

Safety Data Sheet (SDS)

According to Regulation (EC) No 453/2010

BISPHENOL-A

Date of issue: 2013-12-09

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Version: R0002.0008

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Substance name : 4,4'-(1-Methylethylidene)bisphenol ; 4,4'-Dihydroxydiphenylpropane, Bisphenol A [MSDS-002]
EC No. : 201-245-8
REACH Registration No. : 01-2119457856-23-0024
CAS No. : 80-05-7

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

- Epoxy resin, Polycarbonate resin

1.2.2. Uses advised against

- Not available

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier : KUMHO P&B CHEMICALS.INC
Address : 218, Yeosusandan 2-ro, Yeosu, Jeollanamdo, Korea
Telephone : +82-61-688-3684
Email :

1.4. Emergency telephone number

Telephone number : +82-61-688-3684

SECTION 2: HAZARD IDENTIFICATION

2.1. Classification of the substance/mixture

2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP]

- Serious eye damage/irritation : Category1, H318
- Skin sensitization : Category1A
- Reproductive toxicity : Category2, H361
- Specific target organ toxicity(Single exposure) : Category3(Respiratory tract irritation), H335
- Chronic aquatic toxicity : Category2, H411

2.1.2 Classification according to Directive 1999/45/EC

- N; R51-53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Repr. Cat.3; R61 May cause harm to the unborn child.
- Xi; R37 Irritating to respiratory system.
- Xi; R41 Risk of serious damage to eyes.

2.2. Label elements

2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP]

* Hazard Pictogram(s)



* Signal word : Danger

* Hazard statement(s)

- H318 Causes serious eye damage
- H335 May cause respiratory irritation.
- H361 Suspected of damaging fertility or the unborn child
- H411 Toxic to aquatic life with long lasting effects

*** Precautionary statement(s)**

1) Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P271 Use only outdoors or in a well-ventilated area.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

2) Response

- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- 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.
- P310 Immediately call a POISON CENTER or doctor/physician.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P391 Collect spillage.

3) Storage

- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

2.2.2. Labelling according to Directive 1999/45/EC

*** Symbol(s)**



*** Risk Phrases**

- N; R51-53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Repr. Cat.3; R61 May cause harm to the unborn child.
- Xi; R37 Irritating to respiratory system.
- Xi; R41 Risk of serious damage to eyes.

*** Safety Phrases**

- S29/56 Do not empty into drains; dispose of this material and its container at hazardous or special waste collection point.
- S37 Wear suitable gloves.
- S44 If you feel unwell, seek medical advice(show label where possible).
- S45 In case of accident or if you feel unwell, seek medical advice immediately (show the lable where possible).
- S53 Avoid exposure - obtain special instructions before use.
- S63 In case of accident by inhalation: remove casualty to fresh air and keep at rest.

2.3. Other hazards

- Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Name	CAS No.	REACH No.	% [weight]	Classification [67/548/EEC]	Classification [1272/2008/EC]
4,4'-(1-Methylethylidene)bisphenol ; 4,4'-Dihydroxydiphenylpropane, Bisphenol A	80-05-7	01-2119457856- 23-0024	100	Repr. Cat. 3; R62 Xi; R37-41 R43	Repr. 2, H361 Eye Dam. 1, H318 STOT SE 3, H335

3.2. Mixtures

- Not applicable

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General

- No general information.

Inhalation

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

Skin

- 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.

Eye

- 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.
- Remove contact lenses if worn.

Ingestion

- About whether I should induce vomiting Take the advice of a doctor.
- Rinse your mouth with water immediately.
- Get medical attention immediately.

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

- Not available

4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.
- If exposed or concerned, get medical attention/advice.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray

Unsuitable extinguishing media

- Avoid use of water jet for extinguishing

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

- Not available

5.3. Advice for firefighters

- Move containers from fire area, if you can do without the risk.
- 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.
- Use fire fighting procedures suitable for surrounding area.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Move container to safe area from the leak area.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Avoid skin contact and inhalation.
- Keep unauthorized people away, isolate hazard area and deny entry.

6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise emergency services.

6.3. Methods and material for containment and cleaning up

6.3.1. For containment

- Clean up all spills immediately.
- Control personal contact by using protective equipment.
- No smoking, naked lights or ignition sources.
- Stop leak if safe to do so.

6.3.2. For 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 liquid state spills: Appropriate container for disposal of spilled material collected.
- For disposal of spilled material in appropriate containers collected and clear surface.
- Prevent the influx to waterways, sewers, basements or confined spaces.

6.3.3. Other information

- Slippery when spilt.

6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

- Since emptied containers retain product residue (vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Get the manual before use.
- Dealing only with a well-ventilated place.
- Do not handle until all safety precautions have been read and understood.
- Contaminated work clothing should not be allowed out of the workplace.

7.2. Conditions for safe storage, including any incompatibilities

- Store in cool, dry and well ventilated place.
- Do not apply any physical shock to container.
- Avoid direct sunlight.
- Keep sealed when not in use.
- No open fire.
- Collect them in sealed containers.

- Store away from water and sewer.

7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. Occupational exposure limits

European Union (EU) Commission Directive 2006/15/EC (IOELVs)

- Not available

European Union (EU) Commission Directive 2006/15/EC (IOELVs) - Skin

- Not available

8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

8.1.3. DNEL/PNEC - Values

- Not available

8.2. Exposure controls

8.2.1. 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.

8.2.2. Individual protection measures, such as personal protective equipment

Hand protection

- Wear appropriate glove.

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.

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.
- Dust, mist, fume-purifying respiratory protection
- Any air-purifying respirator with a corpuscle filter of high efficiency
- Any respiratory protection with a electromotion fan(for dust, mist, fume-purifying)
- Self-contained breathing apparatus with a corpuscle filter of high efficiency
- 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.

Skin protection

- Wear appropriate clothing.

Others

- It is necessary to wear protective clothes and other protection equipment. Cover your face, head and neck.
- Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.
- Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.

Thermal hazards

- Not available

8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance(State)	Solid(Other)
Appearance(Color)	white or brown
Odor	light phenol odor
Odor threshold	Not available
pH	Not available
Melting point/Freezing point	156~157 °C
Initial boiling point and boiling range	220 °C
Flash point	207 °C
Evaporation rate	Not available
Flammability(solid, gas)	Not available
Upper/Lower Flammability or explosive limits	Explosion low limit 12 g/m ³ (Dust Could)
Vapour pressure	0.03mmHg @77 °C
Vapour density	8.1 (air=1)
Relative density	1.195
Solubility	water : 1 kg/m ³ , solvent : dilution, be soluble in (alkali solution, alcohol, acetone, acetic acid, benzene, ether), be soluble slow in carbon tetra chloride or carbon dioxide.
Partition coefficient of n-octanol/water	3.3 log Pow (n-Octanol/Water)
Autoignition temperature	600 °C
Decomposition temperature	Not available
Viscosity	Not available
Explosive properties	Not available
Oxidising properties	Not available

9.2. Other information

- Not available

SECTION 10: STABILITY AND REACTIVITY**10.1. Reactivity**

- Not available

10.2. Chemical stability

- This material is stable under recommended storage and handling conditions.

10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

10.5. Incompatible materials

- Not available

10.6. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

SECTION 11: TOXICOLOGICAL INFORMATION**11.1. Acute toxicity**

- **Oral**
 - Not available
- **Dermal**
 - Not available
- **Inhalation**
 - Not available

11.2. Skin corrosion/irritation

- Not available

11.3. Eye corrosion/irritation

- Causes serious eye damage

11.4. Respiratory sensitization

- Not available

11.5. Skin sensitization

- Not available

11.6. Mutagenicity

- Not available

11.7. Carcinogenicity**- IARC**

- Not available

- OSHA

- Not available

- ACGIH

- Not available

- NTP

- Not available

- EU CLP

- Not available

11.8. Reproductive toxicity

- Suspected of damaging fertility or the unborn child

11.9. Specific target organ toxicity(single exposure):

- May cause respiratory irritation.

11.10. Specific target organ toxicity(repeated exposure):

- Not available

11.11. Aspiration hazard

- Not available

SECTION 12: ECOLOGICAL INFORMATION**12.1. Toxicity****12.1.1. Fish**

- Not available

12.1.2. Invertebrate

- Not available

12.1.3. Algae

- Not available

12.2. Persistence and degradability**12.2.1. Persistence**

- Not available

12.2.2. Degradability

- Not available

12.3. Bioaccumulative potential**12.3.1. Bioaccumulation**

- Not available

12.3.2. Biodegradability

- Not available

12.4. Mobility in soil

- Not available

12.5. Results of PBT and vPvB assessment

- Not available

12.6. Other adverse effects

- Toxic to aquatic life with long lasting effects

SECTION 13: DISPOSAL CONSIDERATIONS**13.1. Waste treatment methods**

- Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, 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.
- 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.

SECTION 14: TRANSPORT INFORMATION**14.1. UN No.****14.1.1. UN No. (ADR/RID/ADN)**

- 3077

14.1.2. UN No. (IMDG)

- 3077

14.1.3. UN No. (ICAO)

- 3077

14.2. UN proper shipping name

- Environmentally hazardous substances, solid, n.o.s.

14.3. Transport hazard class(es)**14.3.1. ADR/RID/ADN Class**

- 9

14.3.2. ADR/RID/ADN Class

- Class : 9, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

14.3.3. ADR Label No.

- 9

14.3.4. IMDG Class

- 9

14.3.5. ICAO Class/Division

- 9

14.3.6. Transport Labels



14.4. Packing group

14.4.1. ADR/RID/ADN Packing group

- III

14.4.2. IMDG Packing group

- III

14.4.3. ICAO Packing group

- III

14.5. Environmental hazards

- Marine Pollutant

14.6. Special precautions for user

- 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 (General fire schedule)
- EmS SPILLAGE SCHEDULE : S-F (Water-soluble marine pollutants)
- Emergency Action Code : 2Z
- Hazard No.(ADR) : 90
- Tunnel Restriction Code : 3 (E)

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not available

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

15.1.1. Europe regulatory

REACH Restricted substance under REACH

- Not applicable

REACH Substances subject to authorization under REACH

- Not applicable

REACH SVHC

- Not applicable

Europe PBT

- Not applicable

European Union (EU) Transport of Dangerous Goods by Road - Dangerous Goods List

- Not applicable

EU classification[Regulation (EC) No 1272/2008 Annex VI Table 3.1]

- Applicable (4,4'-(1-Methylethylidene)bisphenol ; 4,4'-Dihydroxydiphenylpropane, Bisphenol A)
- Classification : Repr. Cat. 3; R62 Xi; R37-41 R43 R52
- Labelling : Xn R: 37-41-43-62-52 S: (2-)26-36/37-39-46-61
- Concentration Limits :

EU classification[Regulation (EC) No 1272/2008 Annex VI Table 3.2]

- Applicable (4,4'-(1-Methylethylidene)bisphenol ; 4,4'-Dihydroxydiphenylpropane, Bisphenol A)
- Classification : Repr. Cat. 3; R62 Xi; R37-41 R43 R52
- Classification Hazard Statement Codes : H361f**** H335 H318 H317
- Specific Conc Limits M factors :

Aquatic ecotoxicity(R50/53)

- Not applicable

Germ cell mutagenicity(Mutagen)

- Not applicable

Reproductive toxicity(Reproductive)

- Applicable (4,4'-(1-Methylethylidene)bisphenol ; 4,4'-Dihydroxydiphenylpropane, Bisphenol A)

15.2. Chemical Safety Assessment

- Not conducted

SECTION 16: OTHER INFORMATION**16.1. Indication of changes**

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according to the requirements of the Commission Regulation (EU) No. 453/2010

16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorisation of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

16.4. Relevant R phrases and H statements

- See Section 2.1 for information on Classification of the mixture.

16.5. Training advice

- Not applicable

16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.
- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.
- It should not therefore be construed as guaranteeing any specific property of the product.