

# Material Safety Data Sheet

## 1. Product and company identification

- A. Product Name: **DHP-2000 Rigid Polyurethane Foam**
- B. Recommended use of the chemical and restrictions on use:
- Recommended use of the chemical: **Leakage crack waterstops**
  - Restrictions on use : Not determined
- C. Manufacturer/Supplier/Distributor Information
- Name : DAEHWA PRECISION CO., LTD
  - Address : #109~#113, 474, Dunchon-daero, Jungwon-gu, Seongnam-si, Gyeonggi-do, 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 : Category 2  
Serious eye damage/irritation : Category 2  
Carcinogenicity : Category 2  
Specific target organ toxicity (repeated exposure) : Category 2

- B. Label elements including precautionary statements
- Symbol:



- Signal Word: **Dangerous**
- Hazard statement :  
**H315 Causes skin irritation**  
**H319 Causes serious eye irritation**  
**H351 Suspected of causing cancer**  
**H373 May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)**

- Precautionary statement(Prevention)  
**P201 Obtain special instructions before use.**  
**P202 Do not handle until all safety precautions have been read and understood.**  
**P260 Do not breathe gas/mist/vapours/spray.**  
**P264 Wash hands thoroughly after handling.**  
**P280 Wear protective gloves/protective clothing/eye protection/face protection.**

- Precautionary statement(Response)  
**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.**  
**P308+P313 If exposed or concerned: Get medical advice/attention.**  
**P314 Get medical advice/attention if you feel unwell.**  
**P321 Specific treatment**

P332+P313 If skin irritation 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.

- Precautionary statement(Disposal)  
 P501 Dispose of contents/container in accordance with local/regional/national/international regulation.

C. Other

NFPA

- Health : 1
- Flammability : 1
- Reactivity : 0

### 3. Composition/Information on ingredients

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Chloroform	-	67-66-3	9
Polyethylene Glycol		25322-68-3	5
Acetone		67-64-1	6
MDI-POLYPROPYLENE GLYCOL COPOLYMER		9048-57-1	80

### 4. First aid measures

A. General advice

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- Remove contact lenses if worn.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- Wash thoroughly after handling.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.

D. Ingestions contact :

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.
- Get medical attention immediately.

E. Delayed and immediate effects and also chronic effects from short and long term exposure : Not information

F. Notes to physician : Notify medical personnel of contaminated situations and have them take appropriate protective measures.

## 5. Fire-Fighting measures

- A. Suitable (and unsuitable) extinguishing media:
  - Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
  - Avoid use of water jet for extinguishing
- B. Specific hazards arising from the chemical (e.g. nature of any hazardous combustion products):
  - No information
- C. Special protective actions for firefighters:
  - Using a unattended and water devices in case of large fire and leave alone to burn if you do not imperative.
  - Avoid inhalation of materials or combustion by-products.
  - Do not access if the tank on fire.
  - Use appropriate extinguishing measure suitable for surrounding fire.
  - Wear appropriate protective equipment.
  - Keep containers cool with water spray.
  - Vapor or gas is burned at distant ignition sources can be spread quickly.
  - Due to the extremely low flash point, irrigating fire extinguishing may be less effective when put out a fire.

## 6. Accidental release measures

- A. Personal precautions, protective equipment and emergency procedures
  - Wear proper personal protective apparatus as indicated in Section 8 and avoid skin contact and inhalation.
  - Do not touch spilled material. Stop leak if you can do it without risk.
  - Remove all sources of ignition.
  - Handling the damaged containers or spilled material after wearing protective equipment.
  - Do not direct water at spill or source of leak.
  - Avoid skin contact and inhalation.
- B. Environmental precautions and protective procedures:
  - Prevent runoff and contact with waterways, drains or sewers.
  - If large amounts have been spilled, inform the relevant authorities.
- C. Methods and materials for containment and cleaning up:
  - Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
  - Notification to central government, local government. When emissions at least of the standard amount
  - Dispose of waste in accordance with local regulation.
  - Appropriate container for disposal of spilled material collected.
  - Small leak: sand or other non-combustible material, please let use absorption.
  - Wipe off the solvent.
  - Dike for later disposal.
  - Do not use plastic containers..

## 7. Handling and storage

- A. Precautions for safe handling:
  - Avoid direct physical contact.
  - Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
  - Comply with all applicable laws and regulations for handling
  - Dealing only with a well-ventilated place.
  - Do not inhale the steam prolonged or repeated.
  - Avoid contact with heat, sparks, flame or other ignition sources.

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

- Do not apply direct heat.
- Save applicable laws and regulations.
- Do not apply any physical shock to container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Prevent static electricity and keep away from combustible materials or heat sources.
- Collected them in sealed containers.

## 8. Exposure controls & personal protection

A. Exposure limits

- ACGIH TVL : No information
- OSHA PEL : No information

B. Appropriate engineering controls:

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

C. Personal protective equipment

- Respiratory protection:
  - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
  - Respiratory protection is ranked in order from minimum to maximum.
  - Consider warning properties before use.
  - Any chemical cartridge respirator with organic vapor cartridge(s).
  - Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).
  - Any air-purifying respirator with a full facepiece and an organic vapor canister.
  - For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- Eye protection:
  - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
  - Provide an emergency eye wash station and quick drench shower in the immediate work area.
- Hands protection: Wear appropriate chemical resistant glove.
- Skin protection: Wear appropriate chemical resistant protective clothing.
- Others: No information

## 9. Physical and chemical properties

- A. Appearance (physical state, color etc): liquid(Viscous liquid), Brown
- B. Odour: Chloroform smell
- C. Odour threshold: No information
- D. pH(n): No information
- E. Melting point/freezing point: No information
- F. Initial boiling point and boiling range: 40°C
- G. Flashing point : Less than 250°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: 58400 Pa, 25°C
- L. Solubility: 13200 mg/l, 25°C, pH: 7
- M. Vapor density: 1.33 g/cm<sup>3</sup> 20°C
- N. Relative density: 1.21, 20°C
- O. Partition coefficient: n-octanol/water: No information.
- P. Auto-ignition temperature: 605°C (101.3 kPa)
- Q. Decomposition temperature: No information
- R. Viscosity: 500~600 cps/25°C
- S. Molecular weight: No information

## 10. Stability and reactivity

- A. Chemical stability and possibility of hazardous reactions: Stable under recommended storage and handling conditions
- B. Possibility of hazardous reactions : Cylinders exposed to fire may vent and release flammable gas.
- C. Conditions to avoid (e.g. static discharge, shock or vibration, etc):
  - Avoid contact with incompatible materials and condition.
  - Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces
  - Avoid contact with heat, sparks, flame or other ignition sources.
- D. Incompatible materials : No information
- E. Hazardous decomposition products: May emit flammable vapour if involved in fire.

## 11. Toxicological information

- A. Acute toxicity Experimental/calculated data :
  - \* Oral
    - Trichloromethane : LD50 > 2000 mg/kg Rat (OECD TG 401, GLP)
  - \* Dermal
    - Trichloromethane : LD50 > 2000 mg/kg Rat (OECD TG 402, GLP)
  - \* Inhalation
    - Trichloromethane : Fume LC50 49000 mg/m<sup>3</sup> 7 hr Mouse
- B. Health hazards information
  - Skin corrosive/irritant: Trichloromethane: OECD TG 404
  - Serious eye damage/eye irritation: Trichloromethane : eye irritation, cornea injury, 2.8/5
  - Respiratory sensitization: No information
  - Skin sensitization: Trichloromethane: OECD TG 429, GLP
  - Carcinogenicity:
    - \* IARC: Trichloromethane : 2A
    - \* OSHA: Not available
    - \* ACGIH; Trichloromethane : A3
    - \* NTP: Trichloromethane : R
    - \* EU CLP: Trichloromethane : 2
  - Germ Cell Mutagenicity : Trichloromethane: OECD TG 471, OECD TG 473, OECD TG 474, GLP
  - Reproductive toxicity: Trichloromethane : OECD TG 416, GLP, LOAEC = 4,500 ppm(OECD TG 414)

- Specific target organ toxicity (single exposure): No information
- Specific target organ toxicity (repeated exposure): Trichloromethane : NOAEL = 6 mg/kg bw/day  
OECD TG 453 , NOAEC = 200 ppm OECD TG 453

## 12. Ecological information

### A. Aquatic and terrestrial ecotoxicity:

#### \*Fish:

- Trichloromethane : LC 193 mg/l 96 hr Pimephales promelas
- '(4,4'-(OXYDI-2,1-ETHANEDIYL)BISMORPH... : LC50 4219.960 mg/l 96 hr

#### \*Crustaceans

- Trichloromethane : LC50 27 mg/l 48 hr Daphnia magna
- '(4,4'-(OXYDI-2,1-ETHANEDIYL)BISMORPH... : LC50 214.736 mg/l 48 hr

#### \*Algae

- Trichloromethane : EC50 2000 mg/l 21 days
- '(4,4'-(OXYDI-2,1-ETHANEDIYL)BISMORPH... : EC50 31.416 mg/l 96 hr

### B. Persistence and Biodegradability:

#### \*Persistence

- Trichloromethane : log Kow 1.25
- '(4,4'-(OXYDI-2,1-ETHANEDIYL)BISMORPH... : log Kow -1.31

#### \*Degradability: No information

### C. Bioaccumulative potential:

#### \*Bioaccumulative potential

- Trichloromethane : 2~40 BCF
- '(4,4'-(OXYDI-2,1-ETHANEDIYL)BISMORPH... : BCF 3.16

#### \*Biodegration

- Trichloromethane : 68 (%) 28 day (O2 consumption)

### D. Mobility in soil: No information

### E. Other adverse effects:

- Trichloromethane : Fish Pimephales promelas : LC508d = 471 mg/L, NOEC28d = 83 mg/L  
ASTM E729 - 80

## 13. Disposal considerations

### A. Method of disposal :

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

### B. Special precautions for disposal :

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

## 14. Transport information

### A. UN number(IMDG CODE/IATA DGR): No information

### B. Proper shipping name: Not applicable

- C. Transport hazard class: **Not applicable**
- D. IMDG CODE / IATA DGR Packing group: **Not applicable**
- E. Marine pollution (yes/no): **Not applicable**
- F. Special precautions for user related to transport or transportation measures
  - Local transport follows in accordance with Dangerous goods Safety Management Law.
  - Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
  - EmS FIRE SCHEDULE : F-A
  - EmS SPILLAGE SCHEDULE : S-A

## 15. Regulatory information

- A. National and/or international regulatory information
  - POPs Management Law : **Not applicable**
  - Information of EU Classification
    - \* Classification : **Not applicable**
  - U.S. Federal regulations
    - \* OSHA PROCESS SAFETY (29CFR1910.119) : **Not applicable**
    - \* CERCLA Section 103 (40CFR302.4): **Trichloromethane** : 453.599kg 1000lb
    - \* EPCRA Section 302 (40CFR355.30): **Not applicable**
    - \* EPCRA Section 304 (40CFR355.40): **Not applicable**
    - \* EPCRA Section 313 (40CFR372.65): **Not applicable**
  - Rotterdam Convention listed ingredients : **Not applicable**
  - Stockholm Convention listed ingredients: **Not applicable**
  - Montreal Protocol listed ingredients: **Not applicable**

## 16. Other information

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