

<These data can be something that is created in accordance with the provisions of Article 41 of the Occupational Safety and Health Act>

## 1. Information for chemical product and manufacturer

### A) Product Name

BONDEX 750D

### B) Recommended use of the chemical and restrictions on use

Metal and metal adhesion, FPR and metal bonding, glue of metal and aluminum honeycomb core, and other purposes

General, special industrial composites materials

### C) Manufacturer Information

- Manufacturer  Hankuk Carbon Co.,Ltd
- Address  #183, Wonpyong-Ri, Sudong-Myun, Hamyang-Kun, Kyungnam, Korea
- Telephone number  (055) 964 - 1551 ~ 1554
- FAX  (055) 964 - 1561

## 2. Hazard identification

### A) Hazard, Risk Classification

Acute toxicity (oral) : Category 4

Skin corrosion / irritation : Category 2

Severe eye damage / irritation : Category 2A

Skin sensitization : Category 1

Aquatic environment hazardous (chronic) : Category 2

### B) Label elements including precautionary statements

#### - Symbol



#### - Signal Word

WARNING

#### - Hazard, Risk Statement

H302 Harmful if swallowed

H315 Causes skin irritation

H317 May cause an allergic skin reaction

- H319 Causes serious eye irritation
- H411 Toxic to aquatic life with long lasting effects

– Precautionary Statement

- \* Prevention
  - P261 Avoid breathing dust/fume/gas/mist/vapours/spray
  - P264 Wash thoroughly after handling
  - P270 Do not eat, drink or smoke when using this product
  - 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
- \* 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
  - P363 Wash contaminated clothing before reuse
  - P391 Collect spillage
- \* Storage
  - P403 Store in a well-ventilated place
  - P405 Store locked up
- \* Disposal
  - P501 Dispose of contents / container to depending on what you set out in relevant legislation

C) Other Hazard·Risk which are not included in the classification criteria

- Health 2
- Fire 1
- Reactivity 0

### 3. Composition, Information on ingredient

Chemical Name	Other name	CAS NO.	Content(%)
Hypro 1300X13 CTBN	-	-	10~20
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	DIGLYCIDYL ETHER OF BISPHENOL A	25068-38-6	10~20
Diglycidyl ether of bisphenol A	-	25036-25-3	60~70

### 4. First aid measures

#### A) Eye contact

- After contact with eyes, wash eyes with running water immediately for at least 15 minutes
- Lift the eyelid and rinse chemicals
- Take measures of immediate medical

#### B) Skin contact

- Please take off contaminated clothing and shoes, immediately
- After contact with skin, rinse the skin with soap and running water immediately  
(Between 15 to 20 minutes at least)
- If irritation persists : receive medical attention

#### C) Inhalation

- Moved to the fresh air area from the exposed area immediately
- If breathing is difficult : give oxygen
- Take measures of immediate medical

#### D) Ingestion

- Do not induce vomiting
- If in the following situations sleepiness, convulsions, or unconscious give a glass of water, and seek medical attention immediately

#### E) Indication of immediate medical attention and notes for physician

- There may be symptoms irritation, allergic reactions, and such as vomiting
- Take the appropriate medical actions according to symptoms

## 5. Fire-Fighting measures

### A) Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media  Powder type fire extinguisher, carbon dioxide, water spray, or Foam
- Unsuitable extinguishing media  High-pressure water spray

### B) Specific hazards arising from the chemical

- Thermal decomposition  At combustion, could occur toxic carbon oxides and chlorine toxic etc
- Fire and explosion hazards  Heat, sparks, flames can be ignited by  
 Containers may explode when heated

### C) Special protective equipment and precautions for fire-fighters

- To avoid contact and use personal protective equipment
- Never breathe steam and dust
- Make an embankment for further processing

## 6. Accidental release measures

### A) Personal precautions, protective equipment and emergency procedures

- To avoid contact with cloth and body, and use personal protective equipment
- Do not breathe vapor or mist
- Eliminate all ignition sources

### B) Environmental precautions and protective procedures

- Prevent the inflow to waterways, confined spaces, and sewers

### C) Methods and materials for containment and cleaning up

- Carefully sweep up and remove
- Put in a sealed container, and collect or dispose

## 7. Handling and Storage

### A) Precautions for safe handling

- Use personal protective equipment

### B) Conditions for safe storage

- Container be stored in a well-ventilated area
- Maintain low temperature and low humidity
- Avoid direct sunlight, Ignition source, or high temperature

## 8. Exposure controls & Personal protection

### A) Exposure limits

- Domestic regulation  No data
- ACGIH  No data
- Biological  No data

### B) Appropriate engineering controls

- Install Local exhaust ventilation and keep ventilation moderately at room temperature
- Must let out by fan if be formed vapor

### C) Personal protective equipment

- Respiratory protection  Do not breathe vapor or mist  
 Wear respiratory protective equipment that is authenticated to prevent overexposure
- Eye protection  Wear protective goggles if there is a possibility of contact with the eye
- Hands protection  Wear protective gloves when possible
- Body protection  Wear protective clothes when possible

## 9. Physical and Chemical Properties

### A) Appearance

Blue Liquid

### B) Odor

Weak odor

### C) Odor threshold

No data

### D) PH

25068-38-6 : 6~8

25036-25-3 : 6~8

### E) Melting point / Freezing point

25068-38-6 : -16°C

### F) Initial boiling point and range

25068-38-6 : > 204.4°C

25036-25-3 : > 204.4°C

### G) Flashing point

1300X13 : > 170°C

25068-38-6 : 266°C

25036-25-3 : 254°C

### H) Evaporation rate

No data

### I) Flammability (solid, gas)

No data

J) Upper / lower flammability or explosive limits

No data

K) Vapor pressure

25068-38-6 :  $4.6 \times 10^{-8}$  Pa (at 25°C)

25036-25-3 : 1mmHg (180°C)

L) Solubility

300X13 : Ignorable

25068-38-6 : 6.9mg/L (at 20°C)

25036-25-3 : Insoluble

M) Vapor density

25036-25-3 : > 1.0 (air = 1)

N) Relative density

1.14 ~ 1.17 (20°C) / (water=1)

O) Partition coefficient : n-octanol/water

300X13 : 0.77

25068-38-6 : log Kow = 2.821

P) Auto-ignition temperature

Not applicable

Q) Decomposition temperature

No data

R) Viscosity

300X13 : 500,000 cP (25°C)

25068-38-6 : 11,500 - 13,500cps (25°C)

S) Formula mass

No data

## 10. Stability and Reactivity

A) Chemical stability

Chemically stable in storage conditions

B) Possibility of hazardous reactions

Heat polymerization occurs by acid, amine, or other epoxy

C) Conditions to avoid

Avoid contact with strong oxidizing agents, flame, heat, or sparks

D) Incompatible materials

Acid, amine, epoxy, oxidant, and chloroform

E) Hazardous decomposition products

At combustion, could occur toxic carbon oxides and chlorine toxic etc

## 11. Toxicological Information

### A) Information on the likely routes of exposure

- by respiratory organ  May cause irritation of the mucous membranes and respiratory at the time of inhalation vapor
- by mouth  May cause irritation of the stomach at the time of intake
- by skin and contact  May cause irritation of the skin  
 Continuous contact may cause dermatitis
- by eye and contact  May cause irritation of the eyes at the time of contact

### B) Health Hazard Information

- Acute toxic
  - \* Oral
    - 1300X13 : LD50 > 34g/kg Rat
    - 25068-38-6 : LD50 > 2,000mg/kg bw Rat  
LD50 = 1,000 ~ 5,000mg/Kg Rat  
LD50 = 500 ~ 2,000mg/Kg Mouse
    - 25036-25-3 : LD50 > 2,000mg/kg Rat
  - \* Dermal
    - 1300X13 : LD50 > 3g/kg Rabbit
    - 25068-38-6 : LD50 > 2,000 mg/kg bw Rat  
LD50 > 1,200 - 20,000mg/Kg Rat  
LD50 > 20,000mg/Kg Rabbit  
LD50 = 1,270mg/kg Mouse
    - 25036-25-3 : LD50 > 2,000mg/kg Rabbit
  - \* Inhalation
    - 25068-38-6 : 4h-LC0 = approx. 0.89x10<sup>-5</sup> ppm Rat
- Skin corrosive / irritant
  - 1300X13 : Skin irritation, rabbit
  - 25068-38-6 : Skin irritation at rabbit
- Serious eye damage / irritation
  - 1300X13 : Eye irritation, rabbit
  - 25068-38-6 : Eye irritation at rabbit
- Respiratory sensitization
  - 1300X13 : Not applicable
- Skin sensitization
  - 25068-38-6 : May causes sensitization in contact with skin
- Carcinogenicity
  - 1300X13 : Not applicable
  - 25068-38-6
    - Oral  
NOAEL : 15mg/kg/day (male)  
- Decreased body weight, an enlarged the cecum  
NOAEL : 100mg/kg/day (female)
    - Dermal  
The systemic NOEL : 1mg/kg/day (female rats)  
- Histopathologic changes (10, 100mg/kg/day)  
The systemic NOEL : 100mg/kg/day (male mice)  
The application site NOEL : 0.1mg/kg/day (male mice)  
- Epidermal hyperplasia,  
chronic dermal inflammation, epidermal crusts

(10, 100mg/kg/application)

- Germ Cell Mutagenicity  I300X13 : Not applicable  
 25068-38-6 : Not classified
- Reproductive toxicity  I300X13 : Not applicable  
 25068-38-6 : No indications of any adverse effects on reproduction, There was no evidence of developmental toxicity
- Specific target organ toxicity (single exposure)  
 I300X13 : Not applicable
- Specific target organ toxicity (repeated exposure)  
 I300X13 : Not applicable  
 25068-38-6  
Oral  
Slight body weight effects (250mg/kg/day and higher)  
Enlarged cecum (necropsy, male rats, 250mg/kg/day)  
Slight histopathologic changes (the adrenal gland, cecum and kidney, rats, 250mg/kg/day)  
A 3% decrease in body weight (female rats, 50mg/kg/day)  
Dermal  
The systemic toxicity NOAEL : 100mg/kg/day  
- slight decrease in body weights (1000mg/kg/day)  
Dermal effects NOEL : 10mg/kg/day (female rats)
- Aspiration hazard  I300X13 : Not applicable

## 12. Ecological Information

### A) Ecotoxicity

- Fish  25068-38-6 : 96hr-LC50 = 3.6mg/L test mat.  
(direct application, nominal)(OECD Guideline 203)  
LC50 1.41mg/L 96hr
- Crustaceans  I300X13 : 48hr EC 50 : > 1000mg/L (OECD 202)  
 25068-38-6 : 48hr-EC50 = 2.8mg/L test mat.  
(Direct addition, nominal, based on : mobility)  
(OECD Guideline 202)
- Algae  I300X13 : 72hr EC50 : > 1000mg/L (OECD 201)  
 25068-38-6 : 72hr-EC50 > 11mg/L  
water soluble fraction (meas. (arithm. mean))  
based on: growth rate (EPA-660/3-75-009)

### B) Persistence and Degradability

- Persistence  25036-25-3 : Not applicable
- Degradability  No data

### C) Bioaccumulative potential



- Concentration                     25068-38-6 : Kow = 3.24, log Kow 2.281 (estimates)  
BCF 31 L/kg ww, BCF 0.56 – 0.67
- Bio resolvability                 25068-38-6 : 0(%) 28day – Non degradability

D) Mobility in soil

25068-38-6 : Log Koc = 2.65 +/- 0.7

E) Other adverse effects

25068-38-6

Crustaceans : 21d-NOEC = 0.3 mg/L test mat.  
(nominal) based on: survival, growth and  
reproduction(OECD Guideline 211)

Algae : 72hr-NOEC = 4.2 mg/L  
water soluble fraction (meas. (arithm. mean))  
based on: growth rate (EPA-660/3-75-009)

### 13. Disposal considerations

A) Disposal method

- if specified in the Waste Management Act, dispose of contents and container in accordance with the provisions
- if want to incineration, chemical waste treatment method is recommended

B) Disposal precaution

Dispose of waste in accordance with The Waste Management Act

### 14. Transport Information

A) UN number

25068-38-6 : 3082

B) UN proper shipping name

25068-38-6 : Environmentally hazardous substance, liquid, N.O.S.

C) Transport hazard class

25068-38-6 : 9

D) Packing group

25068-38-6 : III

E) Marin pollution

25068-38-6 : P

F) Special precautions for user related to transport or transportation measures

- At Fire                                 25068-38-6 : F – A
- At Leakage                             25068-38-6 : S – F

## 15. Regulatory Information

### A) Occupational Safety and Health Act

No data

### B) Toxic Chemical Control Act

25068-38-6 : Observed material

### C) Safety Control Dangerous Substance Act

No data

### D) Wastes Control Act

25068-38-6 : Designated waste

25036-25-3 : General Waste

### E) Other requirements in domestic and other countries

#### - POPs Management Law

Not applicable

#### - U.S. Federal regulations

\* OSHA  Not applicable

\* CERCLA 103  Not applicable

\* EPCRA 302  Not applicable

\* EPCRA 304  Not applicable

\* EPCRA 313  Not applicable

#### - Information of EU Classification

\* Classification  25068-38-6 : Xi Irritation, N Environmental hazardous

\* Risk Phrases  R36/38 Irritating to eyes and skin

(25068-38-6)  R43 May cause sensitization by skin contact

R51/53 Toxic aquatic organisms, may cause long-term adverse effect in the aquatic environment

\* Safety Phrases  S2 Keep out of the reach of children

(25068-38-6)  S28 After contact with skin, it can with the soap and large amounts of water to the wash immediately

S37/39 Wear suitable protective clothing and eye/face protection

S61 Avoid release to the environment.

Refer to special instructions/safety data sheets

## 16. Other information

### A) Information source and references

Dangerous Properties of Industrial Materials etc.

### B) Issuing date

2013. 07. 16.

### C) Revision number and Last date revised

- Last date revised  None

- Revision number  0 times

### D) Others

This document is produced by refer to the MSDS provided by the [KUKDO Chemical Co., Ltd.] and [CVC Thermoset Specialties]