

Material Safety Data Sheet

1. Product and company identification

A. Product Name: **DH-100(H)**

B. Recommended use of the chemical and restrictions on use:

- General Use : Epoxy Hardener
- Restrictions on use : Not determined

C. Manufacturer/Supplier/Distributor Information

- Name : DAEHWA PRECISION CO., LTD
- Address : B110/111, Suntechcity, 513-15, Sangdaewon, Jungwongu, Seongnamsi, Gyeonggido, Korea
- Emergency phone number : TEL. 82-31-777-1155, FAX. 82-31-777-1150

2. Hazards identification

A. Classification of the substance and mixture : **Skin Corrosion/Irritation : Category1**
Serious Eye Damage/Eye Irritation : Category1

B. Label elements including precautionary statements

- Symbol:



- Signal Word: **Dangerous**

- Hazard statement :

H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause allergic skin reaction.
H319 Cause serious eye irritation.

- Precautionary statement(Prevention)

P264 Wash thoroughly after handling.
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.

- Precautionary statement(Response)

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P330 Rinse mouth.

P332+P313 If skin irritation occurs: Get medical advice/attention.
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
 P337+P313 If eye irritation persists: Get medical advice/attention.
 P362 Take off contaminated clothing and wash before reuse.

- Precautionary statement(Storage)

P405 Store locked up.

P501 Disposal of contents/container in accordance with local, regional, national and international regulations.

C. Other Hazard-Risk which are not included in the classification criteria : No data

3. Composition/Information on ingredients

| Chemical Name | CAS number | Content (%) |
|-----------------|------------|-------------|
| Aliphatic amine | 112-24-3 | 75~85 |
| Tertiary amine | 90-72-2 | 15~25 |
| | | |

4. First aid measures

- A. Eye contact : Flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Consult a physician if signs of irritation appear.
- B. Skin contact : Immediately remove contaminated clothing or shoes, wash skin with plenty of water for at least 15 minutes. Use soap if readily available, or follow by thoroughly washing soap and water. Do not reuse clothing until thoroughly decontaminated.
- C. Inhalation : Move person to fresh air area and provide oxygen if breathing is difficult. Consult a physician if effects occur.
- D. Ingestion : Do not induce vomiting because of risk of aspiration. Rinse mouth with water. Consult a physician if effects occur.
- E. Indication of immediate medical attention and notes for physician : Get adequate measure with the symptoms. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. Fire-Fighting measures

- A. Suitable (and unsuitable) extinguishing media: Dry powder, carbon dioxide, alcohol-resistant foam, water spray
- B. Specific hazards arising from the chemical (e.g. nature of any hazardous combustion products):
 - In case of fire, toxic fumes might be formed May cause fire.
- C. Special protective equipment :
 - Isolate from heat, electrical equipment, sparks and opened Were self-contained breathing apparatus

6. Accidental release measures

- A. Personal precautions, protective equipment and emergency procedures
 - Avoid contact with eyes and clothing. Avoid contact with liquid and vapors.

B. Environmental precautions and protective procedures:

- Do not empty into drains. Do not discharge into the sub soil/soil

C. Methods and materials for containment and cleaning up:

- Cover with absorbent or contain.
- Collect for disposal.
- Observe government regulations.

7. Handling and storage

A. Precautions for safe handling:

- Do Keep in a cool, well-ventilated place and container closed.

B. Conditions for safe storage (including any incompatibilities):

- Avoid contact with skin and eyes. Use with adequate ventilation.
- Keep away from heat, flame, sparks and high temperature.

8. Exposure controls & personal protection

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

- Domestic regulation : No data
- ACGIH (TLV) : No data
- NIOSH (REL): No data
- OSHA (PEL) : No data
- NIOSH (IDLH): No data
- ACGIH (BEI): No data

B. Appropriate engineering controls:

- Good general ventilation sufficient under most conditions, but local exhaust ventilation may be necessary for some operations.

C. Personal protective equipment

- Respiratory protection: Never exceed the national Occupational Exposure Limit.
Use local. Exhaust ventilation or handle in a ventilated enclosure.
For greater protection a face piece chemical cartridge respirator is recommended.
- Eye protection: Safety glasses with side shields.
- Hands protection: Chemical resistant protective gloves
- Body protection: Chemical resistant protective suit and safety shoes.

9. Physical and chemical properties

A. Appearance (physical state, color etc): Liquid, Light Yellow

B. Odour: Ammonia odor

C. Odour threshold: No information

D. pH(n): No information

- E. Melting point/freezing point: [No available](#)
- F. Initial boiling point and boiling range: [No information](#)
- G. Flashing point : [137°C](#)
- H. Evaporation rate: (Butyl acetate=1): [No available](#)
- I. Flammability (solid, gas): [No information](#)
- J. Upper/lower flammability or explosive limits: [No information](#)
- K. Vapor pressure: [1mmHg \(at 100°C\)](#)
- L. Solubility: [Soluble in water](#)
- M. Vapor density: [> 1 \[Air=1\]](#)
- N. Relative density: [0.9~1.0](#)
- O. Partition coefficient: n-octanol/water: [No information.](#)
- P. Auto-ignition temperature: [No information](#)
- Q. Decomposition temperature: [No information](#)

10. Stability and reactivity

- A. Chemical stability and possibility of hazardous reactions: [Stable at ambient & atmosphere conditions](#)
- B. Conditions to avoid (e.g. static discharge, shock or vibration, etc): [Avoid to contact with strong oxidizing agent, heat, spark and flame. Don't apply heat to container.](#)
- C. Substances to avoid : [Avoid to contact with strong oxidizing agent, heat, spark and flame. Don't apply heat to container.](#)
- D. Corrosion to metals : [Acid, amine, anhydride, oxidizing agent, chloroform, chloroform acid.](#)
- E. Hazardous decomposition products: [May produce hazardous carbon oxides, hydrogen, methane.](#)

11. Toxicological information

- A. Acute toxicity Experimental/calculated data :
 - LD50 rat(oral) : [2,885 mg/kg](#)
 - LC50 rabbit(dermal) : [2,980 mg/kg](#)
 - LD50 rat(by inhalation) : [No information](#)
- B. Health hazards information
 - Skin corrosive/irritant: [No information](#)
 - Serious eye damage/eye irritation: [No information](#)
 - Respiratory sensitization: [No information](#)
 - Skin sensitization: [No information](#)
 - Carcinogenicity: [No information](#)
 - Germ Cell Mutagenicity : [No information](#)
 - Reproductive toxicity: [No information](#)
 - Specific target organ toxicity (single exposure): [No information](#)
 - Specific target organ toxicity (repeated exposure): [No information](#)
 - Germ Cell Mutagenicity : [No information](#)

12. Ecological information

- A. Aquatic and terrestrial ecotoxicity: fish - LC50 >220 mg/L , 96 hr *Oryzias latipes*
crustacea - No data
aquatic plant - No data
- B. Persistence and Biodegradability: No information
- C. Bioaccumulative potential: No information
- D. Mobility in soil: No information
- E. Other adverse effects: No information

13. Disposal considerations

- A. Method of disposal : Dispose of contents/container to the regulations
- B. Disposal precaution : No data

14. Transport information

- A. UN number: 2735
- B. UN proper shipping name: Amines, liquid, corrosive, n.o.s. or Polyamines, liquid, corrosive, n.o.s.
- C. Transport hazard class: 8
- D. Packing group (if applicable): 3
- E. Marin pollution (yes/no): YES
- 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:
Emergency procedure at fire : F - A
Emergency procedure at leakages : S – B

15. Regulatory information

- | | |
|---|--------------------------|
| A. Occupational Safety and Health Act | Not applicable |
| B. Toxic Chemical Control Act | No data |
| C. Safety Control Dangerous Substance Act | Class4, Class3 Petroleum |
| D. Wastes Control Act | No data |
| E. Other requirements in domestic and other countries | |
| USA (OSHA) | Not applicable |
| USA (CERCLA) | Not applicable |
| USA (EPCRA 302) | Not applicable |
| USA (EPCRA 304) | Not applicable |
| USA (EPCRA 313) | Not applicable |
| USA (Rotterdam Convention material) | Not applicable |
| USA (Stockholm Convention material) | Not applicable |
| USA (Substance Montreal Protocol) | Not applicable |
| EU (Classification) | Xn Hazardous |

| | |
|---------------------|---|
| EU (Risk Phrases) | <p>R21/22 Harmful in contact with skin and if swallowed.</p> <p>R34 Causes burns.</p> <p>R43 May cause sensitization by skin contact.</p> <p>R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.</p> |
| EU (Safety Phrases) | <p>S1/2 Keep locked up and out of the reach of children.</p> <p>S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.</p> <p>S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.</p> <p>S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).</p> <p>S61 Avoid release to the environment. Refer to special instructions/safety data sheets.</p> |

16. Other information

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| A. Information source and references | No data |
| B. Issuing date | 2013-10-01 |
| C. Revision number and date | |
| Revision No. | |
| Revision date | 2013-10-01 |
| D. others | No data |