

SAFETY DATA SHEET

Date Printed: January 20, 2020

Version: 3

Revision date: January 20, 2020

Regulation: In accordance with Commission Regulation (EU) CLP 1272/2008

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Product identifier

Product name: SP-390

EC No.: 229-176-9

(Pre)REACH Registration No.: 01-2119446265-39-0000

CAS No.: 6422-86-2

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

1.2.1. Identified Uses

- Ind. Manufacturing, Formulation, Distribution and storage, Adhesives and sealants (FEICA) industrial manufacturing, Coatings and inks (CEPE) industrial manufacturing, Plasticizer (plastisol) formulation, Plasticizer(plastisol) industrial manufacture, Plasticizer (pvc articles) formulation, Plasticizer (pvc articles) industrial manufacturing

1.2.2. Recommended use

- It is also used for PVC, plastic, rubber, ink, glue, paint and additives such as lubricant.

1.2.3. 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 Solutions Co, Ltd.

Address: Ulsan plant, Hanwha Solutions Co, Ltd ,22, Yongyeon-ro 230beon-gil(Hwangseong-dong), Nam-gu, Ulsan, Korea

Prepared by: Plasticizers Production Team

Contact Telephone (Yeosu plant) +82-52-279-1024

1.3.2 Supplier & Distributor

Company name: Hanwha Solutions Co, Ltd.

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

Prepared by: PLS Sales Team

Contact Telephone: +82-2-729-2990

Email Address: asy0823@hanwha.com

1.4. Emergency telephone number

Emergency Telephone: +82-2-729-2990 (Sales) / +82-52-279-1024 (Plant)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 (CLP)

Physical / Chemical Hazards: Not classified

Health Hazards: Not classified

Environmental Hazards: Not classified

2.2 Label elements

Hazard pictograms: Not applicable

Signal word: Not applicable

Hazard statement: Not applicable

Precautionary statements

- **Precaution:** Not applicable

- **Treatment:** Not applicable

- **Storage:** Not applicable

- **Disposal:** Not applicable

2.3 Other hazards

- **Additional precautionary statements:** Not applicable

- **National Fire Protection Association(NFPA)**

Health: 0

Flammability: 1

Reactivity: 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	EC No.	Conc. / %	Classification according to 1272/2008/EEC	Registration No.
Diocetyl terephthalate	6422-86-2	229-176-9	100	Not classified	01-2119446265-39-0000

4. FIRST AID MEASURES

4.1 Description of first aid measures

4.1.1. General

information:

Remove soiled or soaked clothing immediately, do not allow to dry.
Adhere to personal protective measures when giving first aid.
Clean body thoroughly (Bad, shower).

4.1.2. Following

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.

4.1.3. Following

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.
Wash contaminated clothing and shoes before reuse.
Get immediate medical advice/attention.

4.1.4. Following

eye contact:

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

4.1.5. Following

ingestion:

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

4.1.6. Self-protection

of the first aider: First aider: Pay attention to self-protection!

4.2 Most important symptoms and effects, both acute and delay Acute effects:

- Symptoms and effect: 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: Dry sand, Dry chemical powder, alcohol-resistant foam, water spray, CO₂, regular foam, carbon oxides (CO, CO₂)
- Unsuitable extinguishing media: High pressure water streams

5.2 Special hazards arising from the substance or mixture

- Thermal decomposition products: Irritating, corrosive or toxic gases
- May be ignited by heat, sparks or flames.
- Containers may explode when heated.
- Some of these materials may burn, but none ignite readily.
- If inhaled, may be harmful.

5.3 Advice for firefighters

- Wear self-contained breathing apparatus (SCBA) and adaptive chemical protective clothing.
- The fire suppression is not fully protectable from the hazard.
- Dike fire-control water for later disposal; do not scatter the material.
- Move containers from fire area if you can do it without risk.
- Fire involving Tanks; Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks; Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Fire involving Tanks; Always stay away from tanks engulfed in fire.

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.
- Prevent dust cloud.

6.2 Environmental precautions

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

6.3 The methods of purification and removal

- Small Spill; Take up with sand or other non-combustible absorbent material and place into containers for later disposal.
- Prevent dust cloud.
- 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 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

- Keep container tightly closed.
- Keep in a dry, cool place.
- Away from open flame and oxidizing agents.
- Protect from heat and direct sunlight.
- Never cut, drill, weld or grind on or near this container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure limits

- o **EU regulation:** Not applicable
- o **U.S regulation:**
 - NIOSH: Not applicable
 - OSHA: Not applicable
- o **ACGIH:** Not applicable
- o **Biological exposure index:** Not applicable
- o **Others:** Not applicable
- o **DNELs, PNECs:**
 - DNEL: inhalation, 23.2 mg/m³(Workers), 6.86 mg/m³(General Population)
dermal, 6.58 mg/m³(Workers), 3.95 mg/m³(General Population)
oral, 3.95 mg/m³(General Population)
 - PNEC: 0.08 µg/L (freshwater), 0.008 µg/L (marine water), 0.014 µg/L (intermittent releases),
1 mg/L (STP), 8.28 mg/kg (sediment freshwater), 0.828 mg/kg (sediment freshwater)

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:

- Wear European Standard EN 149 approved full or half face piece (with goggles) respiratory protective equipment when necessary.
- If risk of overexposure exists, wear an approved respirator.

Eye protection:

- Wear enclosed safety goggles to protect from gaseous state organic material causing eye irritation or other disorder.
- An eye wash unit and safety shower station should be available nearby work place.

Hand protection:

- Wear appropriate protective gloves (rubber glove (exclude PVC)) by considering physical and chemical properties of chemicals.

Body protection:

- Wear appropriate protective clothing (rubber clothing (exclude PVC)) by considering physical and chemical properties of chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Description:

Liquid

Color:

Colorless

Odor:

Mild

Odor threshold:

Not available

pH:	6~7
Melting point/freezing point:	< -48 °C
Initial boiling point and boiling range:	400 °C
Flash point:	222 °C (Cleveland open cup)
Evaporation rate:	Not available
Flammability (solid, gas):	Not applicable
Upper/lower flammability or explosive limits:	Not applicable
Vapor pressure:	2.14X10 ⁻⁵ mmHg (25 °C)
Vapor density:	13.5(air = 1)
Relative density:	Not available
Solubility(ies):	0.0004 mg/l (25°C)
Partition coefficient: n-octanol/water:	Log Pow=8.39
Auto-ignition temperature:	387 °C (98 kPa)
Decomposition temperature:	Not available
Viscosity:	65.8 mPa-s (dynamic) at 25 °C, 80cp (20°C)
Explosive properties:	Not available
Oxidising properties:	Not available
Molecular weight:	390.557

10. STABILITY AND REACTIVITY

10.1 Reactivity/Chemical stability/Possibility of hazardous reactions

- Stable at normal temperature and pressure.
- Fire may produce irritating and/or toxic gases.
- If inhaled, may be harmful.

10.2 Conditions to avoid

- Heat, sparks or flames, other sources of ignition

10.3 Incompatible materials

- Combustibles, Oxidizing solids, oxidizing liquid, oxidizing materials

10.4 Hazardous decomposition products:

- Irritating and/or toxic gases, carbon oxides (CO, CO₂)

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects	
(a) Acute toxicity	
Oral	Not classified
	Rat, LD ₅₀ > 5,000 mg/kg (TSCA FHSA Regulations, GLP)
Dermal	Not classified
	Guinea pig, LD ₅₀ = 19,670 mg/kg
Inhalation	Not available
(b) Skin Corrosion/ Irritation	Not classified
	- In a skin irritation/corrosion study, skin irritation was not observed. (erythema)

	score=0, edema score=0) (OECD TG 404, GLP)
(c) Serious Eye Damage/ Irritation	Not classified
	In an acute ocular irritation study, DOTP may cause slight transient ocular irritation. The effects were fully reversible within 72hours. (OECD TG 405, GLP)
(d) Respiratory sensitization	Not available
(e) Skin Sensitization	Not available
	In a dermal sensitization study, DOTP was found to be non-irritating. Only slight erythema was observed for one to seven subjects at any given time during the induction phase of the study and for only one subject during the challenge phase of the study. DOTP did not elicit contact dermal sensitization in any individual completing the study. (GLP)
(f) Carcinogenicity	Not classified
	IARC, NTP, OSHA, EU CLP 1272/2008, US EPA: Not listed
(g) Mutagenicity	Not classified
	- <i>In vitro</i> : In an Ames reverse gene mutation assay in bacteria (<i>S. typhimurium</i> TA) (OECD TG 471, GLP), In a mammalian cell cytogenetics assay (Chinese hamster Ovary (CHO)) (OECD TG 473, GLP), In a mammalian cell gene mutation assay (Chinese hamster Ovary (CHO)) (OECD TG 476, GLP) (with and without Metabolic activation): negative - <i>In vivo</i> : Not available
(h) Reproductive toxicity	Not classified
	There were no adverse effects on mating performance, fertility, or reproductive organs in a 2-generation study in which 30 rats/sex/group/generation were exposed to DOTP at dose concentrations of 0, 3,000, 6,000, and 10,000 ppm. (reproductive toxicity: 10,000 ppm / parental toxicity: 3,000 ppm / neonatal toxicity: 3,000 ppm) (OECD TG 416, GLP)
(i) Specific target organ toxicity (single exposure)	Not classified
	In an acute oral toxicity study, Clinical abnormalities were limited to oily, unkempt inguinal hair for all animals on Days 1 and 2 of the study, and yellow discolored inguinal hair for two female rats on Day 1. No other clinical abnormalities were noted throughout the study. All rats gained weight over the 14-day observation period. (LD ₅₀ > 5,000 mg/kg bw) (TSCA FHSA Regulations, GLP)
(j) Specific target organ toxicity (repeat exposure)	Not classified
	In a subchronic dietary toxicity study, di (2-ethylhexyl) terephthalate was administered to 20 rats/sex/group at target concentrations of 0, 0.1, 0.5, and 1.0% continuously for 90 days. Toxicity related to the administration of di (2-ethylhexyl) terephthalate was limited to minor effects on red blood cell formation, and enlargement of the liver in both sexes at a dose concentration of 1.0%. There were no corresponding functional changes in the liver, no gross or microscopic liver changes, and no adverse effects on any clinical chemistry parameters that would indicate liver damage. (NOEL=0.5%, male: 277mg/kg bw/day, female: 309mg/kg bw/day) (GLP)
(k) Aspiration Hazard	Not available

12. ECOLOGICAL INFORMATION

12.1 Toxicity	
Acute toxicity	Not classified
	Fish: 96 hr LC ₅₀ (<i>Pimephales promelas</i>) > 984 mg/L (OECD TG 203) 7 d LC ₅₀ (<i>Salmo gairdneri</i>) > 0.25 mg/L (GLP) Invertebrate: 48 hr EC ₅₀ (<i>Daphnia magna</i>) > 0.0014 mg/L (OECD TG 202, GLP) Algae: 72 hr EC ₅₀ (<i>Selenastrum capricornutum</i>) > 0.86 mg/L (OECD TG 201, GLP)
Chronic toxicity	Not classified
	Fish: 60 day NOEC (<i>Oncorhynchus mykiss</i>) ≥ 0.28 mg/L (GLP) Invertebrate: 21 day NOEC (<i>Daphnia magna</i>) ≥ 0.00076 mg/L (OECD TG 211, GLP) 21 day EC ₅₀ (<i>Daphnia magna</i>) > 0.00076 mg/L (OECD TG 211, GLP) Algae: 72hr-NOEC ≥ 0.86 mg/L (<i>Selenastrum capricornutum</i> (new name: <i>Pseudokirchnerella subcapitata</i>))
12.2 Persistence and degradability	Persistence: High persistency (log Kow is more than 4 estimated.) (Log Kow = 8.39) (Estimated) Degradability: Not available
12.3 Bioaccumulative potential	Bioaccumulation: Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 393) (Estimated) Biodegradation: As well-biodegraded, it is expected to have low accumulation potential in living organisms (73.05% biodegradation was observed after 28 day)
12.4 Mobility in soil	High potency of mobility to soil. (Koc = 3981072) (Estimated)
12.5 Results of PBT and vPvB assessment	Although the specific half-life of bis(2-ethylhexyl) terephthalate from an appropriate environmental simulation test has not been determined, based on screening-level results indicating ready biodegradability, it is unlikely that the half-life of DEHT in fresh water will exceed 40 days as specified in the REACH Annex XIII criterion. bis(2-ethylhexyl) terephthalate would not be rated as either a P or vP substance. Based on a measured BCF value of 393 L/kg wet-wt from an acceptable bioaccumulation study in a marine species, bis(2-ethylhexyl) terephthalate does not fulfill the REACH Annex XIII bioaccumulation criterion of BCF > 2,000, and would thus not be rated as either a B or vB substance.
12.6 Hazardous to the ozone layer	Not classified
12.7 Other adverse effects	Not available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

13.1.1 Product/Packaging disposal:

- No waste key number as per the European Waste Types List can be assigned to this product, since such classification is based on the (as yet undetermined) use to which the product is put by the consumer.

- The waste key number must be determined as per the European Waste Types List (decision on EU Waste Types List 2000/532/EC) in cooperation with the disposal firm/producing firm/official authority.

13.1.2 Waste treatment-relevant information:

Waste must be disposed of in accordance with directive 2008/98/EC.

13.1.3 Sewage disposal-relevant information:

Release to the environment or sewage system is prohibited. Must be treated as hazardous waste.

13.1.4 Other disposal recommendations: Not available**14. TRANSPORT INFORMATION**

14.1 UN No.: Not applicable

14.2 UN Proper shipping name: Not applicable

14.3 Transport Hazard class:

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 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****EU Regulatory Information****EU classification****EU 1272/2008(CLP)**

Classification: Not Classified

Risk phrases: Not Classified

Safety phrases: Not Classified

EU SVHC list: Not regulated

EU Authorization list: Not regulated

EU Restriction list: Not regulated

Waste Framework Directive 2008/98/EC: Regulated

Foreign Inventory Status

- Korea management information: Existing Chemical Substance (KE-02197)
- China management information: Inventory of Existing Chemical Substances (IECSC): Present (01783)
- Japan management information: Existing and New Chemical Substances (ENCS): Present ((3)-4053)
- Australia management information: Australian Inventory of Chemical Substances (AICS): Present
- New Zealand management information: New Zealand Inventory of Chemicals (NZIoC): May be used as a

is not component in a product covered by a group standard but it

approved for use as a chemical in its own right

- Taiwan management information: Taiwan Chemical Substances Inventory (TCSI): Present
- Philippines management information: Philippine Inventory of Chemicals and Chemical Substances (PICCS): Present

15.2 Chemical safety assessment: For this substance a chemical safety assessment has been carried out.

16. OTHER INFORMATION

Product safety data sheet for prepared in accordance with Regulation (EU) 1272/2008

16.1 Indication of changes:

Preparation date: June 20, 2016
Version: 3
Revision date: January 20, 2020

16.2 Key literature reference and sources for data:

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>
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://www.nema.go.kr/hazmat/main/main.jsp>
Waste Control Act enforcement regulation attached [1]
National chemicals information systems; <http://ncis.nier.go.kr>

16.3 Abbreviations

EC₅₀: median effective concentration
LC₅₀: median lethal concentration
LD₅₀: median lethal dose
OEL: Occupational exposure limit
PBT: Persistent, bioaccumulative, toxic chemical
STEL: short-term exposure limit
TWA: time weighted average
vPvB: very persistent, very bioaccumulative chemical
EWC: the European Waste Code

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.