

SAFETY DATA SHEET

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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: KONNATE IL-50

1.1.2 Other means of identification: TDI TRIMER

1.2 Recommended use of the chemical and restrictions on use

1.2.1 Recommended use: It is used for woodwork, metal, synthetic leather, adhesive, hardener for fiber, etc.

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: TDI Plant, Hanwha Solutions Co, Ltd.

Address: 46-47, Yeosusandan 2-ro, Yeosu-si, Jeollanam-do, Korea

Prepared by: TDI Production Team

Contact Telephone: +82-61-688-4888

1.3.2 Supplier & Distributor

Company name: Hanwha Solutions Co, Ltd.

Address: Hanwha Building, 86 Cheonggyecheon-ro, Jung-gu, Seoul, Korea

Prepared by: TDI Sales Team

Contact Telephone: +82-2-729-2700

1.4 Emergency phone number

Emergency phone : +1 201-308-6615 (Ext.801) (Any problems that occurs in U.S.A)

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:

Flammable liquids: Category 2

Health Hazards:

Respiratory sensitization : Category 1

Skin sensitization : Category 1

Carcinogenicity: Category 2

Specific target organ toxicity (Single exposure): Category 3 (respiratory tract irritation)

Specific target organ toxicity (Single exposure): Category 3 (narcotic effects)

Environmental Hazards:

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

2.2 Label elements, including precautionary statements

o Pictogram and symbol:



o **Signal word:** Danger

o **Hazard statements:**

H225 Highly flammable liquid and vapour

H317 May cause an allergic skin reaction.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.

H351 Suspected of causing cancer.

H402 Harmful to aquatic life.

o **Precautionary statements:**

- **Prevention:**

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ventilating/lighting equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P281 Use personal protective equipment as required.

P285 In case of inadequate ventilation wear respiratory protection.

- **Treatment:**

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P303+P361+P353 If on skin (or hair): Remove/Take off immediately all contaminated clothing.
Rinse skin with water/shower.

P304+P340 If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P308+P313 If exposed or concerned: Get medical advice/ attention.

P312 Call a poison center or doctor/physician you feel unwell.

P321 Specific treatment (see... on this label)

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P342+P311 If experiencing respiratory symptoms: Call a poison center or doctor/physician.

P363 Wash contaminated clothing before reuse.

P370+P378 In case of fire: Use ... for extinction.

- **Storage:**

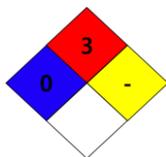
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P403+P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

- **Disposal:**

P510 Dispose the contents/container in accordance with local/regional/national/international regulations.



2.3 Other hazard information not included in hazard classification(National Fire Protection Association; NFPA)

o **Health:** 2

o **Flammability:** 3

o **Reactivity:** Not available

o **Specific hazard:** Not available

3. Composition/information on ingredients

Component	Common name and synonyms	CAS No.	Conc. / %
Toluene diisocyanate	Benzene, 1,3-diisocyanatomethyl-	26471-62-5	0.1~1
n-Butyl Acetate	Butyl ethanoate; Acetic acid n-butyl ester	123-86-4	50
1,3-Diisocyanatomethylbenzene homopolymer	Benzene, 1,3-diisocyanatomethyl-, homopolymer	9017-01-0	49~49.9

4. First aid measures

4.1 Description of first aid measures

Eye contact

- Call emergency medical service.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Skin contact

- If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- If skin irritation or rash occurs: Get medical advice/attention.
- Wash contaminated clothing before reuse.
- Call emergency medical service.
- Remove and isolate contaminated clothing and shoes.
- For minor skin contact, avoid spreading material on unaffected skin.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Wash skin with soap and water.

Inhalation

- If inhaled: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
- If exposed or concerned: Get medical advice/ attention.
- If experiencing respiratory symptoms: Call a poison center or doctor/physician.
- If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.

Ingestion

- If exposed or concerned: Get medical advice/ attention.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

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

- Non known

4.3 Indication of immediate medical attention and notes for physician

- Exposures require specialized first aid with contact and medical follow-up.
- 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: alcohol foam, carbon dioxide, or water spray
- Use dry sand or earth to smother fire.
- Unsuitable extinguishing media: Not available

5.2 Specific hazards arising from the chemical

- Highly flammable liquid and vapour
- May decompose at high temperatures into forming toxic gases.
- May violently polymerize and result in fire and explosion.
- Vapors may travel to a source of ignition and ignite.
- May form explosive mixtures at temperatures at or above the flashpoint.
- Containers may explode when heated.

5.3 Special protective equipment and precautions for fire-fighters

- Rescuers should put on appropriate protective gear.
- Evacuate area and fight fire from a safe distance.
- Many liquids are lighter than water.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas.
- Substance may be transported hot.
- Substance may be transported in a molten form.
- 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; Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Fire involving Tanks; Cool containers with flooding quantities of water until well after fire are 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.
- Fire involving Tanks; For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Avoid breathing dust/fume/gas/mist/vapors/spray.
- The very fine particles may cause a fire or explosion, eliminate all ignition sources.
- Clean up spills immediately, observing precautions in Protective Equipment section.
- Eliminate all ignition sources.
- All equipment used when handling the product must be grounded.
- Stop leak if you can do it without risk.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- A vapor suppressing foam may be used to reduce vapors.
- Cover with plastic sheet to prevent spreading.
- Please note that there are materials and conditions to avoid.

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

- Dike and collect water used to fight fire.
- 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.
- Large Spill; Dike far ahead of liquid spill for later disposal.
- Use clean non-sparking tools to collect absorbed material.

- 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.

7. Handling and storage

7.1 Precautions for safe handling

- Do not handle until all safety precautions have been read and understood.
- Use explosion-proof electrical/ventilating/lighting equipment.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Use only outdoors or in a well-ventilated area.
- Contaminated work clothing should not be allowed out of the workplace.
- Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition.
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Use carefully in handling/storage.
- Loosen closure cautiously before opening.
- Avoid prolonged or repeated contact with skin.
- All equipment used when handling the product must be grounded.
- Please note that there are materials and conditions to avoid.
- Be careful to heat.
- You need measurement of air concentration and ventilation in low, closed and confined areas due to lack of oxygen.

7.2 Conditions for safe storage, including any incompatibilities

- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Store in a well-ventilated place. Keep container tightly closed.
- Store in a well-ventilated place. Keep cool.
- 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

<Toluene diisocyanate>

- o ACGIH: TWA 0.001 ppm, STEL 0.005 ppm
- o OSHA: Not available
- o NIOSH: Not available
- o Biological exposure index: 5 µg/g
- o EU regulation: Not available
- o Other:
 - Belgium: TWA 0.005 ppm; TWA 0.037 mg/m³, STEL 0.02 ppm; STEL 0.14 mg/m³
 - Japan: OEL 0.005 ppm; OEL 0.035 mg/m³, Ceiling 0.02 ppm; Ceiling 0.14 mg/m³

<N-Butyl Acetate>

- o ACGIH: TWA 50 ppm, STEL 150 ppm
- o OSHA: TWA 150 ppm; TWA 710 mg/m³, STEL 200 ppm; STEL 950 mg/m³
- o NIOSH: TWA 150 ppm; TWA 710 mg/m³, STEL 200 ppm; STEL 950 mg/m³
- o Biological exposure index: Not available
- o EU regulation: Not available

o Other:

- Belgium: TWA 150 ppm; TWA 723 mg/m³, STEL 200 ppm; STEL 964 mg/m³
- Australia: TWA 150 ppm; TWA 713 mg/m³, STEL 200 ppm; STEL 950 mg/m³
- Denmark: TWA 150 ppm; TWA 710 mg/m³

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.
- If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the recommended exposure limit.

Individual protection measures, such as personal protective equipment

Respiratory protection

- Wear NIOSH or approved full or half face piece (with goggles) respiratory protective equipment when necessary.

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 by considering physical and chemical properties of chemicals.

Body protection

- Wear appropriate resistant 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

Description:	Liquid
Color:	Clear
Odor:	Characteristic odor (organic solvent odor)
Odor threshold:	Not available
pH:	Not available
Melting point/freezing point:	Approx. – 75 °C
Initial boiling point and boiling range:	Approx. 126.5 °C
Flash point:	22 °C
Evaporation rate:	Not available
Flammability (solid, gas):	Not applicable
Upper/lower flammability or explosive limits:	1.7-7.6 (BA)
Vapor pressure:	Not available
Vapor density:	Not available
Relative density	Not available
Solubility:	Soluble in alcohol or aliphatic- hydrocarbons' organic solvents
Solubility in organic solvents:	Not available
Partition coefficient: n-octanol/water:	Not available
Auto ignition temperature:	427 °C
Decomposition temperature:	Not available
Viscosity:	T - V (25 °C, Gardner)

“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

- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- Spilled material may create fire or explosion hazard.
- May cause vapor explosion hazard indoors, outdoors or in sewers.
- Some of these materials may burn, but none ignite readily.
- Vapors may form explosive mixtures with air.

10.2 Conditions to avoid:

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

10.3 Incompatible materials:

- Combustibles, reducing agents

10.4 Hazardous decomposition products:

- Corrosive and/or toxic fume
- Irritating, corrosive and/or toxic gases

11. Toxicological information

Information on toxicological effects	
(a) Acute toxicity	
Oral	Not classified (ATE _{mix} =10,575 mg/kg bw)
	- Toluene diisocyanate: LD ₅₀ (rat, female)=4,130 mg/kg bw (OECD TG 401) - N-Butyl acetate: LD ₅₀ (rat, female)=12.2 mL/kg bw(10,760 mg/kg bw) (OECD TG 423)
Dermal	Not classified
	- Toluene diisocyanate: LD ₅₀ (rat, male/female) > 9,400 mg/kg bw (OECD TG 402) - N-Butyl acetate: LD ₅₀ (rat, male/female) > 16 mL/kg bw (14,112 mg/kg bw) (OECD TG 402)
Inhalation	Not classified (ATE _{mix} =44 mg/L/4h)
	- Toluene diisocyanate: LC ₅₀ (rat, male/female)=0.48 mg/L/1h(OECD TG 403) - N-Butyl acetate: LC ₅₀ (rat) >4.9 mg/L/4h, No death were observed. No pathological lesions were detected in the sacrificed animals at the end of the test. (OECD TG 403, GLP)
(b) Skin Corrosion/ Irritation	Not classified
	- Toluene diisocyanate: In skin irritation test with rabbit for 72h, moderately irritating was shown (PDII: 4.7). - N-Butyl acetate: n-butyl acetate was not irritating to the skin of rabbits. (erythema score=0, edema score=0)(OECD TG 404)
(c) Serious Eye Damage/ Irritation	Not classified
	- Toluene diisocyanate: In an eye irritation study with rabbits, all three groups showed severe irritation of the conjunctivae, which continue for 18 days in the unwashed and two-second-wash groups, and for 20 days post-application in the group receiving the four-second-wash. (cornea score=0.66/4, iris score=0.33/2, conjunctivae score=3/3, chemosis score=4/4) - N-Butyl acetate: N-Butyl Acetate was not irritating to the eyes of rabbits.(cornea score=0.33, iris score=0, conjunctivae score=1, chemosis score=0.33) (OECD TG 405, GLP)

(d) Respiratory sensitization	Category 1
	- Toluene diisocyanate: In respiratory sensitisation study with guinea pigs(female), results show that detection of antibodies and elicitation of pulmonary hypersensitivity response is dependent upon physicochemical properties of hapten-protein conjugate.
(e) Skin Sensitization	Category 1
	- Toluene diisocyanate: In Local Lymph Node Assay with mice, the substance induced skin sensitization.(OECD TG 429) - N-Butyl acetate: N-Butyl acetate was not sensitising in the mouse ear swelling test.
(f) Carcinogenicity	Category 2
	- Toluene diisocyanate: <ul style="list-style-type: none"> • NTP : R (Reasonably Anticipated To Be A Human Carcinogen) • ACGIH : A3(Confirmed Animal Carcinogen with Unknown Relevance to Humans) • IARC Group : 2B (Possibly Carcinogenic to Humans) • US EPA IRIS: R(Reasonably anticipated to be a human carcinogen) • EU CLP : 2 (Suspected of causing cancer) - N-Butyl acetate: <ul style="list-style-type: none"> • IARC, ACGIH, NTP, OSHA, EU CLP 1272/2008, US EPA IRIS : Not listed - 1,3-Diisocyanatomethylbenzene homopolymer: <ul style="list-style-type: none"> • IARC, ACGIH, NTP, OSHA, EU CLP 1272/2008, US EPA IRIS : Not listed
(g) Mutagenicity	Not classified
	- Toluene diisocyanate: <ul style="list-style-type: none"> • <i>In vitro</i>: Bacterial Reverse Mutation Assay: negative(without S9 activation), negative/positive(with S9 activation) (OECD TG 471) • <i>In vivo</i>: Mammalian Erythrocyte Micronucleus Test: negative(OECD TG 474, GLP) - N-Butyl acetate: <ul style="list-style-type: none"> • <i>In vitro</i>: Bacterial Reverse Mutation Assay with/without metabolic activation: negative (OECD TG 471) • <i>In vivo</i>: Mammalian Erythrocyte Micronucleus Test: negative (OECD TG 474, GLP)
(h) Reproductive toxicity	Not classified
	- Toluene diisocyanate: Clinical signs of toxicity (nasal discharge in males and red-tinged fur in females) were observed in the high-exposure F0 group. And histopathology revealed a significant increase in the incidence of rhinitis in the nasal turbinates of F0 animals (both sexes). Hyperplasia and dysplasia of the respiratory epithelium of F0 males and hyperplasia was significantly increased in F0 females. In the high-exposure group (males), there was a significant increase in the incidence of submucosal lymphoid infiltrates in both the larynx and the trachea as well as a significant increase in the incidence of intracellular eosinophilic droplets. (NOAEC(P)=0.08 ppm, NOAEC(F1)=0.3 ppm, NOAEC(F2)=0.02 ppm) (OECD TG 416, GLP) - N-Butyl acetate: Inhalation exposure of rats to 750, 1500 or 2000 ppm n-butyl acetate in a two generation study did not affect reproductive performance. And no teratogenicity was observed. (NOAELsystemic toxicity, adult rats=750 ppm (nominal), NOAECdevelopmental toxicity=750 ppm (nominal), NOAECfertility=2,000 ppm (nominal)) (OECD TG 416, GLP)
(i) Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation), (narcotic effects)
	- Toluene diisocyanate: In a experiment, male Sprague-Dawley rats (n=4) were exposed head-only for 3 h to a 2,4- and 2,6-TDI mixture (80:20). Transient decreases in weight gain occurred post-exposure at the two highest concentrations, and rales were heard in one animal exposed at 1.45 ppm. (RD50(decrease of respiratory rate)=2.12 ppm) (ASTM Method E981-84) - N-Butyl acetate: According to the acute inhalation toxicity assay with rats, clinical

	<p>signs were observed for all exposure groups only on the day of exposure and included signs of ocular and respiratory irritation and central nervous system depression. Ataxia and narcosis were observed during and immediately following the static exposure. (OECD TG 403, GLP)</p>
(j) Specific target organ toxicity (repeat exposure)	<p>Not classified</p> <ul style="list-style-type: none"> - Toluene diisocyanate: In a combined chronic toxicity and carcinogenicity study rats were exposed for 6 hours/day, 5 days/week for approximately 2 years to TDI (80/20) vapour concentrations of 0, 0.05 or 0.15 ppm. Body weight gain was reduced in the high dose of males and females over the first 12 weeks that persisted but did not worsen over the remaining period of the study. Histopathologically, rhinitis was observed in males at 0.15 ppm and in females beginning at 0.05 ppm. This finding is considered to be due to local irritation of the anterior nasal cavity. In this 2-year rat study the NOAEC for males is 0.05 ppm and for females below 0.05 ppm with regard to repeated dose toxicity. (OECD TG 453, GLP) - N-Butyl acetate: Subchronic exposure of rats to n-butyl acetate vapour resulted in acute, transient signs of reduced activity levels during exposure to 1500 and 3000 ppm. Decreased body weight and feed consumption were noted for the 1500 and 3000 ppm groups, but there was no systemic or organ-specific toxicity. Signs of upper respiratory tract irritation were seen in the nasal passages of 1500 and 3000 ppm animals, but there was no evidence of pulmonary toxicity. (NOAEC(female/male)=500ppm)(EPA OTS 798.2450, GLP)
(k) Aspiration Hazard	<p>Not classified</p> <ul style="list-style-type: none"> - Viscosity of mixture: T - V (25 °C, Gardner)

12. Ecological information

12.1 Toxicity	
Acute toxicity	<p>Category 3 (ATE_{mix}=43 mg/L)</p> <ul style="list-style-type: none"> - Toluene diisocyanate: Fish: 96h-LC₅₀ (<i>Oncorhynchus mykiss</i>)=133 mg/L, static (OECD TG 203) Invertebrate: 48h-EC₅₀ (<i>Daphnia magna</i>)=12.5 mg/L, static (OECD TG 202) Algae: 96h-ErC₅₀ (<i>Skeletonema costatum</i>)=3,230 mg/L, static (OECD TG 201) - N-Butyl acetate: Fish: 96h-LC₅₀ (<i>Pimephales promelas</i>)=18 mg/L, flow-through (OECD TG 203) Invertebrate: 48h-EC₅₀ (<i>Daphnia magna</i>)=44 mg/L, static (OECD TG 202) Algae: 72h-ErC₅₀ (<i>Pseudokirchnerella subcapitata</i>)=397 mg/L, static (read-across CAS No. 110-19-0) (OECD TG 201, GLP)
Chronic toxicity	<p>Not classified</p> <ul style="list-style-type: none"> - Toluene diisocyanate: Fish: 35d-NOEC (<i>Cyprinus carpio</i>)<10 ppm Invertebrate: 21d-NOEC (<i>Daphnia magna</i>)=1.1 mg/L, static (OECD TG 211, GLP) - n-Butyl acetate: Invertebrate: 21d-NOEC (<i>Daphnia magna</i>)=23.2 mg/L semi-static (read-across CAS No. 110-19-0) (OECD TG 211, GLP) Algae: 72h-NOErC (<i>Pseudokirchnerella subcapitata</i>)=196 mg/L, static (read-across CAS No. 110-19-0) (OECD TG 201, GLP)
12.2 Persistence and degradability	<ul style="list-style-type: none"> - Toluene diisocyanate: Persistence: Low persistency (log Kow is less than 4 estimated.) (Log Kow=3.43; 22 °C; pH ca. 7) Degradability: an atmospheric half-life of about 20 hrs - N-Butyl acetate: Persistence: Low persistency (log Kow is less than 4 estimated.) (Log Kow=2.3; 25 °C) (OECD TG 117, GLP)

	Degradability: The stability of BAC in water is pH dependent, at neutral pHs (7) the T1/2 = 3.1 years at 20 °C and at higher pHs (8 and 9) the T1/2 is shortened to 114 days and 11.4 days respectively.
12.3 Bio-accumulative potential	<p>- Toluene diisocyanate: Bioaccumulation: Bioaccumulation is expected to be low according to the BCF <500 (BCF = 136.4 L/kg wet-wt; estimated) (EPISUITE) Biodegradation: As not well-biodegraded, it is expected to have high accumulation potential in living organisms (0 % biodegradation was observed after 28 day) (OECD TG 302 C)</p> <p>- N-Butyl acetate: Bioaccumulation: Bioaccumulation is expected to be low according to the BCF <500 (BCF = 7; estimated) Biodegradation: As well-biodegraded, it is expected to have low accumulation potential in living organisms (83% biodegradation was observed after 28 day) (OECD TG 301D)</p>
12.4 Mobility in soil	<p>- Toluene diisocyanate: High potency of mobility to soil. (Koc=1,760; estimated) - N-Butyl acetate: Low potency of mobility to soil. (Koc =19; estimated)</p>
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 regulations.

13.2 Disposal precaution

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

14. Transport information

14.1 UN No.: 1866

14.2 UN Proper shipping name: Resin solution (KONNATE IL-50)

14.3 Transport Hazard class

ADR: 3

IMDG: 3

ICAO/IATA: 3

RID: 3

14.4 Packing group: II

14.5 Environmental hazards: Not applicable

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

14.7 Special precautions for user

in case of fire: F-E

in case of leakage: S-E

15. Regulatory information

15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture USA
Regulatory Information

<Toluene diisocyanate>

TSCA (Toxic Substances Control Act): Section 8(b) inventory; Present[SP]

Proposition 65: Regulated

OSHA Regulation: Regulated

CERCLA Regulation: 100 lb final RQ; 45.4 kg final RQ

SARA 311/312 Hazard classes: Not regulated

SARA 302 Regulation: Not regulated

SARA 304 Regulation: Not regulated

SARA 313 Regulation: 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: Phase-in substances subject to registration (KE-10914), Toxic substances(2010-1-611)
- European Inventory of Existing Commercial chemical Substances(EINECS): Present (247-722-4)
- China management information: Inventory of Existing Chemical Substances (IECSC): Present (11919)
- Japan management information: Existing and New Chemical Substances (ENCS): Present ((3)-2214)
- Canada management information: Domestic Substances List (DSL): Present
- Australia management information: Australia Inventory of Chemical Substances (AICS): Present
- New Zealand management information: New Zealand Inventory of Chemicals (NZIoC): HSNO Approval: HSR003307
- Philippines management information: Philippines Inventory of Chemicals and Chemical Substances (PICCS): Present
- Taiwan management information: Taiwan Chemical Substance Inventory (TCSI): Present

<N-Butyl acetate>

TSCA (Toxic Substances Control Act): Section 8(b) inventory (Present)

Proposition 65: Not regulated

OSHA Regulation: Not regulated

CERCLA Regulation: 5000 lb final RQ (listed under Butyl acetate); 2270 kg final RQ (listed under Butyl acetate)

SARA 311/312 Hazard classes: 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 (KE-04179)
- European Inventory of Existing Commercial chemical Substances(EINECS): Present (204-658-1)
- China management information: Inventory of Existing Chemical Substances (IECSC): Present (39092)
- Japan management information: Existing and New Chemical Substances (ENCS): Present ((2)-731)
- Canada management information: Domestic Substances List (DSL): Present
- Australia management information: Australia Inventory of Chemical Substances (AICS): Present
- New Zealand management information: New Zealand Inventory of Chemicals (NZIoC): HSNO Approval: HSR001091
- Philippines management information: Philippines Inventory of Chemicals and Chemical Substances(PICCS): Present
- Taiwan management information: Taiwan Chemical Substance Inventory (TCSI): Present

<1,3-Diisocyanatomethylbenzene homopolymer >

TSCA (Toxic Substances Control Act): Section 8(b) inventory; Present[SP]

Proposition 65: Not regulated

OSHA Regulation: Not regulated
CERCLA Regulation: Not regulated
SARA 311/312 Hazard classes: 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 (KE-10919)
- China management information: Inventory of Existing Chemical Substances (IECSC): Present (32208)
- Japan management information: Existing and New Chemical Substances (ENCS): Present ((7)-871)
- Canada management information: Domestic Substances List (DSL): Present
- Australia management information: Australia Inventory of Chemical Substances (AICS): Present
- New Zealand management information: New Zealand Inventory of Chemicals (NZIoC): New Zealand Inventory of Chemicals(NZIoC): May be used as a component in a product covered by a group standard but it is not approved for use as a chemical in its own right
- Philippines management information: Philippines Inventory of Chemicals and Chemical Substances(PICCS): Present
- Taiwan management information: Taiwan Chemical Substance Inventory (TCSI): Present

16. OTHER INFORMATION

16.1 Indication of changes:

Preparation date: August 7, 2002
Version: 13
Revision date: June 09, 2020

16.2 Key literature reference and sources for data:

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