SAFETY DATA SHEET
BISPHENOL-A


SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name BISPHENOL-A
Chemical name 4,4'-isopropylidenediphenol
Synonyms; trade names 4,4'-(1-Methylethylidene)bisphenol, 4,4'-Dihydroxydiphenylpropane
REACH registration number 01-2119457856-23-XXXX
CAS number 80-05-7
EC number 201-245-8

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

Identified uses Raw material for epoxy and polycarbonate resin.

1.3. Details of the supplier of the safety data sheet

Supplier (OR of KUMHO P&B CHEMICALS INC.)
KIST-Europe,
Universitaet des Saarlandes, Campus E 72
66123, Saarbruecken, Germany
+49 681 9382 334
+49 681 9382 319
reach.it@kist-europe.de

Manufacturer KUMHO P&B CHEMICALS. INC.
218, Yeosusandan 2-ro
Yeosu-city Jeollanam-do, Korea
+82-61-688-3682
+82-61-688-3684

1.4. Emergency telephone number

Emergency telephone +49 551 19240
GIZ-Nord, Goettingen, Germany (English only)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC/1272/2008)

Physical hazards Not Classified
Health hazards Eye Dam. 1 - H318 Skin Sens. 1 - H317 Repr. 1B - H360 STOT SE 3 - H335
Environmental hazards Aquatic Chronic 2 - H411

2.2. Label elements

EC number 201-245-8
**BISPHENOL-A**

**Pictogram**

<table>
<thead>
<tr>
<th>Pictogram</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Pictogram" /></td>
</tr>
</tbody>
</table>

**Signal word**

Danger

**Hazard statements**

- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H335 May cause respiratory irritation.
- H360 May damage fertility or the unborn child.
- H411 Toxic to aquatic life with long lasting effects.

**Precautionary statements**

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P261 Avoid breathing dust.
- 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.
- P302+P352 IF ON SKIN: Wash with plenty of water.
- P304+P340 IF INHALED: Remove person to fresh air and keep 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/ doctor.
- P312 Call a POISON CENTER/ doctor if you feel unwell.
- P321 Specific treatment (see medical advice on this label).
- P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P391 Collect spillage.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.
- P501 Dispose of contents/ container in accordance with national regulations.

**Supplementary precautionary statements**

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P261 Avoid breathing vapour/spray.
- P271 Use only outdoors or in a well-ventilated area.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P281 Use personal protective equipment as required.
- P302+P352 IF ON SKIN: Wash with plenty of water.
- P304+P340 IF INHALED: Remove person to fresh air and keep 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.
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- P363 Wash contaminated clothing before reuse.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.

2.3. Other hazards
BISPHENOL-A

SECTION 3: Composition/information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Product name</th>
<th>BISPHENOL-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>REACH registration number</td>
<td>01-2119457856-23-XXXX</td>
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<td>201-245-8</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

<table>
<thead>
<tr>
<th>General information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consult a physician for specific advice. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing.</td>
</tr>
<tr>
<td>Inhalation</td>
</tr>
<tr>
<td>Move affected person to fresh air at once. If breathing stops, provide artificial respiration. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.</td>
</tr>
<tr>
<td>Ingestion</td>
</tr>
<tr>
<td>DO NOT induce vomiting. Get medical attention immediately.</td>
</tr>
<tr>
<td>Skin contact</td>
</tr>
<tr>
<td>Immediately remove contaminated clothing. Wipe off the product mechanically. Wash skin thoroughly with soap and water. Promptly flush with large amount of cool water if molten product getn on the skin and get medical attention.</td>
</tr>
<tr>
<td>Eye contact</td>
</tr>
<tr>
<td>Rinse immediately with plenty of water. Continue to rinse for at least 10 minutes. Remove contact lense after the initial 1-2 minutes and continue flushing for up to 10 minutes. Consult a physician for specific advice.</td>
</tr>
</tbody>
</table>

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

| General information | Not available. |

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

| Notes for the doctor | No specific recommendations. |

SECTION 5: Firefighting measures

5.1. Extinguishing media

| Suitable extinguishing media | Extinguish with foam, carbon dioxide or dry powder. Water spray. |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. |

5.2. Special hazards arising from the substance or mixture

<table>
<thead>
<tr>
<th>Specific hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapours may explode when mixed with air. Containers can burst violently or explode when heated, due to excessive pressure build-up.</td>
</tr>
<tr>
<td>Hazardous combustion products</td>
</tr>
<tr>
<td>Thermal decomposition may liberate carbon oxides.</td>
</tr>
</tbody>
</table>

5.3. Advice for firefighters
**BISPHENOL-A**

**Protective actions during firefighting**
Move containers from fire area if it can be done without risk. Use fire fighting measures that suit the surrounding materials. Keep up-wind to avoid fumes. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Avoid inhalation of materials or combustion by-products. Control run-off water by containing and keeping it out of sewers and watercourses. Cool containers exposed to flames with water until well after the fire is out. Do not allow water to enter the container as it will react with the product. In case of tank or container fire, fight at the maximum distance or use unmanned hose holder or monitor nozzles.

**Special protective equipment for firefighters**
Use air-supplied respirator, gloves and protective goggles.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions**
No smoking, sparks, flames or other sources of ignition near spillage. Use suitable respiratory protection if ventilation is inadequate. Keep unnecessary and unprotected people away from area of spill. Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. For personal protection, see Section 8.

### 6.2. Environmental precautions

**Environmental precautions**
Avoid discharge into drains or watercourses or onto the ground.

### 6.3. Methods and material for containment and cleaning up

**Methods for cleaning up**
Inform authorities if large amounts are involved. Take up spilled product with dust-binding material or suitable vacuum cleaner. Avoid generation and spreading of dust. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Collect and place in suitable waste disposal containers and seal securely.

### 6.4. Reference to other sections

**Reference to other sections**
For waste disposal, see section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Usage precautions**
Container must be kept tightly closed when not in use. Take precautionary measures against static discharges. Do not use in confined spaces without adequate ventilation and/or respirator. Good personal hygiene procedures should be implemented. Avoid inhalation of dust and contact with skin and eyes. Avoid handling which leads to dust formation.

**Storage precautions**
Store in tightly-closed, original container in a dry, cool and well-ventilated place. Protect from sunlight. Avoid heat, flames and other sources of ignition. Keep container tightly sealed when not in use.

### 7.2. Conditions for safe storage, including any incompatibilities

**Specific end use(s)**
The identified uses for this product are detailed in Section 1.2.

## SECTION 8: Exposure Controls/personal protection

### 8.1. Control parameters
BISPHENOL-A

DNEL
Industry - Inhalation; Long term systemic effects: 10 mg/m³
Industry - Inhalation; Short term systemic effects: 10 mg/m³
Industry - Inhalation; Long term local effects: 10 mg/m³
Industry - Inhalation; Short term local effects: 10 mg/m³
Industry - Dermal; Long term systemic effects: 1.4 mg/kg/day
Industry - Dermal; Short term systemic effects: 1.4 mg/kg/day
Consumer - Inhalation; Long term systemic effects: 0.25 mg/m³
Consumer - Inhalation; Short term systemic effects: 5 mg/m³
Consumer - Inhalation; Long term local effects: 5 mg/m³

PNEC
- Fresh water; 0.018 mg/l
- Marine water; 0.016 mg/l
- Intermittent release; 0.01 mg/l
- STP; 320 mg/l
- Sediment (Freshwater); 2.2 mg/kg
- Sediment (Marine water); 0.44 mg/kg
- Soil; 3.7 mg/kg

8.2. Exposure controls

Protective equipment

Provide adequate general and local exhaust ventilation. Observe any occupational exposure limits for the product or ingredients. 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. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Eye/face protection
Wear safety glasses with side-shields conforming to EN166.

Hand protection
Wear protective gloves against chemicals according to EN 374-3.

Other skin and body protection
Provide eyewash station and safety shower. Wear apron or protective clothing in case of contact.

Hygiene measures
Promptly remove any clothing that becomes contaminated. Contaminated clothing should be placed in a closed container for disposal or decontamination. Wash hands at the end of each work shift and before eating, smoking and using the toilet.

Respiratory protection
Under frequent use or heavy exposure, respiratory protection may be needed. Use filtering facepieces against particles according to EN 149.

Environmental exposure controls
Store in a demarcated bunded area to prevent release to drains and/or watercourses.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance
Flakes. Crystals.

Colour
White.

Odour
Odourless.

pH
Not available. Not available.

Melting point
155°C
BISPHENOL-A

**Initial boiling point and range**
360°C @ 1013 hPa Bisphenol A shows decomposition at the boiling point.

**Flash point**
227°C at 1013 hPa°C CC (Closed cup).

**Evaporation rate**
Not available.

**Vapour pressure**
0.000000412 Pa @ °C

**Relative density**
1.2 g/cm³ @ 25°C

**Solubility(ies)**
0.0300 @ °C

**Partition coefficient**
log Pow: 3.4 at 21.5 °C

**Auto-ignition temperature**
510°C at 1013 hPa°C

**Decomposition Temperature**
Not available.

**Viscosity**
Scientifically unjustified.

**Explosive properties**
Data lacking.

**Oxidising properties**
Not available.

9.2. Other information

**Particle size**
Not available.

**SECTION 10: Stability and reactivity**

10.1. Reactivity

Reactivity
No hazardous reaction when used as directed.

10.2. Chemical stability

Stability
Will decompose at temperatures exceeding 200°C. Stable up to 200°C.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions
Not available. Not available.

10.4. Conditions to avoid

Conditions to avoid
Oxidising materials.

10.5. Incompatible materials

10.6. Hazardous decomposition products

Hazardous decomposition products
No hazardous decomposition products when stored and handled correctly. In the event of fire or during thermal decomposition, phenol and phenolic derivatives are formed.

**SECTION 11: Toxicological information**

11.1. Information on toxicological effects

Acute toxicity - oral
Species
Rat
Notes (oral LD₅₀)
The acute oral LD₅₀ is > 2000 and <= 5000 mg/kg.

Acute toxicity - dermal
Acute toxicity dermal (LD₅₀ mg/kg)
3,000.0

Species
Rabbit
**BISPHENOL-A**

**Notes (inhalation LC₅₀)**
Acute inflammation of the external nares and ulceration of the incisive ducts were observed one day after exposure, but these changes were reversible within the 14-day recovery period.

**Skin corrosion/irritation**

**Animal data**
Erythema/eschar score: No erythema (0). Oedema score: No oedema (0). The skin irritation scores for test animals were zero for erythema and edema at 500 mg of BPA exposure.

**Serious eye damage/irritation**
Test species: Himalayan rabbit.
Cornea opacity score: 1, Iris score: 1, Conjunctival redness score: 1, Conjunctival chemosis score: 1 - 2 (according to test animal).

**Skin sensitisation**

Local Lymph Node Assay (LLNA) - Mouse: Not sensitising.

**Germ cell mutagenicity**
Bacterial reverse mutation test: Negative.

**Carcinogenicity**
No evidence of carcinogenicity in animal studies.

IARC carcinogenicity
Not listed.

**Reproductive toxicity**

Two-generation study - 3500 ppm, Oral, Mouse F1 No adverse effects on reproduction or development were detected. The endpoint considered above is NOEL.

**Specific target organ toxicity - repeated exposure**

**STOT - repeated exposure**
NOAEL 50 mg/kg, Oral, Mouse

**Target organs**
Liver Kidneys

**SECTION 12: Ecological Information**

12.1. Toxicity

**Acute toxicity - fish**
LC₅₀, 96 hours: 9.4 mg/l, Marinewater fish

**Acute toxicity - aquatic invertebrates**
EC₅₀, 48 hours: 10.2 mg/l, Daphnia magna

**Acute toxicity - aquatic plants**
EC₅₀, 96 hours: 1.1 mg/l, Marinewater algae
Endpoint: growth inhibition.

**Acute toxicity - microorganisms**
Not available.

**Acute toxicity - terrestrial**
NOEC, 28 days: 100 mg/kg,
Test species: Enchytraeus sp.

**Chronic toxicity - fish early life stage**
NOEC, : 0.640 mg/l, Pimephales promelas (Fat-head Minnow)
REACH dossier information.
Test duration: 36 day. basis for effect: hatchability, survival, growth.

**Chronic toxicity - aquatic invertebrates**
NOEC, 21 days: 3.16 mg/l, Daphnia magna
BISPHENOL-A

Toxicity to terrestrial plants
NOEC : 20 mg/kg-soil, Test duration : 21 day, Test species : Lycopersicon esculentum, Basis for effect : dry shoot weight.

12.2. Persistence and degradability
Phototransformation
- DT₅₀ : 0.13 days
REACH dossier information.

Biodegradation
Degradation (%)
Water - 89 %:
Based on O₂ Consumption. Test duration : 28 day. Meeting the 10 day window guideline.

12.3. Bioaccumulative potential
Bioaccumulative potential
BPA shows the low potential for bioaccumulation in fish. BCF: 20 - 67, Cyprinus carpio (Common carp) Exposure dose : 15 ug/l, exposure duration : 42 day.

Partition coefficient
log Pow: 3.4 at 21.5 °C

12.4. Mobility in soil
Adsorption/desorption coefficient
Water - log Koc: 2.95 @ °C Test was performed according to OECD Guideline 106.

12.5. Results of PBT and vPvB assessment
Results of PBT and vPvB assessment
This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects
Other adverse effects
Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
General information
If the waste contains designated waste and difficult to separate, incinerate it or reduce the volume following the similar way as incineration. If applicable, pretreat waste with oil/water separation. Waste is suitable for incineration. Disposal to licensed waste disposal site in accordance with local waste disposal authority.

Disposal methods
Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

14.1. UN number
UN No. (ADR/RID) 3077
UN No. (IMDG) 3077
UN No. (ICAO) 3077

14.2. UN proper shipping name
Proper shipping name (ADR/RID) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Proper shipping name (IMDG) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Proper shipping name (ICAO) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

14.3. Transport hazard class(es)
BISPHENOL-A

14.4. Packing group

ADR/RID packing group  III
IMDG packing group  III
ICAO packing group  III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

14.6. Special precautions for user

EmS  F-A, S-F

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

Transport in bulk according to  Not applicable.
Annex II of MARPOL 73/78
and the IBC Code

SECTION 15: Regulatory information

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

EU legislation  Listed on the candidate list of SVHC for authorisation.
Authorisations (Title VII Regulation 1907/2006)  No specific authorisations are known for this product.
Restrictions (Title VIII Regulation 1907/2006)  Entry number: ‘66

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet  SVHC: Substances of Very High Concern.
Issued by  KIST Europe
Revision date  12/04/2018
Revision  2
BISPHENOL-A

Hazard statements in full

H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H360 May damage fertility or the unborn child.
H411 Toxic to aquatic life with long lasting effects.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.