



MATERIAL SAFETY DATA SHEET

DAEHEUNG CHEMICAL CO., LTD. www.dhcbond.co.kr



Product Name	HD-T(N)
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1. Product and Company Identification

- A. Product Name HD-T(N)
- B. Recommended use of the chemical and restrictions on use
- Recommended use of the chemical Bond the Plastic Sheet, Form
 - Restrictions on use of the product N/A
- C. Manufacturer/Supplier/Distributor Information
- Name DAEHEUNG CHEMICAL CO., LTD.
 - Address 68, Sandan-ro 64beon-gil, Pyeongtaek-si, Gyeonggi-do, Korea
 - Emergency phone number 82-31-668-1424

2. Hazards identification

- A. Hazard-Risk Classification
- Flammable Liquid : Category 3
 - Serious eye damage / Irritation : category 1
 - Germ cell mutagenicity : categories 2
 - Reproductive Toxicology : Category 1B
 - Target Organ Toxicity (Single Exposure) : Category 1
 - Target Organ Toxicity (Repeated Exposure) : Category 1

B. Label elements including precautionary statements

- Symbol



- Signal Word Danger
- Hazard-Risk Statement
 - H226 - Flammable liquid and vapour.
 - H318 Causes serious eye damage
 - H360 May damage fertility or the unborn child
 - H370 Causes damage to organs
 - H372 Causes damage to organs through prolonged or repeated exposure
- Precautionary Statement
 - 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/light/.../equipment
 - P242 Use only non-sparking tool
 - P243 Take precautionary measures against static discharge
 - P260 Do not breathe dust/fume/gas/mist/vapours/spray
 - P264 Wash thoroughly after handling
 - P270 Do not eat, drink or smoke when using this product
 - P280 Wear protective gloves/protective clothing/eye protection/face protection

Response	<p>P303+P361+P353 IF ON SKIN (or hair) : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower</p> <p>P305+P351+338 IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing</p> <p>P308+P311 IF exposed or concerned: Call a POISON CENTER/ doctor/physician</p> <p>P308+P313 IF exposed or concerned : Get medical advice/attention</p> <p>P310 Immediately call a POISON CENTER or doctor/physician</p> <p>P314 Get Medical advice/attention if you feel unwell</p> <p>P321 Specific treatment (on this label)</p> <p>P370+378 In case of fire: Use alcohol foam, carbon dioxide or water spray for extinction</p>
Storage	<p>P403+P235 Store in a well ventilated place. Keep cool.</p> <p>P405 Store locked up</p>
Disposal	P501 Dispose of contents/container to ...

C. Other Hazard:Risk which are not included in the classification criteria (e.g. dust explosion hazard)

N,N-DIMETHYLFORMAMIDE	
Health	2
Fire	2
Reactivity	0
URETHANE PREPOLYMER	
Health	No data available
Fire	No data available
Reactivity	No data available

3. Composition/Information on ingredients

Chemical Name	Other name	CAS number	Content(%)
N,N-DIMETHYLFORMAMIDE	N-formyldimethylamine	68-12-2	5~15
	Dimethyl formamide		
URETHANE PREPOLYMER		9009-54-5	75~85

4. First aid measures

A. Eye contact	<p>IF IN EYES: Wash carefully with water for several minutes. Remove contact lenses, if possible. Easy to do.</p> <p>If eye irritation persists, Consult a physician if irritation persists.</p>
B. Skin contact	<p>Skin (or hair): Take off immediately all contaminated clothing or remove the Keep. Rinse skin with water / shower.</p> <p>If skin irritation occurs, obtain medical advice Keep</p> <p>Wash skin with soap and water</p>
C. Inhalation	Excessive dust, or fumes when exposed to clean air removed by coughing or other symptoms and Seek medical attention if you have.
D. Ingestion	<p>Do not induce vomiting. If swallowed, rinse mouth with water (only if the person is conscious).</p> <p>Seek immediate medical advice.</p>
E. Indication of immediate medical attention and notes for physician	Medical personnel are aware of the material and to take precautions to protect.

5. Fire-Fighting measures

A. Suitable (and unsuitable) extinguishing media	Water spray, foam, dry powder
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When to do Fire-Fighting, use dry sand or earth.

B. hazards arising from the chemical (e.g. nature of any hazardous combustion products)

Highly flammable liquid and vapor.

Vapors may form explosive mixtures with air.

The steam explosion hazard at Indoor, outdoor, drain.

C. Special protective equipment and precautions for fire-fighters

In case of fire: Wear self-contained breathing apparatus.

Cool tanks/drums with water spray/remove them into safety.

6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures

Use water spray/stream to protect personnel and to cool endangered containers.

Remove product from area of fire.

Wear suitable protective clothing, gloves and eye/face protection.

Stop leak if safe to do so. Remove all sources of ignition.

In case of fire: Wear self-contained breathing apparatus.

Evacuate unnecessary personnel. Remove all sources of ignition. Stop leak if safe to do so. Eliminate leaks immediately.

B. Environmental precautions and protective procedures

Avoid release to the environment

Waterways, sewers, basements, and Prevent entry into confined spaces.

C. Methods and materials for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Collect in closed containers for disposal.

Dispose of this material and its container to hazardous or special waste collection point.

7. Handling and storage

A. Precautions for safe handling

Do not handle until all safety precautions Read and understand all safety precautions.

Wear suitable chemical resistant gloves, safety goggles, dust mask and other protective clothing.

Use in the well-ventilated areas. Prevent build-up electrostatic charge (by grounding).

Shower and eye bath. Keep away from acidic material.

Be careful to high temperatures.

B. Conditions for safe storage (including any incompatibilities)

Store in its original container in a cool environment, keep away from heat, spark, and open flame. Ground containers during storage and transfer operations to avoid static spark.

Ideal storage temp. range for ease of handling is 10 ~ 27°C

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

8. Exposure controls & personal protection

A. Control parameters (e.g. occupational exposure limit values, biological limit values)

– Occupational exposure limit values

N,N-DIMETHYLFORMAMIDE TWA – 10ppm 30mg/m³ (Skin)

URETHANE PREPOLYMER No data available

– ACGIH limit values

N,N-DIMETHYLFORMAMIDE TWA 10 ppm

URETHANE PREPOLYMER No data available

– Biological limit values

N,N-DIMETHYLFORMAMIDE 15 mg/L, 40 mg/L

URETHANE PREPOLYMER

B. Appropriate engineering controls

No data available

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate ventilation.

C. Personal protective equipment

- Respiratory protection

The filter class must be suitable for the maximum contaminant concentration(gas/vapour/aerosol/particulates) that may arise when handling the product.

- Respiratory protection

If the concentration is exceeded, closed-circuit breathing apparatus must be used!.

In case of fire: Wear self contained breathing apparatus.

- Eye protection

Wear eye protection/face protection.

- Hands protection

Wear proper chemical resistant gloves.

- Body protection

Wear proper Protective clothing.

9. Physical and chemical properties

A. Appearance

Physical state

viscous liquid

Color

Dark brown

B. Odour

A unique smell

C. Odour threshold

No data available

D. pH

No data available

E. Melting point/freezing point

No data available

F. Initial boiling point and boiling range

153 °C

G. Flashing point

58 °C (c.c.)

H. Evaporation rate

No data available

I. Flammability(solid, gas)

No data available

J. Upper/lower flammability or explosive

No data available

K. Vapor pressure

No data available

L. Solubility

Not soluble in water

M. Vapor density

No data available

N. Relative density

1.10±0.05

O Partition coefficient:n-octanol/water

No data available

P. Auto-ignition temperature

445 °C

Q. Decomposition temperature

No data available

R. Viscosity

400±100 cP

S. Formula mass

No data available

10. Stability and reactivity

A. Chemical stability and possibility of hazardous reactions

Stable under normal conditions

Highly flammable liquid and vapor

B. Conditions to avoid

Avoid the fire, spark, flame, and other ignition sources

The fume has an explosive characteristic.

Avoid the overheating of container.

C. Incompatible materials

flammable material

D. Hazardous decomposition products

CO, CO₂, nitrogen compounds

11. Toxicological information

A. Information on the likely routes of

No data available

B. Health hazards information

- Acute toxic

Oral		
	N,N-DIMETHYLFORMAMIDE	LD50 2800 mg/kg Rat
	URETHANE PREPOLYMER	No data available
Inhalation		
	N,N-DIMETHYLFORMAMIDE	Vapor LC50 9400 mg/m ³ 2 hr Mouse
	URETHANE PREPOLYMER	No data available
Dermal		
	N,N-DIMETHYLFORMAMIDE	LD50 4720 mg/kg Rabbit
	URETHANE PREPOLYMER	No data available
- Skin corrosive/irritant		
	N,N-DIMETHYLFORMAMIDE	Weak stimulation (Human)
	URETHANE PREPOLYMER	No data available
- Serious eye damage/eye irritation		
	N,N-DIMETHYLFORMAMIDE	Severe irritation (Rabbit)
	URETHANE PREPOLYMER	No data available
- Respiratory sensitization		
	N,N-DIMETHYLFORMAMIDE	No data available
	URETHANE PREPOLYMER	No data available
- Skin sensitization		
	N,N-DIMETHYLFORMAMIDE	No data available
	URETHANE PREPOLYMER	No data available
- Carcinogenicity		
IARC		
	N,N-DIMETHYLFORMAMIDE	3
	URETHANE PREPOLYMER	3
ACGIH		
	N,N-DIMETHYLFORMAMIDE	A4 ; Not Classifiable as a Human Carcinogen
	URETHANE PREPOLYMER	No data available
NTP		
	N,N-DIMETHYLFORMAMIDE	No data available
	URETHANE PREPOLYMER	No data available
EU CLP		
	N,N-DIMETHYLFORMAMIDE	No data available
	URETHANE PREPOLYMER	No data available
Germ cell mutagenicity		
	N,N-DIMETHYLFORMAMIDE	In vivo somatic cell mutagenicity test positive
	URETHANE PREPOLYMER	No data available
Reproductive toxicity		
	N,N-DIMETHYLFORMAMIDE	* Notice of Ministry of Employment and Labor 1B (korea)
	URETHANE PREPOLYMER	No data available
Specific target organ toxicity (single exposure)		
	N,N-DIMETHYLFORMAMIDE	In humans, after eating disorders, vomiting, abdominal, lumbar, and thigh pain and symptoms disappear, fibrosis of the liver and hypertrophy of the lining of the lungs in experimental animals
	URETHANE PREPOLYMER	No data available
Specific target organ toxicity (repeated exposure)		
	N,N-DIMETHYLFORMAMIDE	Hepatocyte hypertrophy, acute hepatocellular injury, elevation of SGPT and SGOT activity, and pathological changes in the liver of young animals were observed in experimental animals

URETHANE PREPOLYMER	No data available
Aspiration hazard	No data available

12. Ecological information

A. Aquatic and terrestrial ecotoxicity

- Fish

N,N-DIMETHYLFORMAMIDE LC50 7100 mg/l 96 hr *Lepomis macrochirus*

URETHANE PREPOLYMER No data available

- Shellfish

N,N-DIMETHYLFORMAMIDE EC50 4500 mg/l 48 hr *Daphnia magna*

URETHANE PREPOLYMER No data available

- Bird

N,N-DIMETHYLFORMAMIDE EC50 > 500 mg/l 96 hr *Scenedesmus subspicatus*

URETHANE PREPOLYMER No data available

B. Persistence and degradability

- Persistence

N,N-DIMETHYLFORMAMIDE log Kow -0.87

URETHANE PREPOLYMER No data available

C. Bioaccumulative potential

No data available

- Potential

N,N-DIMETHYLFORMAMIDE BCF 0.3 ~ 1.2

URETHANE PREPOLYMER No data available

- Biodegradable

N,N-DIMETHYLFORMAMIDE 100 (%) 14 day

URETHANE PREPOLYMER No data available

D. Mobility in soil

No data available

E. Other adverse effects

No data available

13. Disposal considerations

A. Disposal method Destroy the product by incineration

B. Disposal precaution Destroy the product by incineration

14. Transport information

A. UN number 1133

B. UN proper shipping name ADHESIVES containing flammable liquid

C. Transport hazard class: 3

D. Packing group (if applicable) III

E. Marine pollution (yes/no) No data available

F. Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises:

F-E, S-D

15. Regulatory information

A. Industrial Safety and Health Act

N,N-DIMETHYLFORMAMIDE Toxic substances to be managed

Working environment Target material (measurement period: 6 months)

Special medical examination subject substance (diagnosis period: 6 months)

Exposure standard setting substance

	Setting substance of tolerance standard
URETHANE PREPOLYMER	No data available
B. Toxic Chemical Control Act	
N,N-DIMETHYLFORMAMIDE	Toxic substance
URETHANE PREPOLYMER	No data available
C. Dangerous Material Safety Control Act	The 4th type, the 2st petroleum type 2000 <i>l</i>
D. Wastes Management Act	Designated Wastes
E. Other requirements in domestic and other countries	
- Domestic	Not Applicable.
- Other countries	
CERCLA	
N,N-DIMETHYLFORMAMIDE	45.3599 kg 100 lb
URETHANE PREPOLYMER	Not Applicable.
EPCRA 302	Not Applicable.
EPCRA 304	Not Applicable.
EPCRA 313	
N,N-DIMETHYLFORMAMIDE	Applicable.
URETHANE PREPOLYMER	Not Applicable.
Rotterdam Convention on material	Not Applicable.
Stockholm Convention on material	Not Applicable.
The Montreal Protocol on Substances	Not Applicable.
EU regulations	
N,N-DIMETHYLFORMAMIDE	Repr. Cat. 2; R61Xn; R20/21Xi; R36
URETHANE PREPOLYMER	Not Applicable.
EU regulations	
N,N-DIMETHYLFORMAMIDE	R61, R20/21, R36
URETHANE PREPOLYMER	Not Applicable.
EU regulations	
N,N-DIMETHYLFORMAMIDE	S53, S45
URETHANE PREPOLYMER	Not Applicable.

16. Other information

A. Information source and references

Source of data : Korea Occupational Safety and Health Agency (KOSHA)>

- B. Issuing date 2014-03-07
- C. Revision number and date 1, 2017-11-28
- D. others

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