

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0
Creation Date: July 15, 2019
Revision Date: July 15, 2019

SECTION 1: Identification

1.1 GHS Product identifier

Product name 4,4'-isopropylidenediphenol

1.2 Other means of identification

Product number -
Other names Bisphenol A; 2,2-Bis(4-hydroxyphenyl)propane; Phenol, 4,4'-(1-methylethylidene)bis-

1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research use.
Uses advised against no data available

1.4 Supplier's details

Company Shanghai Yien Chemical Technology Co., Ltd
Address Building 6, 28 Yingong Road, Fengxian District, Shanghai
Chemical Industry Zone, Shanghai, 201400, China
Telephone +86-400-133-2688

1.5 Emergency phone number

Emergency phone number +86-400-133-2688
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Serious eye damage, Category 1
Skin sensitization, Category 1
Specific target organ toxicity – single exposure, Category 3
Reproductive toxicity, Category 1B

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Danger
Hazard statement(s) H318 Causes serious eye damage
H317 May cause an allergic skin reaction

	H335 May cause respiratory irritation
Precautionary statement(s)	
Prevention	P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P272 Contaminated work clothing should not be allowed out of the workplace. P271 Use only outdoors or in a well-ventilated area.
Response	P203 Obtain, read and follow all safety instructions before use. P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P317 Get medical help. P302+P352 IF ON SKIN: Wash with plenty of water/... P333+P317 If skin irritation or rash occurs: Get medical help. P321 Specific treatment (see ... on this label). P362+P364 Take off contaminated clothing and wash it before reuse. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P319 Get medical help if you feel unwell. P318 IF exposed or concerned, get medical advice.
Storage	P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
4,4'-isopropylidenediphenol	4,4'-isopropylidenediphenol	80-05-7	201-245-8	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Seek medical attention if you feel unwell.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Seek medical attention if you feel unwell.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Dusts irritating to upper respiratory passages; may cause sneezing. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Poisons A and B

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use water spray, foam, powder, carbon dioxide.

5.2 Specific hazards arising from the chemical

This chemical is combustible. This compound may form explosive dust clouds. Static electricity can cause its dust to explode. (NTP, 1992)

5.3 Special protective actions for fire-fighters

Use water spray, foam, powder, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Evacuate and restrict persons not wearing protective equipment from area of spill or leak until cleanup is complete. Remove all ignition sources. Vacuum cleaning is preferable to sweeping to keep dust levels down. Use special HEPA vacuum; not a shop vacuum. Ventilate area of spill or leak after cleanup is complete. It may be necessary to contain and dispose of this chemical as a hazardous waste. If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Contact your Department of Environmental Protection or your regional office of the federal EPA for specific recommendations. If employees are required to clean up spills, they must be properly trained and equipped. OSHA 1910.120(q) may be applicable.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames. Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent deposition of dust. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Separated from acid anhydrides, acid chlorides, strong oxidants, strong bases and food and feedstuffs. Store in an area without drain or sewer access. Safe Storage: Separated from acid anhydrides, acid chlorides, strong oxidants, strong bases and food and feedstuffs. Store in an area without drain or sewer access.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

MAK: (inhalable fraction): 5 mg/m³; peak limitation category: I(1); photosensitization (SP); pregnancy risk group: C.EU-OEL: (inhalable fraction): 2 mg/m³ as TWA

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or face shield.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid. White crystals, flakes, prills.
Colour	White.
Odour	Mild phenolic odor
Melting point/freezing point	$\geq 154 - \leq 156.5$ °C.
Boiling point or initial boiling point and boiling range	360 °C. Atm. press.:1 013 hPa.
Flammability	Combustible.
Lower and upper explosion limit/flammability limit	no data available
Flash point	227 °C. Atm. press.:Ca. 1 013 hPa.
Auto-ignition temperature	510 °C. Atm. press.:1 013 hPa.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	less than 1 mg/mL at 70.7° F (NTP, 1992)
Partition coefficient n-octanol/water	log Pow = 3.4. Temperature:21.5 °C.
Vapour pressure	0 hPa. Temperature:20 °C.;0 hPa. Temperature:25 °C.;0 hPa. Temperature:50 °C.
Density and/or relative density	1.2 g/cm ³ . Temperature:25 °C.
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Reacts violently with strong oxidants. This generates fire and explosion hazard. Reacts vigorously with acid anhydrides, acid chlorides and strong bases. This generates heat and pressure-rise explosion hazard.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

Combustible Dust explosion possible if in powder or granular form, mixed with air. 4,4'-ISOPROPYLIDENEDIPHENOL is incompatible with strong oxidizers. It is also incompatible with strong bases, acid chlorides and acid anhydrides. (NTP, 1992)

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Strong oxidizers, strong bases, acid chlorides, and acid anhydrides.

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid and irritating fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: approximate LD50 - rat (male/female) - > 2 000 - <= 5 000 mg/kg bw.
- Inhalation: reversible nasal inflammation; reversible ulceration of incisive ducts - rat (male/female) - 170 mg/m³ air.
- Dermal: LD50 - rabbit - ca. 3 000 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is severely irritating to the eyes. The substance is mildly irritating to the respiratory tract.

STOT-repeated exposure

Repeated or prolonged contact may cause skin sensitization and photosensitization. The substance may have effects on the upper respiratory tract. Ingestion may cause effects on the liver and kidneys. Animal tests show that this substance possibly causes toxic effects upon human reproduction.

Aspiration hazard

Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly when dispersed, especially if powdered.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - *Cyprinodon variegatus* - 11 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 10.2 mg/L - 48 h.
- Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - 2.73 - 3.1 mg/L - 96 h.
- Toxicity to microorganisms: EC10 - *Pseudomonas putida* - > 320 mg/L - 18 h.

12.2 Persistence and degradability

AEROBIC: Bisphenol A, present at 3 mg/L, exhibited a half-life of 3 days when incubated using natural receiving waters from a bisphenol A plant discharge in Houston, TX; a half-life of 2.5 days was measured using Patricks Bayou water, obtained 200 yards downstream from the plant discharge, and a half-life of 4 days was measured using Houston Ship Channel water(1). Loss was attributed to biodegradation since 3 mg/L bisphenol A in a control sample (deionized water) underwent no observable change in concentration over the 8 day test period(1). Incubation of 105 mg/L bisphenol A in an acclimated activated sludge inocula from an industrial wastewater treatment plant resulted in 72% COD removal in 24 hours(2). Using the OECD biodegradation screening test with domestic sewage as seed, <1% degradation was observed in 28 days(1). Bisphenol A was not oxidized in either the Closed Bottle Test nor the Modified Sturm Test; these results indicate a possible lack of acclimation by a domestic sludge as the compound was degraded in biotreators of chemical plants where the compound was produced or used(1). Bisphenol A, present at 100 mg/L, reached 0% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L and the Japanese MITI test(3). Of 40 Japanese river microcosms and 3 activated sludge samples tested, only 6 could completely mineralize this compound, resulting in 2 common metabolites: 2,3-bis(4-hydroxyphenyl)-1,2-propanediol and p-hydroxyphenacyl alcohol; 19 bacteria were isolated from these activated sludge and river water samples(4). Further testing with the pure cultures suggested that bisphenol A-degrading bacteria exist in aquatic environments but they are unable to completely degrade this compound, leading to accumulation of more recalcitrant metabolites(4). In 22-day aerobic river die-away tests using several river water samples in 24 microcosms, bisphenol A showed complete degradation in 19 microcosms (complete mineralization in two microcosms) and no degradation in 5 microcosms(5).

12.3 Bioaccumulative potential

BCF ranges of <20 to approximately 67.7 and 5.1 to 13.3 from starting concentrations of 15 and 150 mg/L, respectively, were measured for bisphenol A using carp (*Cyprinus carpio*) which were exposed over an 8-week period(1). The following experimentally-determined BCF values have also been reported(2): 38 in spotted halibut (*Varaspar variegates*), 73.4 in killfish (*Oryzias latipes*). According to a classification scheme(3), these BCF values suggest the potential for bioconcentration in aquatic organisms is low to moderate(SRC). The BCF in freshwater clams, *Pisidium amnium*, was 114, 128, 134, and 107 at and 1.8, 5.8, 8.4, and 11.6 deg C, respectively, suggesting the importance of temperature on the processes that control uptake and elimination by aquatic biota(4).

12.4 Mobility in soil

A mean Koc value of 796 for bisphenol A was measured in soil adsorption experiments using four different agricultural soils from North-Rhine Westphalia and Rhineland-Palatinate, Germany and a bisphenol A concentration range of 0.04 to 5.00 mg/L; Koc values ranged from 636-931(1). Leaching studies in turf grass fields having loamy sand and sandy loam soils determined respective Koc values of 1751 and 3886(3); bisphenol A did not leach below a 30 cm soil layer(3). Batch experiments using soil samples from South Australia found Koc values ranging from 251 to 1507 (mean of 962)(4). Batch experiments using two acid sandy soils determined bisphenol A Koc values ranging from 335 to 703 (average of 375)(5). According to a classification scheme(6), a Koc range of 115 to 3886 suggests that Bisphenol A may have high to slight mobility in soil. Most of the measured Koc values suggest that bisphenol A may have moderate to low mobility in soil(SRC). The pKa of bisphenol A is 9.6(7), indicating that this compound will exist

partially in anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(8). The partial dissociation of Bisphenol A in environmental media may be one reason for the wide range of observed soil adsorptions(SRC). An average bisphenol A Koc of 115 was determined in sorption studies using sediments from five locations on the Xiangjiang River in China(2).

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)
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14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)
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14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)
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14.4 Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)
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14.5 Environmental hazards

ADR/RID: Yes	IMDG: Yes	IATA: Yes
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14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
4,4'-isopropylidenediphenol	4,4'-isopropylidenediphenol	80-05-7	201-245-8
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date July 15, 2019

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

The substance is absorbed through the skin but no toxic effects were reported (2011)

Any questions regarding this SDS, Please send your inquiry to sds@xixisys.com

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the

product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.