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## Safety Data Sheet

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

#### 1.1. Product identifier:

TrueVIS Element Ink, TE-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

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: 6 November, 2019

#### 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

#### 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.

**Precautionary statement(s)**

Prevention	Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Wear protective gloves/protective clothing/eye protection/face protection.
Response	IF ON SKIN: Wash with plenty of soap and water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention.

**2.3. Other hazards**
**Potential Health Effects:**

Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic sensitization.
Inhalation:	Exposure to vapors (mist) 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)

**3. Composition/information on ingredients**
**Chemical nature:** mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008
Colorant	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	203-963-7	01-211996994-6-13	60-70	Skin Irrit. 2: H315
ε-Caprolactone	502-44-3	207-938-1	N/A for the moment	10-20	Eye Irrit. 2: H319
Resin	C.B.I.	C.B.I.	N/A for the moment	10-20	Not classified as hazardous
Surfactant	C.B.I.	C.B.I.	N/A for the moment	≤2	Not classified as hazardous

\*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

Flash Point: >82 deg.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:

EU:

DNEL

components	Long term exposure	Short term exposure
ε-Caprolactone	10.4mg/m <sup>3</sup>	-
Diethylene glycol diethyl ether	50.05mg/m <sup>3</sup>	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

8.2. Exposure controls:

Appropriate engineering controls Provide general and/or local exhaust ventilation.

Respiratory protection: In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory 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.

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

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

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

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

Environmental exposure control: Avoid release to the environment.

## 9. Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Appearance:	Cyan Liquid
Odour:	Slightly
Odour threshold:	No data available
pH:	No data available
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	>189 deg.C
Flash point:	>82 deg.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:	No data available
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	7.2 ± 0.5 cps
Explosive properties:	No data available
Oxidizing properties:	None
Volatile organic compounds (VOC) content:	870 gram/liter (maximum value)

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 a
10.6. Hazardous decomposition products:	None under normal temperature

## 11. Toxicological information

### 11.1. Information on toxicological effects

Routes Of Overexposure:	Eye, skin, inhalation, and oral
Acute toxicity:	Diethylene glycol diethyl ether LD50 ( oral-rat ) 4790 mg/kg LD50 ( skin-rabbit ) 6700 uL/kg
Skin corrosion/irritation:	No data available Causes skin irritation. (Diethylene glycol diethyl ether)
Serious eye damage/eye irritation:	No data available Causes serious eye irritation. (ε-Caprolactone)
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)
STOT-single exposure:	No data available
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available

## 12. Ecological information

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

## 13. Disposal considerations

### 13.1. Waste treatment methods:

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

## 14. Transport information

14.1. UN Class/UN Number: ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.2. UN proper shipping name: ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.3. Transport hazard class(es): ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.4. Packing group: ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.5. Environmental hazards: ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.6. Special precautions for user:	Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:	Not regulated

## 15. Regulatory information

### EU Information:

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

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

### Australia Information:

Hazardous statement: 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:

H315 Causes skin irritation.

H319 Causes serious eye irritation.

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:

TrueVIS Element Ink, TE-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

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: 6 November, 2019

#### 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

#### 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.

**Precautionary statement(s)**

Prevention	Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Wear protective gloves/protective clothing/eye protection/face protection.
Response	IF ON SKIN: Wash with plenty of soap and water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention.

**2.3. Other hazards**
**Potential Health Effects:**

Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic sensitization.
Inhalation:	Exposure to vapors (mist) 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)

**3. Composition/information on ingredients**
**Chemical nature:** mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008
Colorant	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	203-963-7	01-211996994-6-13	60-70	Skin Irrit. 2: H315
$\epsilon$ -Caprolactone	502-44-3	207-938-1	N/A for the moment	10-20	Eye Irrit. 2: H319
Resin	C.B.I.	C.B.I.	N/A for the moment	10-20	Not classified as hazardous
Surfactant	C.B.I.	C.B.I.	N/A for the moment	$\leq 2$	Not classified as hazardous

\*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

Flash Point: >82 deg.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:

EU:

DNEL

components	Long term exposure	Short term exposure
ε-Caprolactone	10.4mg/m <sup>3</sup>	-
Diethylene glycol diethyl ether	50.05mg/m <sup>3</sup>	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

8.2. Exposure controls:

Appropriate engineering controls Provide general and/or local exhaust ventilation.

Respiratory protection: In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory 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.

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

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

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

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

Environmental exposure control: Avoid release to the environment.

## 9. Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Appearance:	Magenta Liquid
Odour:	Slightly
Odour threshold:	No data available
pH:	No data available
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	>189 deg.C
Flash point:	>82 deg.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:	No data available
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	7.2 ± 0.5 cps
Explosive properties:	No data available
Oxidizing properties:	None
Volatile organic compounds (VOC) content:	870 gram/liter (maximum value)

### 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 a
10.6. Hazardous decomposition products:	None under normal temperature

## 11. Toxicological information

### 11.1. Information on toxicological effects

Routes Of Overexposure:	Eye, skin, inhalation, and oral
Acute toxicity:	Diethylene glycol diethyl ether LD50 ( oral-rat ) 4790 mg/kg LD50 ( skin-rabbit ) 6700 uL/kg
Skin corrosion/irritation:	No data available Causes skin irritation. (Diethylene glycol diethyl ether)
Serious eye damage/eye irritation:	No data available Causes serious eye irritation. (ε-Caprolactone)
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)
STOT-single exposure:	No data available
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available

## 12. Ecological information

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

## 13. Disposal considerations

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

## 14. Transport information

14.1. UN Class/UN Number: ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.2. UN proper shipping name: ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.3. Transport hazard class(es): ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.4. Packing group: ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.5. Environmental hazards: ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.6. Special precautions for user:	Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:	Not regulated

## 15. Regulatory information

### EU Information:

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

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

### Australia Information:

Hazardous statement: 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:

H315 Causes skin irritation.

H319 Causes serious eye irritation.

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.

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## Safety Data Sheet

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

#### 1.1. Product identifier:

TrueVIS Element Ink, TE-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

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: 6 November, 2019

#### 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

#### 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.

**Precautionary statement(s)**

Prevention	Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Wear protective gloves/protective clothing/eye protection/face protection.
Response	IF ON SKIN: Wash with plenty of soap and water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention.

**2.3. Other hazards**
**Potential Health Effects:**

Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic sensitization.
Inhalation:	Exposure to vapors (mist) 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:	The product contains Nickel compounds. IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).

**3. Composition/information on ingredients**
**Chemical nature:** mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008
Colorant	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	203-963-7	01-211996994-6-13	60-70	Skin Irrit. 2: H315
ε-Caprolactone	502-44-3	207-938-1	N/A for the moment	10-20	Eye Irrit. 2: H319
Resin	C.B.I.	C.B.I.	N/A for the moment	10-20	Not classified as hazardous
Surfactant	C.B.I.	C.B.I.	N/A for the moment	≤2	Not classified as hazardous

\*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

Flash Point: >82 deg.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:

EU:

DNEL

components	Long term exposure	Short term exposure
ε-Caprolactone	10.4mg/m <sup>3</sup>	-
Diethylene glycol diethyl ether	50.05mg/m <sup>3</sup>	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

US:

components	OSHA:PEL	ACGIH:TLV
Nickel, metal and insoluble compounds (as Ni)	TWA: 1mg/m <sup>3</sup>	-

8.2. Exposure controls:

Appropriate engineering controls Provide general and/or local exhaust ventilation.

Respiratory protection:

In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory 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.

Hand protection:

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

Eye protection:

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

Skin protection:

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

Hygiene measures:

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

Environmental exposure control:

Avoid release to the environment.



## 9. Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Appearance:	Yellow Liquid
Odour:	Slightly
Odour threshold:	No data available
pH:	No data available
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	>189 deg.C
Flash point:	>82 deg.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:	No data available
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	7.2 ± 0.5 cps
Explosive properties:	No data available
Oxidizing properties:	None
Volatile organic compounds (VOC)	870 gram/liter (maximum value)

### 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 a
10.6. Hazardous decomposition products:	None under normal temperature

## 11. Toxicological information

### 11.1. Information on toxicological effects

Routes Of Overexposure:	Eye, skin, inhalation, and oral
Acute toxicity:	Diethylene glycol diethyl ether
	LD50 ( oral-rat ) 4790 mg/kg
	LD50 ( skin-rabbit ) 6700 uL/kg
Skin corrosion/irritation:	No data available
	Causes skin irritation. (Diethylene glycol diethyl ether)
Serious eye damage/eye irritation:	No data available
	Causes serious eye irritation. (ε-Caprolactone)
Respiratory or skin sensitisation:	No data available
Germ cell mutagenicity:	No data available
Reproductive toxicity:	No data available
Carcinogenicity:	The product contains Nickel compounds. IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).

STOT-single exposure:	No data available
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available

## 12. Ecological information

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

## 13. Disposal considerations

### 13.1. Waste treatment methods:

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

## 14. Transport information

14.1. UN Class/UN Number:	
ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.2. UN proper shipping name:	
ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.3. Transport hazard class(es):	
ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.4. Packing group:	
ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.5. Environmental hazards:	
ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.6. Special precautions for user:	Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:	Not regulated

## 15. Regulatory information

### EU Information:

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

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

### Australia Information:

Hazardous statement: Classified as hazardous according to NOHSC criteria.

### International Information:

The product contains Nickel compounds.

IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).

## 16. Other Information

### List of relevant H-Statements:

H315 Causes skin irritation.

H319 Causes serious eye irritation.

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.

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## Safety Data Sheet

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

#### 1.1. Product identifier:

TrueVIS Element Ink, TE-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

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: 6 November, 2019

#### 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

#### 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.

**Precautionary statement(s)**

Prevention	Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Wear protective gloves/protective clothing/eye protection/face protection.
Response	IF ON SKIN: Wash with plenty of soap and water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention.

**2.3. Other hazards**
**Potential Health Effects:**

Eyes:	Causes severe eye injury which may persist for several days.
Skin:	Contact with skin may cause irritation, swelling or redness, allergic sensitization.
Inhalation:	Exposure to vapors (mist) 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:	The product contains Carbon black. IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).

**3. Composition/information on ingredients**
**Chemical nature:** mixture

Composition	CAS No.	EC No.	EU registration No.	% By Weight	Classification EC No. 1272/2008
Carbon black	C.B.I.	C.B.I.	N/A for the moment	1-5	Not classified as hazardous
Diethylene glycol diethyl ether	112-36-7	203-963-7	01-211996994-6-13	60-70	Skin Irrit. 2: H315
ε-Caprolactone	502-44-3	207-938-1	N/A for the moment	10-20	Eye Irrit. 2: H319
Resin	C.B.I.	C.B.I.	N/A for the moment	10-20	Not classified as hazardous
Surfactant	C.B.I.	C.B.I.	N/A for the moment	≤2	Not classified as hazardous

\*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

Flash Point: >82 deg.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:

EU:

DNEL

components	Long term exposure	Short term exposure
ε-Caprolactone	10.4mg/m <sup>3</sup>	-
Diethylene glycol diethyl ether	50.05mg/m <sup>3</sup>	-

REACH Toxicological Information (Workers - Hazard via inhalation route)

Australia: OELs

components	TWA
Carbon black	3mg/m <sup>3</sup>

8.2. Exposure controls:

Appropriate engineering controls Provide general and/or local exhaust ventilation.

Respiratory protection: In case ventilation is insufficient, employee must use NIOSH approved air purifying respiratory 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.

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

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

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

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

Environmental exposure control: Avoid release to the environment.

**9. Physical and chemical properties**

9.1. Information on basic physical and chemical properties

Appearance:	Black Liquid
Odour:	Slightly
Odour threshold:	No data available
pH:	No data available
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	>189 deg.C
Flash point:	>82 deg.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:	No data available
Solubility(ies):	Water solubility: Soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	7.2 ± 0.5 cps
Explosive properties:	No data available
Oxidizing properties:	None
Volatile organic compounds (VOC)	870 gram/liter (maximum value)

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 a
10.6. Hazardous decomposition products:	None under normal temperature

**11. Toxicological information**

11.1. Information on toxicological effects

Routes Of Overexposure:	Eye, skin, inhalation, and oral
Acute toxicity:	Diethylene glycol diethyl ether
	LD50 ( oral-rat ) 4790 mg/kg
	LD50 ( skin-rabbit ) 6700 uL/kg
Skin corrosion/irritation:	No data available Causes skin irritation. (Diethylene glycol diethyl ether)
Serious eye damage/eye irritation:	No data available Causes serious eye irritation. (ε-Caprolactone)
Respiratory or skin sensitisation:	No data available
Germ cell mutagenicity:	No data available
Reproductive toxicity:	No data available
Carcinogenicity:	The product contains Carbon black. IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).

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STOT-single exposure:	No data available
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available

## 12. Ecological information

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

## 13. Disposal considerations

### 13.1. Waste treatment methods:

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

## 14. Transport information

14.1. UN Class/UN Number:	
ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.2. UN proper shipping name:	
ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.3. Transport hazard class(es):	
ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.4. Packing group:	
ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.5. Environmental hazards:	
ADR/ADG/DOT, IMDG, or IATA :	Not regulated
14.6. Special precautions for user:	Transport and storage of the product in accordance with general precautions and instructions mentioned in this SDS.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code:	Not regulated

## 15. Regulatory information

### EU Information:

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

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

### Australia Information:

Hazardous statement: Classified as hazardous according to NOHSC criteria.

### International Information:

The product contains Carbon black.

IARC evaluated printing ink as a Group3(Not classifiable as to carcinogenicity to humans).



**16. Other Information**

List of relevant H-Statements:

H315 Causes skin irritation.

H319 Causes serious eye irritation.

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.