

# SAFETY DATA SHEET

**Date Printed:** October 30, 2019

**Version:** 6

**Regulation:** According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

## 1. Identification

### 1.1 Product identifier

**1.1.1 Product name:** eco-DEHCH

**1.1.2 Other means of identification:** -

### 1.2 Recommended use of the chemical and restrictions on use

**1.2.1 Recommended use:** Chemical additive of PVC, plastic, rubber, ink, glue, paint, lubricant

**1.2.2. Restrictions on use:** Do not use for purposes other than those recommended

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

#### 1.3.1 Manufacturer

Company name: Hanwha Chemical Co, Ltd.

Address: Ulsan plant, Hanwha Chemical Co, Ltd., 22, Yongyeon-ro 230beon-gil, Nam-gu, Ulsan, Korea

Prepared by: Production of plasticizer team(3<sup>rd</sup> Ulsan plant)

Contact Telephone: +82-52-279-1023

#### 1.3.2 Supplier&Distributor

Company name: Hanwha Chemical Co, Ltd.

Address: Hanwha Bldg., Janggyo-dong, Jung-gu, Seoul, Korea

Prepared by: Sales of plasticizer team

Contact Telephone: +82-2-729-2676

### 1.4 Emergency phone number

Emergency phone : : +82-2-729-2676

## 2. Hazard(s) identification

### 2.1 Classification of the substance or mixture

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

#### Physical / Chemical Hazards:

Not available

#### Health Hazards:

Not classified

#### Environmental Hazards:

Not available

### 2.2 Label elements, including precautionary statements

○ **Pictogram and symbol:** Not applicable

○ **Signal word:** Not applicable

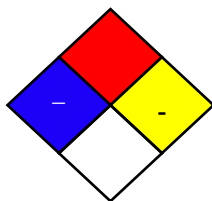
○ **Hazard statements:** Not applicable

○ **Precautionary statements:** Not applicable

○ **Treatment statements:** Not applicable

○ **Storage statements:** Not applicable

○ **Waste statements:** Not applicable

**2.3 Other hazard information not included in hazard classification (NFPA)**


- Health: -
- Flammability: -
- Reactivity: -
- Specific hazard: -

**3. Composition/information on ingredients**

Component	Common name and synonyms	CAS No.	Conc. / %
Bis(2-ethylhexyl) cyclohexane-1,4-dicarboxylate	Not available	84731-70-4	> 99

**4. First-aid measures**
**4.1 Description of first aid measures**
**Eye contact**

- In case of contact with substance, immediately flush eyes with running water at least 20 minutes.

**Skin contact**

- In case of contact with substance, immediately flush skin with running water at least 20 minutes.
- Remove and isolate contaminated clothing and shoes.
- Get immediate medical advice/attention.

**Inhalation**

- Specific medical treatment is urgent.
- Move victim to fresh air.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.

**Ingestion**

- Do not let him/her eat anything, if unconscious.
- Get immediate medical advice/attention.

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

- None known

**4.3 Indication of immediate medical attention and notes for physician**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

**5. Fire-fighting measures**
**5.1 Extinguishing media**

- **Suitable extinguishing media:** Use dry sand, dry fire extinguisher, water spray, normal foam, Carbon Dioxide, when fighting fires involving this material.
- **Unsuitable extinguishing media:** High Pressure Water Jet

**5.2 Specific hazards arising from the chemical**

- May be ignited by heat, sparks or flames.
- Containers may explode when heated.
- Some of these materials may burn, but none ignite readily.

- Fire will produce irritating and/or toxic gases.
- If inhaled, may be harmful.

### **5.3 Special protective equipment and precautions for fire-fighters**

- Move containers from fire area if you can do it without risk.
- Some may be transported hot.
- Runoff from fire control may cause pollution.
- Contact with substance may cause severe burns to skin and eyes.
- Dike fire-control water for later disposal; do not scatter the material.

## **6. Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

- Eliminate all ignition sources.
- Stop leak if you can do it without risk.
- Ventilate the area.
- Do not touch or walk through spilled material.

### **6.2 Environmental precautions**

- Prevent entry into waterways, sewers, basements of confined areas.

### **6.3 Methods and materials for containment and cleaning up**

- Small Spill; Flush area with flooding quantities of water. And take up with sand or other non-combustible absorbent material and place into containers for later disposal.
- Large Spill; Dike far ahead of liquid spill for later disposal.
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

## **7. Handling and storage**

### **7.1 Precautions for safe handling**

- Wash your hands thoroughly after handling.
- Please work with reference to engineering controls and personal protective equipment.
- Be careful to high temperature.

### **7.2 Conditions for safe storage, including any incompatibilities**

- Store in a closed container.
- Store in cool and dry place.

## **8. Exposure controls/personal protection**

### **8.1 Occupational Exposure limits**

- o **ACGIH regulation:** Not available
- o **Biological exposure index:** Not available
- o **OSHA regulation:** Not available
- o **NIOSH regulation:** Not available
- o **EU regulation:** Not available
- o **Other:** Not available

### **8.2 Exposure controls**

**Appropriate engineering controls**

- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

### **Individual protection measures, such as personal protective equipment**

#### **Respiratory protection**

- Use respirators and components tested and approved under appropriate government standards such as NIOSH

#### **Eye protection**

- Wear safety goggles as follow if eye irritation or other disorder occur.
  - ; In case of gaseous state organic material: enclosed safety goggles
  - ; In case of vapour state organic material: safety goggles or breathable safety goggles
  - ; In case of particulate material: breathable safety goggles
- An eye wash unit and safety shower station should be available nearby work place.

#### **Hand protection**

- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

#### **Body protection**

- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.

## **9. Physical and chemical properties**

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

#### **Appearance**

<b>Description:</b>	Liquid
<b>Color:</b>	Colorless
<b>Odor:</b>	Odorless
<b>Odor threshold:</b>	Not available
<b>pH:</b>	6.19 (CIPAC MT 75.3)
<b>Melting point/freezing point:</b>	-40.7 °C
<b>Initial boiling point and boiling range:</b>	406.4 °C
<b>Flash point:</b>	217 °C (Closed-Cup)
<b>Evaporation rate:</b>	Not available
<b>Flammability (solid, gas):</b>	Not applicable
<b>Upper/lower flammability or explosive limits:</b>	Not available
<b>Vapor pressure:</b>	< 1.5mmHg (50 °C)
<b>Vapor density:</b>	Not available
<b>Relative density</b>	0.956 (20 °C)
<b>Solubility:</b>	Insoluble
<b>Partition coefficient: n-octanol/water:</b>	logKow ≥ 6.2
<b>Auto-ignition temperature:</b>	Not available
<b>Decomposition temperature</b>	Not available
<b>Dynamic viscosity:</b>	30-45 mPa.s (20 °C)

“NOTE: The physical data presented above are typical values and should not be construed as a specification”

## **10. Stability and reactivity**

### **10.1 Reactivity/Chemical stability/Possibility of hazardous reactions:**

- Fire may produce irritating and/or toxic gases.
- If inhaled, may be harmful.

**10.2 Conditions to avoid:**

- Keep away from heat/sparks/open flames/hot surfaces. – No smoking

**10.3 Incompatible materials:**

- Combustion materials

**10.4 Hazardous decomposition products:** Irritating, Toxic gases

**11. Toxicological information**

<b>Information on toxicological effects</b>	
(a) Acute toxicity	Not classified
Oral	Not classified
	Rat(female), LD <sub>50</sub> >2,000 mg/kg bw (OECD TG 403, GLP)
Dermal	Not classified
	Rat(female), LD <sub>50</sub> >2,000 mg/kg bw (OECD TG 402, GLP)
Inhalation	Not available
(b) Skin Corrosion/ Irritation	Not classified
	The test substance induced no dermal irritation when applied to male New Zealand white rabbits and was therefore considered a non-irritant. In addition, there was no mortality and no treatment-related clinical signs were observed. (erythema score=0, edema score=0) (OECD TG 404, GLP)
(c) Serious Eye Damage/ Irritation	Not classified
	The test item was considered to be non-irritating to eyes in three New Zealand white rabbits. (cornea score=0, iris score=0, conjunctivae score=0, chemosis score=0) (OECD TG 405, GLP)
(d) Respiratory sensitization	Not available
(e) Skin Sensitization	Not classified
	The highest concentration of the test item (100 %) induced no skin irritation was used in the patch exposure for second induction and challenge. (OECD TG 406, GLP)
(f) Carcinogenicity	Not classified
	- IARC, ACGIH, NTP, OSHA, EU CLP 1272/2008: Not listed
(g) Mutagenicity	Not classified
	<i>in vitro</i> : Mammalian Chromosome Aberration Test(OECD TG 473, GLP), Bacterial Reverse Mutation Test(OECD TG 471, GLP): with/without metabolic activation : Negative <i>in vivo</i> : Mouse, Mammalian Erythrocyte Micronucleus Test(OECD TG 474, GLP): Negative
(h) Reproductive toxicity	Not classified
	- Rats dosed by oral gavage during organogenesis at dose levels of 100, 300 and 1000 mg/kg bw/day did not result in any toxicologically significant effects at any dose level. (OECD TG 414, GLP) - No treatment-related clinical signs and death of SD rats in two generations was found at

	dose level of 0, 40, 200 and 1,000mg/kg.day by gavage. NOAEL is considered to be 1,000 mg/kg.day (OECD TG 416, GLP)
(i) Specific target organ toxicity (single exposure)	Not available
(j) Specific target organ toxicity (repeat exposure)	Not available
(k) Aspiration Hazard	Not available

## 12. Ecological information

12.1 Toxicity	
Acute toxicity	Not classified Fish: <i>Oryzias latipes</i> , LC <sub>50</sub> (96h) >100 mg/L semi-static (OECD TG 203, GLP) Invertebrate: <i>Daphnia magna</i> , EC <sub>50</sub> (48h) >0.17 mg/L (OECD TG 202, GLP) Algae: <i>Pseudokirchneriella subcapitata</i> , EC <sub>50</sub> (72h) >0.27 mg/L static (OECD TG 201, GLP)
Chronic toxicity	Fish: <i>Danio rerio</i> (previous name: <i>Brachydanio rerio</i> ), 28days NOEC > 10 mg/L (OECD TG 215, GLP) <i>Oryzias latipes</i> , NOEC > 0.0657mg/L (OECD TG 210, GLP)
12.2 Persistence and degradability	Persistence: - High persistency (log Kow is more than 4 estimated.) (LogKow ≥ 6.2) Degradability: - Bis(2-ethylhexyl) cyclohexane-1,4-dicarboxylate: 0.487day
12.3 Bio-accumulative potential	Bioaccumulation: Bioaccumulation is expected to be low according to the BCF <500 (BCF = 9) (OECD TG 305, GLP) Biodegradation: As not well-biodegraded, it is expected to have high accumulation potential in living organisms (54.1% biodegradation was observed after 28 days) (OECD TG 301 C, GLP)
12.4 Mobility in soil	High potency of mobility to soil. (logKoc ≥ 5.63 (Estimated), 40°C) (OECD TG 121, GLP)
12.5 Hazardous to the ozone layer	Not classified
12.6 Other adverse effects	Not available

## 13. Disposal considerations

### 13.1 Disposal method

Waste must be disposed of in accordance with federal, state and local environmental control regulation.

### 13.2 Disposal precaution

Consider the required attentions in accordance with waste treatment management regulation.

#### 14. Transport information

**14.1 UN No.:** Not applicable

**14.2 UN Proper shipping name:** Not applicable

**14.3 Transport Hazard classes:**

ADR: Not applicable

IMDG: Not applicable

ICAO/IATA: Not applicable

RID: Not applicable

**14.4 Packing group:** Not applicable

**14.5 Environmental hazards:** Not applicable

**14.6 Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** Not established

**14.7 Special precautions for user**

**in case of fire:** Not applicable

**in case of leakage:** Not applicable

#### 15. Regulatory information

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

**USA Regulatory Information**

**TSCA (Toxic Substances Control Act):** Not regulated

**Proposition 65:** Not regulated

**OSHA Regulation:** Not regulated

**CERCLA Regulation:** Not regulated

**SARA 302 Regulation:** Not regulated

**SARA 304 Regulation:** Not regulated

**SARA 313 Regulation:** Not regulated

**Foreign Regulatory Information**

**Substance of Rotterdam] Protocol:** Not regulated

**Substance of Stockholm Protocol:** Not regulated

**Substance of Montreal Protocol:** Not regulated

**Foreign Inventory Status**

- Korea management information: Existing Chemical Substance (2013-3-5632)
- Japan management information: Existing and New Chemical Substances (ENCS): Not listed
- China management information: Inventory of Existing Chemical Substances (IECSC): Not listed
- Australia management information: Australian Inventory Inventory of Chemical Substances (AICS): Not listed
- Canada management information: Domestic Substances List (DSL): Not listed
- New Zealand management information: New Zealand Inventory of Chemicals (NZIoC): Not listed
- Philippines management information: Philippine Inventory of Chemicals and Chemical Substances (PICCS):

**Not listed 16. Other information, including date of preparation or last revision****16.1 Indication of changes:**

Preparation date: October 24, 2016  
Version: 6  
Revision date: October 30, 2019

**16.2 Key literature reference and sources for data:**

- National chemicals information systems; <http://ncis.nier.go.kr>
- Pubchem; <http://pubchem.ncbi.nlm.nih.gov/>
- AKRON; <http://ull.chemistry.uakron.edu/erd/>
- IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>
- ECHA; <http://echa.europa.eu/web/guest>
- NIOSH(The National Institute for Occupational Safety and Health)
- ACGIH(American Conference of Governmental Industrial Hygienists)
- TOMES-LOLI®; <http://www.rightanswerknowledge.com/loginRA.asp>
- National Emergency Management Agency-Korea dangerous material inventory management system; <http://hazmat.mpss.kfi.or.kr/index.do>
- Waste Control Act enforcement regulation attached [1]
- EPISUITE Program ver.4.1

**16.3 Abbreviations**

ACGIH: American Conference of Governmental Industrial hygienists  
NIOSH: The National Institute for Occupational Safety and Health  
OSHA: Occupational Safety & Health Administration  
IARC: International Agency for Research on Cancer  
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road  
IMDG: International Maritime Dangerous Goods  
ICAO/IATA: International Civil Aviation Organization/ International Air Transport Association  
RID: Regulations Concerning the International Transport of Dangerous Goods by Rail

**16.4 Other**

- Product should be handled, stored, and used in accordance with the generally accepted industrial hygiene practices and in conformity with all the applicable legal regulations.
- The information provided herein is based on the knowledge possessed at this present time from the view point of safety requirements.
- It should, therefore, not be construed as guaranteeing specific properties.