112-36-7)]	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	3.43 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	50.05 mg/m ³
DNEL/DMEL (General population)	
Long-term - systemic effects, oral	1.71 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	5.96 mg/m ³
Long-term - systemic effects, dermal	1.71 mg/kg bodyweight/day
Ethanol, 2-[2-(2-butoxyethoxy)ethoxy]- (143-22-6)	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	400 mg/kg bodyweight/day
Acute - systemic effects, inhalation	96 mg/m ³
Acute - local effects, dermal	8.35 mg/cm ²
Acute - local effects, inhalation	96 mg/m ³
Long-term - systemic effects, dermal	1005 mg/kg bodyweight/day
Long-term - local effects, dermal	5.65 mg/cm ²
Long-term - systemic effects, inhalation	24 mg/m ³
Long-term - local effects, inhalation	30.5 mg/m ³
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	200 mg/kg bodyweight/day
Acute - systemic effects, inhalation	48 mg/m ³
Acute - systemic effects, oral	103.4 mg/kg bodyweight/day
Acute - local effects, dermal	4.173 mg/cm ²
Acute - local effects, inhalation	48 mg/m ³
Long-term - systemic effects, oral	50.25 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	12 mg/m ³
Long-term - systemic effects, dermal	502.5 mg/kg bodyweight/day
Long-term - local effects, dermal	2.823 mg/cm ²
Long-term - local effects, inhalation	15.252 mg/m ³

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Ethanol, 2-[2-(2-butoxyethoxy)ethoxy]- (143-22-6)	
PNEC (Water)	
PNEC aqua (freshwater)	100 mg/l
PNEC aqua (marine water)	142.57 mg/l
PNEC aqua (intermittent, freshwater)	22 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	11.115 mg/kg dwt
PNEC sediment (marine water)	1.1115 mg/kg dwt
PNEC (Soil)	
PNEC soil	11.51 mg/kg dwt
PNEC (Oral)	
PNEC oral (secondary poisoning)	525.5 mg/kg food
PNEC (STP)	
PNEC sewage treatment plant	199.5 mg/l

8.2. Exposure controls
Appropriate engineering controls
Appropriate engineering controls:

Ensure good ventilation of the work station.

Personal protection equipment
Personal protective equipment:

Wear recommended personal protective equipment.

Eye and face protection
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 or chemical splash goggles.

Skin protection
Skin and body 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.

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.

Respiratory protection
Respiratory protection:

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).

Environmental exposure controls
Environmental exposure controls:

Avoid release to the environment.

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Other information:

Wash hands immediately after handling the product. And wash it before reuse. Do not eat, drink or smoke during work.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: orange.
Odour	: characteristic.
Odour threshold	: Not available
Melting point	: Not applicable
Freezing point	: Not available
Boiling point	: Not available
Flammability	: Not available
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: > 71 °C
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: Not available
Solubility	: Water solubility.
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: 0.9 – 1
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

Other safety characteristics

VOC content : ≤ 950 g/l

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions.

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10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

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

SECTION 11: Toxicological information
11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral) : Not classified (Based on available data, the classification criteria are not met).
 Acute toxicity (dermal) : Not classified (Based on available data, the classification criteria are not met)
 Acute toxicity (inhalation) : Not classified (Based on available data, the classification criteria are not met)

TH-OR

LD50 oral	1582 mg/kg bodyweight
LC50 Inhalation - Rat (Vapours)	5.1 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.
 pH: Not available
 Serious eye damage/irritation : Causes serious eye damage.
 pH: Not available
 Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met)
 Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)
 Carcinogenicity : IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).

2(3H)-Furanone, dihydro- (96-48-0)

IARC group	3 - Not classifiable
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Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met)
 STOT-single exposure : Not classified (Based on available data, the classification criteria are not met)
 STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met)
 Aspiration hazard : Not classified (Based on available data, the classification criteria are not met)

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information
12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
 Hazardous to the aquatic environment, short-term (acute) : Not classified (Based on available data, the classification criteria are not met)
 Hazardous to the aquatic environment, long-term (chronic) : Not classified (Based on available data, the classification criteria are not met)

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12.2. Persistence and degradability

TH-OR

Persistence and degradability	No data available.
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12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Disposal must be done according to official regulations.
Additional information	: Do not re-use empty containers.
European List of Waste (LoW, EC 2000/532)	: 08 03 12* - waste ink containing dangerous substances

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not regulated for transport				
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated

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ADR	IMDG	IATA	ADN	RID
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

14.6. Special precautions for user
Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

Not regulated

Rail transport

Not regulated

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
EU-Regulations
REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Dual-Use Regulation (428/2009)

Contains no substance subject to the COUNCIL REGULATION (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items.

VOC Directive (2004/42)

VOC content : ≤ 950 g/l

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Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information
Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic

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Abbreviations and acronyms:	
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disruptor

Full text of H- and EUH-statements:	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Narcosis

RDG Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.