

SAFETY DATA SHEET

Date Printed: January 20, 2020

Version: 2

Revision Date: January 20, 2020

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: DINP

1.1.2 Other means of identification: Diisononyl phthalate

1.2 Recommended use of the chemical and restrictions on use

1.2.1 Recommended use: PVC, plastic, rubber, ink, adhesive, paint, lubricating oil additives

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 Solutions Co, Ltd.

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

Prepared by: Plasticizer Production Team

Contact Telephone: +82-52-279-1024

1.3.2 Supplier&Distributor

Company name: Hanwha solutions Co, Ltd.

Address: Hanwha Solutions Co, Ltd., Hanwha Building, 86, Cheonggyecheon-ro, Jongno-gu, Seoul, Korea

Prepared by: PLS Sales team

Contact Telephone: +82-2-729-2990

1.4 Emergency phone number

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

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 classified

Health Hazards: Not classified

Environmental Hazards:

Hazardous to the aquatic environment (chronic hazard): Category 3

2.2 Label elements, including precautionary statements

o **Pictogram and symbol:** Not applicable

o **Signal word:** Not applicable

o **Hazard statements:**

H412 Harmful to aquatic life with long lasting effects.

o **Precautionary statements:**

P273 Avoid release to the environment.

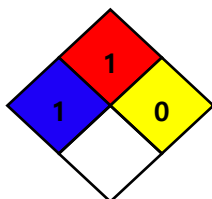
o **Treatment statements:** Not applicable

o **Storage statements:** Not applicable

o **Waste statements:**

P501: Dispose the contents/container in accordance with local/regional/national/international regulations.

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



- o **Health:** 1
- o **Flammability:** 1
- o **Reactivity:** 0
- o **Specific hazard:** -

3. Composition/information on ingredients

Component	Common name and synonyms	CAS No.	Conc. / %
Diisononyl phthalate	1,2-Benzenedicarboxylic acid diisononyl ester	68515-48-0	100

4. First-aid measures

4.1 Description of first aid measures

Eye contact

- Get immediate medical advice/attention.

Skin contact

- Get immediate medical advice/attention.
- Remove/Take off immediately all contaminated clothing. Isolate the contaminated area.

Inhalation

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

Ingestion

- 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 involved and take precautions to protect themselves.

5. Fire-fighting measures`

5.1 Extinguishing media

- o **Suitable extinguishing media:** Dry chemical powder, CO₂, regular foam
- o **Unsuitable extinguishing media:** Not available

5.2 Specific hazards arising from the chemical

- Thermal decomposition products: Irritating, corrosive and/or toxic gas
- Some of these materials may burn, but none ignite readily.
- Containers may explode when heated.

5.3 Special protective equipment and precautions for fire-fighters

- Wear full protective firefighting gear including self-contained breathing apparatus (SCBA) for protection against possible exposure.
- The fire suppression is not fully protectable from the hazard.
- Move containers from fire area if you can do it without risk.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Clean up spills immediately, observing precautions in Protective Equipment section.
- Move containers from fire area if you can do it without risk.
- Do not touch or walk through spilled material.
- Please note that materials and conditions to avoid.

6.2 Environmental precautions

- Do not emit to the environment.
- Prevent entry into waterways, sewers, basements or confined areas.

6.3 Methods and materials for containment and cleaning up

- Absorb spills with inert material (e.g., dry sand or earth), then place in a chemical waste container.
- Absorb the liquid and scrub the area with detergent and water.
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.
- Small Spill; 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.

7. Handling and storage

7.1 Precautions for safe handling

- Follow all SDS/label precautions even after container is emptied because they may retain product residues.
- Be careful to high temperature.
- Please work with reference to engineering controls and personal protective equipment.
- Please note that materials and conditions to avoid.

7.2 Conditions for safe storage, including any incompatibilities

- Store in a well-ventilated place. Keep container tightly closed.
- Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.

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
Not available
- o **NIOSH regulation:** Not available
- o **EU regulation:**
 - Croatia: TWA = 5 mg/m³
 - Denmark: TWA= 3 mg/m³
 - United Kingdom: TWA= 5 mg/m³
- o **Other:**

- New Zealand: TWA= 5 mg/m³
- Kenya: TWA= 5 mg/m³
- South Africa: TWA= 5 mg/m³

8.2 Exposure controls

Appropriate engineering controls

- Provide local exhaust ventilation system or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Respiratory protection

- In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998.

Eye protection

- Wear safety glasses with side shields (or goggles) and a face shield.
- An eye wash unit and safety shower station should be available nearby work place.

Hand protection

- Wear chemical-resistant gloves for the risk of exposure.
- Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.

Body protection

- Wear chemical-resistant footwear and protective clothing appropriate for the risk of exposure.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Description :	Liquid
Color :	Colourless
Odor :	Not available
Odor threshold :	Not available
pH :	6~7
Melting point/freezing point :	-48°C
Initial boiling point and boiling range :	244-252 °C(6.6hPa)
Flash point :	224 °C (Cleveland Open Cup)
Evaporation rate :	Not available
Flammability (liquid) :	Not available
Upper/lower flammability or explosive limits :	Not available
Vapor pressure :	0.0001 kPa (<0.001 hPa at 38°C)
Vapor density :	10 (>10 (공기=1))
Relative density	0.974 (ca. 0.974g/m ³ at 20°C)
Solubility :	(< .1 vol% at 20°C)
Partition coefficient: n-octanol/water :	Not available
Auto-ignition temperature :	260 °C (ca. 260 °C at 1013 .25 hPa)
Decomposition temperature	Not available
Viscosity :	102 cSt (at 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:

- Stable under normal temperatures and pressures.
- Hazardous polymerization does not occur.

10.2 Conditions to avoid:

- Avoid heat, flames, sparks and other sources of ignition.
- Avoid contacting the mixtures
- Be careful not to influence the environment because of emission.

10.3 Incompatible materials:

- Oxidizing solids, oxidizing liquid, oxidant

10.4 Hazardous decomposition products:

- Carbon oxides

11. Toxicological information

Information on toxicological effects	
(a) Acute toxicity	
Oral	Not classified - Rat(F/M), LD ₅₀ >10,000 mg/kg bw (OECD TG 401)
Dermal	Not classified - Rabbit(F), LD ₅₀ >3,160 mg/kg(GLP)
Inhalation	Not classified - Rat(F/M), LC ₅₀ >4.4 mg/L, 4h, No mortality
(b) Skin Corrosion/ Irritation	Not classified - In skin irritation test with rabbits, irritating was no observed. (Irritation score:0.08) (OECD TG 404, GLP)
(c) Serious Eye Damage/ Irritation	Not classified - In Serious Eye Damage/ Irritation test with rabbits, irritation was no observed. (Cornea score:0, iris score:0, conjunctival score:0.28)
(d) Respiratory sensitization	Not classified
(e) Skin Sensitization	Not classified - In skin sensitization test with Guinea pig, sensitizing was no observed.(GLP)
(f) Carcinogenicity	Not available - IARC, NTP, OSHA, ACGIH, US EPA : Not listed
(g) Mutagenicity	Not classified

	<p><i>In vitro</i>: Ovary mutation assay with hamster with/without metabolic activation : Negative(OECD TG 473,GLP)</p> <p><i>In vitro</i>: Bacterial reverse mutation assay with/without metabolic activation : Negative(OECD TG 473,GLP)</p> <p><i>In vivo</i>: Not available</p>
(h) Reproductive toxicity	<p>Not classified</p> <p>- The reproductive toxicity with rat(F/M), Evidence of toxicity was observed in parents treated at 1.0% or 1.5% DINP, but there was no effect on reproductive indices. Significant suppression of bodyweight gain was observed in the offspring at 0.5%, 1.5% and 1.5% DINP. (OECD TG 415, GLP)</p>
(i) Specific target organ toxicity (single exposure)	<p>Not classified</p> <p>- In acute inhalation toxicity gavage test with rats at concentrations of 5000mg/kg, Clinical observations consisted of soft feces, rough coat and urine stains from 5,000 mg/kg and alopecia, red stains on nose and/or eyes and hunching from 15,000 mg/kg and thinness from 30,000 mg/kg.</p>
(j) Specific target organ toxicity (repeat exposure)	<p>Not classified</p> <p>- In Repeated Dose 13-weeks Oral Toxicity gavage test with monkey(F/M) at concentrations of 2500 mg/kg bw/day, ungroomed coat, reddening of the skin around the anus and reddening of the back of the legs was observed. NOAEL=500 mg/kg bw/day (nominal), LOAEL=2,500 mg/kg bw/day. Salivation was observed throughout the study for animals receiving clofibrate. (OECD TG 409, GLP)</p>
(k) Aspiration Hazard	Not available

12. Ecological information

12.1 Toxicity	
Acute toxicity	<p>Not available</p> <p>- Fish: 96h LC₅₀(<i>Lepomis macrochirus</i>)>0.14mg/L, No mortality - Invertebrate: 48h EC₅₀(<i>Daphnia magna</i>)>74mg/L, No mortality - Algae: 5d EC₅₀(<i>Selenastrum capricornutum</i>)>1.8mg/L, No mortality</p>
Chronic toxicity	<p>Category 3</p> <p>- Fish: 284d NOEC(<i>Oryzias latipes</i>) ≥18.5 , ≤24.5 (OECD TG 210) - Invertebrate: 21d NOEC(<i>Daphnia magna</i>)>101mg/L (OECD TG 202,GLP) - Algae: 72h NOEC(<i>Desmodesmus subspicatus</i>)>88mg/L(GLP)</p>
12.2 Persistence and degradability	<p>Persistence: High persistency (log K_{ow} is more than 4) log K_{ow} =7.4 (Estimated) Degradability: Degradation in air by reaction with hydroxyl radicals, having a half-life in air of 3.4 days.</p>
12.3 Bioaccumulative potential	<p>Bioaccumulation: Bioaccumulation is expected to be low according to the BCF <500. (BCF = 231.3L/kg (Estimated)) Biodegradation: As well-biodegraded, it is expected to have low accumulation potential in living organisms (81% biodegradation was observed after 28 day)</p>
12.4 Mobility in soil	High potency of mobility to soil. (Koc = 947,900 (Estimated))
12.5 Hazardous to the ozone layer	Not Classified
12.6 Other adverse effects	Not available

13. Disposal considerations**Disposal method**

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

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: 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): Section 8 (b) inventory (Present) [T]

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 Rotterdame Protocol: Not regulated

Substance of Stockholme Protocol: Not regulated

Substance of Montreal Protocol: Not regulated

Foreign Inventory Status

- Korea management information: Existing Chemical Substance (KE-02225)

- European List of Notified Chemical Substances (ELINCS): Present (249-079-5)

- Japan management information: Existing and New Chemical Substances (ENCS): Present ((3)-1307)

- China management information: Inventory of Existing Chemical Substances (IECSC): Present (22163)

- Australia management information: Australian Inventory of Chemical Substances (AICS): Present

- Canada management information: Domestic Substances List (DSL): Present

- New Zealand management information: New Zealand Inventory of Chemicals (NZIoC): May be used as a single component chemical under an appropriate group standard.

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

16. Other information, including date of preparation or last revision**16.1 Indication of changes :**

Preparation date : December 26, 2017
Version : 2
Revision date : January 20, 2020

16.2 Key literature reference and sources for data:

- TSCA; http://iaspub.epa.gov/sor_internet/registry/substreg/searchandretrieve/searchbylist/search.do
- IECSC; <http://cciss.cirs-group.com/>
- EU Regulation 1272/2008
- TOMES-LOLI@ ; <http://www.rightanswerknowledge.com/loginRA.asp>
- UN Recommendations on the transport of dangerous goods 17th
- IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>
- ECHA CHEM; <http://echa.europa.eu/web/guest/information-on-chemicals/registered-substances>
- OECD SIDS; <http://webnet.oecd.org/Hpv/UI/Search.aspx>
- HSDB; <http://toxnet.nlm.nih.gov/cgi-bin/sis/search2>
- EPA; <http://www.epa.gov/iris>
- EPISUITE Program ver.4.1
- Waste Control Act enforcement regulation attached [1]
- National chemicals information systems ; <http://ncis.nier.go.kr>

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

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.