

Safety Data Sheet

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

1.1. Product identifier

ECO-UV, EUV-PR

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

Inkjet Printing

1.3. Details of the supplier of the safety data sheet

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

E-mail Address:

Prepared date: 11 May, 2016

1.4. Emergency telephone:

2. Hazard identification

2.1. Classification of the substance or mixture

This product is classified as dangerous according to GHS.

| | |
|---|---|
| Flammable liquids | Category 4 |
| Skin corrosion/irritation | Category 2 |
| Eye damage/irritation | Category 2A |
| Sensitization - skin | Category 1 |
| Toxic to reproduction | Category 2 |
| Specific target organ toxicity (Single exposure) | Category 3 (Respiratory tract irritation) |
| Specific target organ toxicity (Repeated exposure) | Category 2 |

2.2. GHS label elements, including precautionary statements

Pictogram



Signal word(s)

Warning

Hazard statement(s)

Combustible liquid.
 Causes skin irritation.
 Causes serious eye irritation.
 May cause an allergic skin reaction.
 Suspected of damaging fertility or the unborn child
 May cause respiratory irritation.
 May cause damage to organs through prolonged or repeated exposure.

Precautionary statement(s)

Prevention

Do not handle until all safety precautions have been read and understood.
 Do not breathe dust/fume/gas/mist/vapours/spray.
 Wear protective gloves/protective clothing/eye protection/face protection.

Response

IF ON SKIN: Wash with plenty of soap and water.
 IF exposed or concerned: Get medical advice/attention.

2.3. Other hazards

Potential Health Effects:

Eyes:

Causes severe eye injury which may persist for several days.

Skin:

Contact with skin may cause irritation, swelling or redness, allergy and/or sensitization.

Inhalation:

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

Ingestion:

May cause injury of mouth ,throat, and stomach.

Chronic Health Hazards:

Repeated skin contact may cause a persistent irritation or dermatitis.

Carcinogenicity:

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

3. Composition/information on ingredients
Chemical nature: mixture

| Composition | CAS No. | EC No. | EU registration No. | % By Weight | Classification EC No. 1272/2008 |
|---|------------|-----------|-----------------------|-------------|---|
| Benzyl acrylate | 2495-35-4 | 219-673-9 | N/A for the moment | 60-70 | Skin Irrit. 2: H315 Eye Irrit. 2: H319 Skin Sens. 1: H317 STOT SE 3: H335 |
| 1-vinylhexahydro-2H-azepin-2-one | 2235-00-9 | 218-787-6 | N/A for the moment | <10 | Acute Tox.(oral) 4 : H302 Eye Irrit. 2 : H319 Skin Sens. 1B : H317 STOT Rep. Exp. 1 : H372 |
| Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide | 75980-60-8 | 278-355-8 | N/A for the moment | 10-20 | Repr. 2: H361f |
| Poly[oxy(methyl-1,2-ethanediyl), .alpha., .alpha., .alpha."-1,2,3-propanetriyltris[.omega.-[(1-oxo-2-propenyl)oxy]]-. | 52408-84-1 | 500-114-5 | N/A for the moment | <1 | Eye Irrit. 2: H319 Skin Sens. 1: H317 |
| 2,5-Cyclohexadien-1-one, 2,6-bis(1,1-dimethylethyl)-4-(phenylmethylene)- | 7078-98-0 | 429-460-4 | N/A for the moment | <1 | Skin Sens. 1: H317 Aquatic Chronic 4 : H413 |

*For the full text of the H-Statements and R-phrases 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 at least 15 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, injury, dermatitis, allergy and/or sensitization.
- Inhalation: Vapors or mist, especially as generated from heating the material or as from exposure in poorly ventilated areas or confined spaces, may be harmful to the unborn child and at the risk of impaired fertility irritate nose, throat/respiratory system.
- Ingestion: May cause injury of mouth ,throat, and stomach.

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

No information

5. Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media:
Dry chemical, Foam, Carbon dioxide, Dry sand, Loaded stream in spray
- Unsuitable extinguishing media:
High-pressure water jet

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition produ Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic gases/vapors.
Flash Point: >70deg.C

5.3. Advice for firefighters

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus. 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

General:

Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill. Absorb spill with sand or earth then place in a chemical waste container.

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. Scrub contaminated area with detergent and water.

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. Do not dismantle container. Make sure cartridge is dry before insertion into printer housing.

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:

EU: DNEL

| components | Long term exposure | Short term exposure |
|--|-------------------------|---------------------|
| Poly[oxy(methyl-1,2-ethanediyl)], .alpha., .alpha.', .alpha."-1,2,3-propanetriyltris[.omega.-[(1-oxo-2-propenyl)oxy]]- | 16.22 mg/m ³ | - |
| 1-vinylhexahydro-2H-azepin-2-one | 4.9mg/m ³ | - |
| Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide | 3.5mg/m ³ | - |

REACH Toxicological Information (Workers - Hazard via inhalation route)

8.2 Exposure controls:

Occupational Exposure controls Provide general and/or local exhaust ventilation.

Personal protective equipment:

Eye protection:

Employee must wear splash-proof or dust safety goggles and a faceshield to prevent contact with this product. The employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.

Skin protection:

Employee must wear appropriate protective impervious clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Hand protection:

Employee must wear appropriate protective impervious gloves to prevent contact with this substance.

Recommended Chemical-Protective Gloves are polyvinyl alcohol (PVA) Gloves and Laminate gloves. Laminate gloves are made by cutting and then heat-sealing patterns of various hand sizes from laminated sheets of PVA sealed between layers of polyethylene.

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

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: | Clear Yellow Liquid |
| Odor: | Characteristic odor |
| pH: | Not applicable |
| Boiling point (deg.C) | No data available |
| Flash point (deg.C) | > 70deg.C |
| Ignition temperature(deg.C) | No data available |
| Flammability limits(vol-%) | No data available |
| Specific Gravity(H ₂ O=1) (g/cm ³ , 20deg.C) | 1.00-1.10 |
| Explosive properties: | No data available |
| Oxidizing properties: | No data available |
| Vapor pressure: | No data available |
| Solubility: | No data available |
| Solubility in water (g/l, 20deg.C) | Insoluble |
| Partition coefficient: n-octanol/water: | No data available |
| Viscosity: | No data available |
| Melting Point : | No data available |
| Evaporation Rate(Butyl Acetate=1) | No data available |
| Vapor Density(AIR=1) | >1 |

9.2. Other information: No information

10. Stability and reactivity

| | |
|---|--|
| 10.1. Reactivity: | High temperatures and UV light may cause rapid polymerization. |
| 10.2. Chemical stability: | Unstable. Polymerize under heat and/or light. |
| 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: | No data available |
| Serious eye damage/eye irritation: | No data available Causes serious eye irritation. (Acrylic esters) |
| Skin corrosion/irritation: | No data available Causes skin irritation.(Benzyl acrylate) |
| Respiratory or skin sensitisation: | No data available May cause an allergic skin reaction.(Acrylic esters) |
| Germ cell mutagenicity: | No data available |
| Reproductive toxicity: | No data available Suspected of damaging fertility or the unborn child.(Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide) |
| Carcinogenicity: | None of the ingredients in this ink is listed by IARC as a carcinogen. (1,2A and 2B) |
| STOT-single exposure: | No data available May cause respiratory irritation. (Benzyl acrylate) |
| STOT-repeated exposure: | No data available Cause damage to organs through prolonged or repeated exposure. (1-vinylhexahydro-2H-azepin-2-one) |
| Aspiration hazard: | No data available |

12. Ecological information

| | |
|---|--|
| 12.1. Toxicity: | No data available |
| 12.2. Persistence and degradability: | No data available |
| 12.3. Bioaccumulative potential: | No data available |
| 12.4. Mobility in soil: | No data available |
| 12.5. Results of PBT and vPvB assessment: | Has not carried out PBT and vPvB assessment. |
| 12.6. Other adverse effects: | No data available |

13. Disposal considerations

13.1. Waste treatment methods:

This product is considered as a hazardous waste according to Directive 2008/98/EC.

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

14. Transport information

| | |
|---|---|
| 14.1. UN Class/UN Number: | |
| ADR/ADG/DOT, IMDG, or IATA : | Not regulated |
| 14.2. UN proper shipping name: | |
| ADR/ADG/DOT, IMDG, or IATA : | Not regulated |
| 14.3. Transport hazard class(es): | |
| ADR/ADG/DOT, IMDG, or IATA : | Not regulated |
| 14.4. Packing group: | |
| ADR/ADG/DOT, IMDG, or IATA : | Not regulated |
| 14.5. Environmental hazards: | |
| ADR/ADG/DOT, IMDG, or IATA : | Not regulated |
| 14.6. Special precautions for user: | 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

US information:

Toxic Substances Control Act (TSCA):

All components of this product are listed on the TSCA Inventory.

SARA Title III:

Section 313: Not regulated

California; Proposition 65: Not regulated

EU information:

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

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

Australia Information:

Hazardous statement: Classified as hazardous according to NOHSC criteria.

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:

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

H361f Suspected of damaging fertility.

H372 Causes damage to organs through prolonged or repeated exposure.

H413 May cause long lasting harmful effects to aquatic life.

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.