

# Safety Data Sheet

Issue date 18-Apr-2016 (DD-MMM-YYYY)

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

### Product Name

**Product name** ECO SOLVENT ES211 BLACK  
**H- Product code** 013735  
**E- Product code** S6082247-LU12014U-LU12014U

### Recommended use of the product and restriction on use

**Recommended Use** Ink jet ink (solvent-based)

### Supplier information

DGI  
52, CHEONGDAM-RO,  
YANGJU-SI, KOREA, 11459  
TEL : + 82-31-820-8900  
FAX: + 82-31-820-8990

**Emergency Telephone** -

## SECTION 2: Hazards identification

### Hazard/Toxicity classification

#### Physical Hazards

#### Health Hazards

Serious eye damage/eye irritation	Category 2
Specific target organ toxicity (repeated exposure)	Category 1

#### Environmental toxicity

### Pictogram including precautionary statements

#### Pictogram



**Signal Word**  
DANGER

#### hazard statements

H319 - Causes serious eye irritation  
H372 - Causes damage to organs through prolonged or repeated exposure

#### precautionary statements

**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 Do not eat, drink or smoke when using this product

**Precautionary Statements - Response**

Get medical advice/attention if you feel unwell

**eye**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

If eye irritation persists: Get medical advice/attention

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified**

- Not applicable

**SECTION 3: Composition/information on ingredients**

**Single Substance or Mixture**                      mixture

**Ingredients contributing to the classification of the mixture, etc.**

Chemical name	CAS No	Identification number of Korea	Existing Substance Number	weight-%
1-Ethoxy-2-(2-methoxyethoxy)ethane	1002-67-1	2004-3-2613	-	50-60
Diethylene glycol diethyl ether	112-36-7	-	KE-03123	20-30
Propylene carbonate	108-32-7	-	KE-23785	5-10
Carbon black	1333-86-4	-	KE-04682	1-5

**SECTION 4: First aid measures**

**Eye Contact**

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes  
 If symptoms persist, call a physician  
 Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes  
 Keep eye wide open while rinsing  
 If eye irritation persists: Get medical advice/attention

**skin**

**Skin contact**

Wash off immediately with plenty of water for at least 15 minutes  
 If skin irritation persists, call a physician  
 Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes  
 Get medical attention if irritation develops and persists

**inhalation**

**inhalation**

Remove to fresh air  
 If symptoms persist, call a physician  
 Move to fresh air in case of accidental inhalation of vapors  
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 If breathing is irregular or stopped, administer artificial respiration  
 Seek immediate medical attention/advice

## INGESTION

**INGESTION**  
Clean mouth with water  
Clean mouth with water and drink afterwards plenty of water  
Do NOT induce vomiting  
Never give anything by mouth to an unconscious person  
Call a physician  
Potential for aspiration if swallowed  
Get medical attention

### Note to physicians

**General advice**  
If symptoms persist, call a physician  
Do not breathe dust/fume/gas/mist/vapors/spray  
Do not get in eyes, on skin, or on clothing

**Note to physicians**  
Treat symptomatically

## SECTION 5: Fire fighting measures

### Suitable (Unsuitable) extinguishing media

**Suitable extinguishing media** CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam, mist of alkali salts water  
Move containers from fire area if you can do it without risk  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment  
Remove combustible materials from their surroundings immediately

**Unsuitable extinguishing media** Do not use a solid water stream as it may scatter and spread fire

### Specific hazards arising from the chemical

### Precaution and protective equipment for fire fighters

**Special protective equipment for fire-fighters** Use personal protective equipment as required  
In the event of fire and/or explosion do not breathe fumes  
Special protective equipment for fire-fighters

**Flammable properties**  
May re-ignite after fire is extinguished  
FLAMMABLE  
Containers may explode when heated  
Will form explosive mixtures with air  
Vapors from liquefied gas are initially heavier than air and spread along ground

**Special Extinguishing Media** Cool container with water spray

## SECTION 6: Accidental release measures

### Personal precaution and protective equipment

**Personal precautions**

Use personal protective equipment as required  
Avoid contact with skin, eyes and inhalation of vapors  
Evacuate personnel to safe areas  
Keep people away from and upwind of spill/leak  
Stay upwind  
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area)  
In the case of vapor formation use a respirator with filter model  
In case of fire: Stop leak if safe to do so  
Do not touch damaged containers or spilled material unless wearing appropriate protective clothing  
Ensure adequate ventilation, especially in confined areas  
Wash thoroughly after handling  
Take precautionary measures against static discharges

**Environmental Precautions**

**Environmental Precautions**

Prevent entry into waterways, sewers, basements or confined areas  
Do not flush into surface water or sanitary sewer system  
Prevent further leakage or spillage if safe to do so  
Prevent product from entering drains  
See Section 12 for additional Ecological Information  
Dispose of contents/container to an approved waste disposal plant  
Avoid release to the environment  
Collect spillage

**Method for containment and cleaning up**

**Methods for Containment**

Prevent further leakage or spillage if safe to do so

**Methods for cleaning up**

Soak up with inert absorbent material  
Pick up and transfer to properly labeled containers  
After cleaning, flush away traces with water  
Prevent product from entering drains  
Dam up  
Use only non-sparking tools

**OTHER INFORMATION**

Ventilate the area

**SECTION 7: Handling and storage**

**Advice on safe handling**

**Advice on safe handling**

Ensure adequate ventilation, especially in confined areas  
Use personal protection recommended in Section 8  
Use with local exhaust ventilation  
Do not breathe dust/fume/gas/mist/vapors/spray  
Take precautionary measures against static discharges  
Use only in well-ventilated areas  
Avoid contact with skin, eyes or clothing  
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea  
Wash contaminated clothing before reuse  
Wash hands thoroughly and gargle after handling  
Burn or dispose of the wiping cloths used to clean up the product at once

**Safety storage(Including condition to avoid)**

**Storage Conditions**

- Keep containers tightly closed in a dry, cool and well-ventilated place
- Keep out of the reach of children
- Keep in properly labeled containers
- Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity)
- Use spark-proof tools and explosion-proof equipment
- Incompatible with oxidizing agents
- Store locked up
- The product shall be stored in the original containers/vessels

**SECTION 8: Exposure controls/personal protection**

**Control parameter**

Chemical name	Korea	China	Japan	ACGIH TLV	OSHA PEL
Carbon black	TWA: 3.5 mg/m <sup>3</sup>	TWA: 4 mg/m <sup>3</sup> total dust STEL: 8 mg/m <sup>3</sup> total dust	4 mg/m <sup>3</sup> (Class 2 Dust,total dust) 1 mg/m <sup>3</sup> (Class 2 Dust,respirable dust)	TWA: 3 mg/m <sup>3</sup> inhalable fraction	TWA: 3.5 mg/m <sup>3</sup>

**Engineering control**

**Engineering controls**

- Ensure adequate ventilation, especially in confined areas
- Showers
- Eyewash stations
- Ventilation systems

**Personal Protective Equipment**

**Respiratory protection**

- Wear suitable respiratory equipment
- Respirator cartridge should be exchanged at regular intervals or at proper time according to breakthrough time

**Eye Protection**

- Tight sealing safety goggles
- Face protection shield
- Wear safety glasses with side shields (or goggles)

**Hand Protection**

- Wear protective gloves

**Body protection**

- Wear suitable protective clothing
- Apron
- Gloves made of plastic or rubber
- Antistatic footwear

**SECTION 9: Physical and chemical properties**

**Physical state(Appearance,color)**

Physical state	liquid
color	colored
ODR	slight odor
odor threshold	No information available

**Property**

**Values**

**Remarks • Flash point measuring method**

pH	Not applicable	
Melting point/Freeze point	no data available	
Initial boiling point/Boiling range	no data available	No information available
Flash Point	≥70°C	Seta Closed Cup
Evaporation Rate	no data available	No information available
Flammability(solid/gas)	combustible	
Explosive limits(lower and upper)		



**Acute toxicity(Including information on likely routes of exposure)**

**Oral LD50**

**dermal LD50**

**Inhalation - Dust/Mist LC50**

**Inhalation - Vapor LC50**

**Component Information**

Chemical name	Oral LD50	dermal LD50	Inhalation LC50	Classification according to Regulation (EC) No. 1272/2008 [CLP] ANNEX VI Table3.1 / Other	Japan GHS Classification
1-Ethoxy-2-(2-methoxyethoxy)ethane	-	-	-	Eye Irrit. 2A (H319)	Eye Irrit. 2A
Diethylene glycol diethyl ether	-	-	-	Eye Irrit. 2A (H319)	Eye Irrit. 2A Flam. Liq. 4
Propylene carbonate	29000 mg/kg ( Rat )	> 20 mL/kg ( Rabbit )	-	Eye Irrit. 2 (H319)	Eye Irrit. 2A
Carbon black	-	-	-	STOT RE 1 (H372)	STOT RE 1 Self-heat. 1 Self-heat. 2

**GHS/CLP Classification Note:**

Acute Tox. Der. :Acute toxicity - Dermal, Acute Tox. Inh. (D/M) :Acute toxicity - Inhalation - Dusts and Mists, Acute Tox. Inh. (Gas) :Acute toxicity - Inhalation - Gases, Acute Tox. Inh. (Vap) :Acute toxicity - Inhalation - Vapours, Acute Tox. Oral :Acute toxicity - Oral, Aquatic Acute :Acute Hazardous to the aquatic environment, Aquatic Chronic :Chronic Hazardous to the aquatic environment, Asp. Tox. :Aspiration hazard, Carc. :Carcinogenicity, Expl. :Explosives, Eye Dam. :Serious eye damage, Eye Irrit. :Eye irritation, Flam. Gas :Flammable gases (including chemically unstable gases), Flam. Liq. :Flammable liquids, Flam. Solid :Flammable solids, Lact. :Effects on or via lactation, Met. Corr. :Corrosive to metals, Muta. :Germ cell mutagenicity, Org. Perox. :Organic peroxides, Ox. Gas :Oxidizing gases, Ox. Liq. :Oxidizing liquids, Ox. Sol. :Oxidizing solids, Press. Gas :Gases under pressure, Pyr. Liq. :Pyrophoric liquids, Pyr. Sol. :Pyrophoric solids, Repr. :Reproductive toxicity, Resp. Sens. :Respiratory sensitization, Self-heat. :Self-heating substances and mixtures, Self-react. :Self-reactive substances and mixtures, Skin Corr. :Skin corrosion, Skin Irrit. :Skin irritation, Skin Sens. :Skin sensitization, STOT RE :Specific target organ toxicity – Repeated exposure, STOT SE :Specific target organ toxicity – Single exposure, Water-react. :Substances and mixtures which, in contact with water emit flammable gases

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**skin corrosion/irritation** No information available

**Serious eye damage/eye irritation** No information available

**Respiratory sensitization Skin sensitization** No information available

**carcinogenicity**

Chemical name	IARC
Carbon black	Group 2B

**IARC Note:**

Group 1:Carcinogenic to humans, Group 2A:Probably carcinogenic to humans, Group 2B:Possibly carcinogenic to humans, Group 3:Not classifiable as to carcinogenicity in humans

**Germ Cell Mutagenicity** No information available

**Reproductive Toxicity** No information available

**Specific target organ toxicity(Single exposure)** No information available

**Specific target organ toxicity(Repeated exposure)** No information available

**Aspiration Hazard** No information available

**SECTION 12: Ecological information**

**Eco toxicity** None known

100% of the mixture consists of components(s) of unknown hazards to the aquatic environment

**Persistence and degradability** No information available

**Bioaccumulation** No information available

**Mobility** No information available

**Other adverse effect** No information available

**SECTION 13: Disposal considerations**

**Disposal method** Should not be released into the environment  
Disposal should be in accordance with applicable regional, national and local laws and regulations

**Precaution of disposal(Including method of disposing contaminated packaging and container)**  
Improper disposal or reuse of this container may be dangerous and illegal

**OTHER INFORMATION** Store in a tightly sealed drum to prevent the spillage of the content

**SECTION 14: Transport information**

Containers/vessels must be leakage-free. Loading must be done to prevent containers from falling, dropping down and being damaged  
Take necessary steps to prevent collapse

**UN number** Not applicable  
**Packing group** Not applicable  
**ERG Code** 133  
**Proper shipping name** Not applicable

**IMDG**  
**UN number** Not regulated  
**Packing group** Not applicable

**ICAO (air)**  
**UN number** Not regulated  
**Packing group** Not applicable

**ADR**  
**UN number** Not regulated  
**Packing group** Not applicable

**IATA** Not regulated



**UN number** Not applicable  
**Packing group** Not applicable

**RID** Not regulated  
**UN number** Not applicable  
**Packing group** Not applicable

**SECTION 15: Regulatory information**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

<b>The Industrial Safety and Health Act</b>	Not applicable
<b>Chemical Control Act</b>	Not applicable
<b>Safety Control Of Dangerous Substances Act</b>	Class 4 flammable liquids - Class 3 petroleum chemicals, water soluble, Designation volume, 4,000l
<b>Waste control act</b>	Not applicable
<b>Other domestic or international regulations</b>	

**SECTION 16: Other information**

**Reference**  
**Reference sources** LOLI Database (ChemADVISOR, Inc.)

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**Revision date and revision number**  
**OTHER INFORMATION** No information available

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**End of Safety Data Sheet**