

 LG Chem	SAFETY DATA SHEET	Version: R0001.0001
		Date of issue: 2014-05-22
	Bisphenol-A	Revision date: 2016-01-18
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1. IDENTIFICATION

A. Product name

- Bisphenol-A [BPA]

B. Recommended use and restriction on use

- General use : Raw materials for polycarbonate and epoxy resins
 - Restriction on use : Not available

C. Manufacturer / Supplier / Distributor information

o Manufacturer information

- Company name : LG Chem Ltd.
 - Address : 501, Sandanjungang-ro, Yeosu-si, Jeollanam-do
 - Dept. : BPA Production Team
 - Telephone number : 82-61-689-3624/3625
 - Emergency telephone number : 82-61-689-3624/3625
 - Fax number : 82-61-689-3604
 - E-mail address : lpckmy@lgchem.com

o Supplier/Distributor information

- Company name : LG Chem Ltd.
 - Address : 128, Yeoui-daero, Yeongdeungpo-gu, Seoul
 - Dept. : BPA Sales Team
 - Telephone number : 82-2-3773-3937
 - Emergency telephone number : 82-2-3773-3937
 - Fax number : 82-2-3773-3849
 - E-mail address : lgpyb@lgchem.com

2. HAZARD IDENTIFICATION

A. GHS Classification

- Skin corrosion/irritation : Category3
 - Serious eye damage/irritation : Category1
 - Skin sensitization : Category1
 - Reproductive toxicity : Category2
 - Specific target organ toxicity(Single exposure) : Category1
 - Specific target organ toxicity(Single exposure) : Category3(Narcotic effects)
 - Chronic aquatic toxicity : Category2

B. GHS label elements

o Hazard symbols



o Signal words

- Danger

o Hazard statements

- H316 Cause mild skin irritation.
 - H317 May cause an allergic skin reaction
 - H318 Causes serious eye damage
 - H336 May cause drowsiness and dizziness.

- H361 Suspected of damaging fertility or the unborn child
- H370 Causes damage to organs(Refer Section SDS 11)
- H411 Toxic to aquatic life with long lasting effects

o **Precautionary statements**

1) Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- 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.
- P281 Use personal protective equipment as required.

2) Response

- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- 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.
- P307+P311 If exposed: Call a POISON CENTER or doctor/physician.
- 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.
- P321 Specific treatment
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P363 Wash contaminated clothing before reuse.
- 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

C. Other hazards which do not result in classification : (NFPA Classification)

o **NFPA grade (0 ~ 4 level)**

- Health : 2 , Flammability : 1, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
4,4'-(1-Methylethylidene)bisphenol	4,4'-Dihydroxydiphenylpropane, Bisphenol A	80-05-7	=<100

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15minutes and call a doctor/physician.
- Get medical attention immediately.
- Remove contact lenses if worn.

B. Skin contact

- Flush skin with plenty of wter 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.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

D. Ingestion contact

- About whether I should induce vomiting Take the advice of a doctor.
- 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 available

F. Notes to physician

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

5. FIREFIGHTING MEASURES

A. Suitable (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

- Not available

C. Special protective actions for firefighters

- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Notify your local firestation and inform the location of the fire and characteristics hazard.
- 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.
- Keep containers cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- 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.

B. Environmental precautions

- 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 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.

7. HANDLING AND STORAGE

A. 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.
- Operators should wear antistatic footwear and clothing.
- Contaminated work clothing should not be allowed out of the workplace.

B. Conditions for safe storage, including any incompatibilities

- Check regularly for leaks.
- Do not use damaged containers.
- Do not apply direct heat.
- Do not apply any physical shock to container.
- Keep sealed when not in use.
- Collect them in sealed containers.
- Store away from water and sewer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

- **ACGIH TLV**
 - Not available
- **OSHA PEL**
 - Not available

B. 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.
 - 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.
- **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.
- **Hand protection**
 - Wear appropriate glove.
- **Skin protection**
 - Wear appropriate clothing.
- **Others**
 - Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Solid, a crystal flask, powder
- Color	White
B. Odor	Specific odor (a mild phenolic odor)
C. Odor threshold	Not available

D. pH	pKa=9.73
E. Melting point/Freezing point	152-153°C
F. Initial Boiling Point/Boiling Ranges	250 °C ~ 252 °C
G. Flash point	227 °C
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Upper exp. Limit: 4% Lower exp. Limit: 0.6%
K. Vapour pressure	5x10 ⁻⁶ kPa at 20°C
L. Solubility	120mg/L at 25°C
M. Vapour density	8.1 (Air=1)
N. Specific gravity(Relative density)	Relative density: 1.195 g/cm ³ at 25 °C
O. Partition coefficient of n-octanol/water	LogKow=3.4 at 25°C
P. Autoignition temperature	600 °C
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	228.29

10. STABILITY AND REACTIVITY

A. Chemical Stability

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

B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

C. Conditions to avoid

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

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- (Respiratory tracts)
 - Not available
- (Oral)
 - Not available
- (Eye·Skin)
 - Cause mild skin irritation.
 - Causes serious eye damage
 - May cause an allergic skin reaction

B. Delayed and immediate effects and also chronic effects from short and long term exposure

- Acute toxicity
 - * Oral
 - [4,4'-(1-Methylethylidene)bisphenol] : LD50 = 3250mg/kg Rat
 - * Dermal
 - [4,4'-(1-Methylethylidene)bisphenol] : LD50 = 3000mg/kg rabbit
 - * Inhalation
 - Not available
- Skin corrosion/irritation
 - Cause mild skin irritation.
- Serious eye damage/irritation
 - Causes serious eye damage
- Respiratory sensitization

- Not available
- **Skin sensitization**
 - May cause an allergic skin reaction
- **Carcinogenicity**
 - * **IARC**
 - Not available
 - * **OSHA**
 - Not available
 - * **ACGIH**
 - Not available
 - * **NTP**
 - Not available
 - * **EU CLP**
 - Not available
- **Germ cell mutagenicity**
 - Not available
- **Reproductive toxicity**
 - Suspected of damaging fertility or the unborn child
- **STOT-single exposure**
 - Causes damage to organs(Refer Section SDS 11)
 - May cause drowsiness and dizziness.
- **STOT-repeated exposure**
 - Not available
- **Aspiration hazard**
 - Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- **Fish**
 - [4,4'-(1-Methylethylidene)bisphenol] : LC50 = 9.4mg/l 96 hr
- **Crustaceans**
 - [4,4'-(1-Methylethylidene)bisphenol] : LC50 = 1.1mg/l 96 hr
- **Algae**
 - Not available

B. Persistence and degradability

- **Persistence**
 - Not available
- **Degradability**
 - [4,4'-(1-Methylethylidene)bisphenol] : BOD5/COD = 0.286

C. Bioaccumulative potential

- **Bioaccumulative potential**
 - [4,4'-(1-Methylethylidene)bisphenol] : BCF = 67.7
- **Biodegradation**
 - [4,4'-(1-Methylethylidene)bisphenol] : Biodegradability = 76 (%) 18 day

D. Mobility in soil

- Not available

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal 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.

B. Special precautions for disposal

- The user of this product must dispose 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 No. (IMDG)**

- 3077

B. Proper shipping name

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

C. Hazard Class

- 9

D. IMDG Packing group

- III

E. Marine pollutant

- 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 (General fire schedule)
- EmS SPILLAGE SCHEDULE : S-F (Water-soluble marine pollutants)

15. REGULATORY INFORMATION**A. National and/or international regulatory information**

- **POPs Management Law**
 - Not applicable
- **Information of EU Classification**
 - * **Classification**
 - [4,4'-(1-Methylethylidene)bisphenol] : Repr. Cat. 3; R62 Xi; R37-41 R43 R52
 - * **Risk Phrases**
 - [4,4'-(1-Methylethylidene)bisphenol] : R37, R41, R43, R62, R52
 - * **Safety Phrase**
 - [4,4'-(1-Methylethylidene)bisphenol] : S2, S26, S36/37, S39, S46, S61
- **U.S. Federal regulations**
 - * **OSHA PROCESS SAFETY (29CFR1910.119)**
 - Not applicable
 - * **CERCLA Section 103 (40CFR302.4)**
 - Not applicable
 - * **EPCRA Section 302 (40CFR355.30)**
 - Not applicable
 - * **EPCRA Section 304 (40CFR355.40)**
 - Not applicable
 - * **EPCRA Section 313 (40CFR372.65)**
 - [4,4'-(1-Methylethylidene)bisphenol] : Applicable
- **Rotterdam Convention listed ingredients**
 - Not applicable
- **Stockholm Convention listed ingredients**
 - Not applicable
- **Montreal Protocol listed ingredients**
 - Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

- 2014-05-22

C. Revision number and Last date revised

- 6 times, 2016-01-18

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).