SAFETY DATA SHEETS

According to the UN GHS revision 10

1: Identification

1.1 GHS Product identifier

Product name	Benzo[a]pyrene

1.2 Other means of identification

Product number	50-32-8
Other names	Benzo[a]pyrene

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	Zhongshan Greenrock Technology Co., Ltd.
Address	No. 138, Jinsan Avenue, Sanjiao Town, Zhongshan City, Guangdong Province, China
Telephone	+86-2087066781

1.5 Emergency phone number

Emergency phone number	+86-2087066781
Service hours	Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2: Hazard identification

2.1 Emergency Overview

Substances with long-term health risks may cause cancer, gene mutations, or reproductive system damage. Even short-term exposure may have long-term health effects and exposure must be strictly controlled.

2.2 GHS Classification

Sensitization, Skin : Category 1, 1A, 1B
Germ cell mutagenicity : Category 1, 1A, 1B
Carcinogenicity : Category 1, 1A, 1B
Reproductive toxicity : Category 1, 1A, 1B
Hazardous to the aquatic environment, acute hazard : Category 1
Hazardous to the aquatic environment, long-term hazard : Category 1

2.3 GHS label elements, including precautionary statements

Pictogram(s)

Signal word	Danger
Hazard statement(s)	H317 May cause an allergic skin reaction H340 May cause genetic defects H350 May cause cancer H360 May damage fertility or the unborn child H400 Very toxic to aquatic life H410 Very toxic to aquatic life with long lasting effects
Precautionary statement(s)	
Prevention	P203 Obtain, read and follow all safety instructions before use. P261 Avoid breathing dust/fume/gas/mist/vapors/spray. 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/hearing protection/...
Response	P318 if exposed or concerned, get medical advice. P321 Specific treatment (see ... on this label). P391 Collect spillage. P302+P352 IF ON SKIN,wash with plenty of water/... P333+P317 If skin irritation or rash occurs,Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse.
Storage	P405 Store locked up.
Disposal	P501 Dispose of contents/container to ...

2.4 Physical and chemical

Although they may not be immediately dangerous, some substances may also be irritants or corrosives. They may decompose and produce more toxic products during long-term storage.

2.5 Health hazards

Carcinogenicity, Long-term exposure may increase the risk of cancer. Mutagenicity: May cause genetic damage, affecting offspring. Reproductive toxicity: May affect fertility or cause fetal malformations. Symptoms typically appear after a latent period of several years.

2.6 Environmental hazards

May persist and accumulate in the environment. Chronic toxicity to aquatic and terrestrial organisms can affect their reproductive capacity. It may accumulate through the food chain, ultimately affecting human health.

2.7 Other hazards which do not result in classification

no data available

3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Benzo[a]pyrene	Benzo[a]pyrene	50-32-8	200-028-5	99%

4: First-aid measures

4.1 General advice

Stop contact immediately and remove contaminated clothing (rinse with clean water and then wash); wash skin with soap and water, record contact history (including contact time and frequency); and have regular physical examinations (such as chest CT and blood routine once a year).

4.2 If inhaled

Move to fresh air. If carcinogenic gases (such as benzene) are inhaled and coughing or chest tightness occurs, seek medical attention. Those with long-term exposure need to monitor lung function and blood routine.

4.3 In case of skin contact

Rinse with soap and running water for 15 minutes. If skin is irritated, apply a non-irritating moisturizer; avoid breaking the skin to prevent penetration of substances.

4.4 In case of eye contact

Rinse with saline for 10 minutes and then instill artificial tears; if discomfort persists, seek medical attention from an ophthalmologist.

4.5 If swallowed

Do not induce vomiting, seek medical attention immediately, and bring the substance's SDS; inform the doctor of the substance's carcinogenic/mutagenic properties and perform a gastrointestinal endoscopy if necessary.

4.6 Most important symptoms and effects, both acute and delayed

Acute symptoms: mild skin/eye irritation; long-term effects: carcinogenicity (such as lung cancer, leukemia), mutagenicity (chromosomal abnormalities), reproductive toxicity (infertility, fetal malformations).

4.7 Protection of first-aiders

Rescuers need to wear chemical protective clothing, gas masks (equipped with organic vapor filter cartridges), and chemical protective gloves; equipment must be thoroughly cleaned after contact to avoid residue.

4.8 Notes to physician

Inform the doctor of the substance name and exposure history; long-term exposure requires a special physical examination plan (such as blood tests every 6 months and tumor markers every year)

5: Fire-fighting measures

5.1 Unsuitable extinguishing media

It is strictly forbidden to use fire extinguishing agents that may cause the spread of toxic substances (such as high-pressure water jets); if it contains flammable ingredients, avoid using carbon dioxide (concentrated toxic vapor).

5.2 Specific hazards during fire fighting

Combustion releases carcinogenic/mutagenic gases (such as benzopyrene and formaldehyde), which are harmful to health if exposed for a long time. The combustion products of some substances are easily adsorbed on dust, expanding the scope of pollution. Toxic substances are not easy to decompose and require professional handling after fire extinguishing.

5.3 Hazardous combustion products

Polycyclic aromatic hydrocarbons (carcinogenic), formaldehyde (mutagenic), heavy metal smoke (such as chromium, nickel), chlorides (when containing chlorine).

5.4 Specific extinguishing methods

Small area: Use dry powder/foam to extinguish the fire, and use water mist to dilute the toxic vapor; Large area: Evacuate personnel, if fire must be extinguished, cover with foam (to reduce vapor release); After extinguishing the fire, conduct toxicity testing on the area and dispose of pollutants as hazardous waste.

5.5 Special protective equipment for fire-fighters

Wear chemical protective clothing, positive pressure air respirator, and chemical protective gloves; carry a toxic gas detector (to detect benzene, formaldehyde, etc.); wear a dust mask (to protect against toxic dust) during work, and conduct a health check after work.

6: Accidental release measures

6.1 Protective measures for workers

Wear fully enclosed chemical protective clothing, positive pressure respirator (volatile), toxic-resistant gloves + goggles; workers should undergo regular physical examinations and record their exposure history; eating, drinking and smoking are prohibited.

6.2 Environmental protection measure

Isolate the contaminated area within 20 meters and conduct long-term environmental monitoring (soil/air); leaks are prohibited from being discarded at will; the contaminated area must be released after passing the inspection by the environmental protection department.

6.3 Containment methods for leaked chemicals

Liquids should be collected in disposable corrosion-resistant containers (marked with hazard categories); solids should be collected in chemical-resistant bags (to prevent dust); and stored separately in dedicated hazardous waste warehouses.

6.4 Cleanup methods for chemical spills

Small leakage: absorbed by special adsorption materials and then packaged in chemical-proof bags; large leakage: transferred by professional team using special equipment; after cleaning, the ground is treated with disinfectant.

6.5 Measures to prevent the spread of leaks

20-meter isolation zone + warning signs; high-efficiency filtration and ventilation (volatile); chemical isolation belt to prevent spread to residential areas.

6.6 Container leakage treatment

Minor leaks: seal with professional sealant + tightness test; serious leaks: evacuate, transfer by professional team, and dispose of the container as hazardous waste.

6.7 Special considerations

Operators need special training; protective equipment must be disinfected and tested before reuse; leak handling must be reported to the environmental protection department.

7: Handling and storage

7.1 Safe storage conditions

Stored in a closed, leak-proof warehouse (walls lined with polyethylene film and floors with impermeable resin); containers are made of non-degradable materials (such as high-density polyethylene, borosilicate glass) with anti-theft lids (requires a key to open); the warehouse is equipped with an air purification system (HEPA filter, filtration efficiency ?99.97%).

7.2 Storage precautions

Isolate from children and unrelated personnel, and place biohazard signs at the warehouse entrance; store separately to avoid mixing with other chemicals; test the concentration of hazardous substances in the warehouse every quarter to ensure that it is below the occupational exposure limit (such as carcinogen OEL ? 0.01mg/m³); discarded containers must be sterilized at high temperature (?121?, 30 minutes) before disposal.

7.3 VCI Storage Grade

Level 4 (lowest): Metal containers are treated with ordinary anti-rust treatment (such as galvanizing, thickness ? 10?m) and corrosion is checked once a year; the humidity in the warehouse is controlled at 45%-65% to avoid damage to the containers due to moisture.

7.4 Recommended storage temperature

Store at 10-30°C, away from light (e.g., some photosensitive carcinogens must be stored in brown containers); easily degradable substances (e.g., some organic carcinogens) must be stored at ?25°C, equipped with light-proof and sun-shading facilities; long-term storage (over 1 year) requires the stability of the substance to be checked every 3 months (if the label has a recommended storage temperature, follow the label).

7.5 Handling

For precautions see Safety Data Sheet section 2
Advice on safe handling : Work under hood. Do not inhale substance/mixture.

8: Exposure controls/personal protection

8.1 Respiratory protection

When exposed to carcinogens (such as benzene and formaldehyde) for a long time, wear a powered air-purifying respirator (APF?50); dust (such as asbestos) requires Type P100 filter cotton to ensure no leakage.

8.2 Recommended Filter type

For organic carcinogens, choose Type A2 filter cartridge; for inorganic carcinogenic gases (such as arsine), choose Type E+K composite filter cartridge; for dust, choose Type P100 filter cotton.

8.3 Eye/face protection

Wear chemical protection goggles + protective mask. The mask material should be resistant to toxic penetration. The lenses need to be replaced regularly for long-term work (to prevent aging).

8.4 Skin and body protection

Wear impermeable chemical protective clothing made of polyethylene + aluminum foil coating (anti-organic vapor penetration); avoid skin damage during operation to prevent material intrusion.

8.5 Hand protection

Wear toxic and chemical-resistant gloves made of butyl rubber or fluororubber. Gloves need to be regularly tested for penetration (once every three months) and replaced immediately if unqualified.

8.6 Hygiene measures

After work, clean the skin with a special detergent (such as a neutral surfactant), then rinse with running water for 10 minutes; clothes must be washed separately and must not be mixed with household clothes; undergo special physical examinations every year (such as chest CT, chromosome examination).

9: Physical and chemical properties and safety characteristics

Physical state	yellow to brown powder.
Colour	PALE YELLOW MONOCLINIC NEEDLES FROM BENZENE & METHANOL
Odour	Faint aromatic odor
Melting point/freezing point	207°C(lit.)

Boiling point or initial boiling point and boiling range	496°C(lit.)
Flammability	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	73°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	When heated to decomposition it emits acrid smoke and fumes.
pH	no data available
Kinematic viscosity	no data available
Solubility	less than 1 mg/mL at 17.22°C
Partition coefficient n-octanol/water	log Kow = 6.13
Vapour pressure	5.49e-09 mm Hg at 25°C
Density and/or relative density	1.286 g/cm3
Relative vapour density	8.7 (Relative to Air)
Particle characteristics	no data available

10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Undergoes photo-oxidation after irradiation in indoor sunlight or by fluorescent light in organic solvents.

10.3 Possibility of hazardous reactions

Combustible.BENZO[A]PYRENE undergoes photo-oxidation after irradiation in indoor sunlight or by fluorescent light in organic solvents. Incompatible with strong oxidizing agents including various electrophiles, peroxides, nitrogen oxides and sulfur oxides. Oxidized by ozone, chromic acid and chlorinating agents. Readily undergoes nitration and halogenation. Hydrogenation occurs with platinum oxide .

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatibilities: strong oxidizers, nitrogen dioxide, and ozone.

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and fumes.

11: Toxicological information

11.1 Acute toxicity

Oral: no data available
Inhalation: no data available
Dermal: no data available

11.2 Skin corrosion/irritation

no data available

11.3 Serious eye damage/irritation

no data available

11.4 Respiratory or skin sensitization

no data available

11.5 Germ cell mutagenicity

no data available

11.6 Carcinogenicity

CLASSIFICATION: B2; probable human carcinogen. BASIS FOR CLASSIFICATION: Human data specifically linking benzo(a)pyrene (BAP) to a carcinogenic effect are lacking. There are, however, multiple animal studies in many species demonstrating BAP to be carcinogenic following administration by numerous routes. BAP has produced positive results in numerous genotoxicity assays. NOTE: At the June, 1992 CRAVE Work Group meeting, a revised risk estimate for benzo(a)pyrene was verified. ... The Carcinogenicity Background Document provides details on the rationale and methods used to derive the carcinogenicity values found in IRIS. ... HUMAN CARCINOGENICITY DATA: Inadequate. ANIMAL CARCINOGENICITY DATA: Sufficient. /Based on former classification system/

11.7 Reproductive toxicity

no data available

11.8 STOT-single exposure

no data available

11.9 STOT-repeated exposure

no data available

11.10 Aspiration hazard

no data available

12: Ecological information

12.1 Toxicity

Toxicity to fish: LT50 (time to 50% mortality); Species: Pimephales promelas (Fathead minnow, larvae 7 days posthatch); Conditions: freshwater, renewal; Concentration: 5.6 ug/L for 40.05 hr
Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water flea, about 4 days old juvenile); Conditions: freshwater, static, 20°C, pH 8.0, alkalinity 250 mg/L CaCO3; Concentration: 40 ug/L for 24 hr (95% confidence interval: 32-49 ug/L); Effect: intoxication, immobilization
Toxicity to algae: EC50; Species: Pseudokirchneriella subcapitata (Green algae, 500000 cells/mL); Conditions: freshwater, static, 23°C; Concentration: 15 ug/L for 72 hr; Effect: growth, general /97% purity
Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: (14)C-benzo(a)pyrene was not significantly mineralized in sludge treated Caledon soil; half-lives ranged from 23 to 266 weeks(1). The persistence of benzo(a)pyrene in soil is expected to vary depending upon the nature of compounds accompanying it and the nature and previous history of the soil(1). After 5 days incubation in activated sludge, <0.1% of the applied (14)C-benzo(a)pyrene concn was degraded to (14)-CO2(2). Incubation of (14)C-benzo(a)pyrene in creosote-pentachlorophenol contaminated soil over 285 days led to a small, <1%, mineralization of benzo(a)pyrene(3). Calculated half-lives for the mineralization of (14)C-benzo(a)pyrene in sediment/water microcosms ranged from >200 weeks in Redfish Bay, TX to >300 weeks in Lake Chicot, AR; no mineralization was detected in microcosms containing sediment and water from DeGray Reservoir, AR(4). The extent of mineralization of (14)C-benzo(a)pyrene, at a concentration of 105 ng/g, in soils collected from an abandoned coal tar refinery was very low, <8%, after 160 days(5). The level of indigenous mineralization of (14)C-benzo(a)pyrene in soils obtained from three abandoned coal gasification plants as measured by serum bottle respirometry ranged from not detectable to 25% following incubations >180 days; (14)C-benzo(a)pyrene mineralization occurred after a 28-day lag period(6). In soils from Alert (contaminated with Arctic diesel fuel), Saglek (from a radar installation), Varta (from a former gasworks site), and Westbrook (not known to be polluted), the percent removal of benzo(a)pyrene (10 ug/mL concn) from enrichment cultures after 90 days incubation under aerobic conditions were, respectively: at 20°C, 68, 76, 60, and 27; at 7°C, 33, 31, 34 and 37(7).

12.3 Bioaccumulative potential

Gillichthys mirabilis (mudsucker) exposed to benzo(a)pyrene /concn not specified/ for 96 hr exhibited a bioconcentration factor of 0.048; Oligocottus maculosus (tidepool sculpin) exposed to benzo(a)pyrene /concn not specified/ for 1 hr exhibited a bioconcentration factor of 0.13; Citharichthys stigmacus (sand dab) exposed to benzo(a)pyrene /concn not specified/ for 1 hr exhibited a bioconcentration factor of 0.02. /Edible tissue/

12.4 Mobility in soil

Sorption coefficients for benzo(a)pyrene obtained during 48 hour batch experiments using two lake sediments with organic carbon content of 1.87 and 2.07%, and a high chemical concentration were 7,000 and 22,000, respectively(1). Sorption coefficients obtained from 48 hour batch experiments using a low benzo(a)pyrene concentration were 8,700 and 35,000 using lake sediments with 1.87% and 2.07% organic carbon, respectively(1). These values correspond to estimated Koc values of 2.7X10+5, 1.1X10+6,

4.7X10+5, and 1.7X10+6(SRC) using a regression-derived equation(2).. Sorption removal accounted for >3.0% and >3.2% of the benzo(a)pyrene present in the influent of a high-loaded laboratory scale activated sludge reactor and a biological aerated filter reactor, respectively; the calculated adsorption removal may be conservatively low because the sludge samples were dried before analysis(3). Kd, soil/water partition coefficients, of 18.2 and 69.0 were determined in Kidman sandy loam, 0.51% organic carbon, and Nunn clay loam, 1.1% organic carbon(4). These values correspond to Koc values of 930 and 6300, respectively(SRC), using a regression-derived equation(2).. Measured log Koc values ranged from 6.00 to 6.28 in sediments and porewater isolated from three cores from Boston Harbor, MA(5). Sorption partition coefficients for benzo(a)pyrene with natural dissolved organic carbon from Lake Ketelmeer ranged from 2.8X10+6 at 45°C to 1.6X10+7 at 16°C(6). A sorption partition coefficient of 2.5X10+6 was observed for benzo(a)pyrene with particulate organic matter from Lake Ketelmeer at 20°C(6). Average partition coefficients for benzo(a)pyrene in natural interstitial waters ranged from 2.2X10+3 and 9.0X10+6 for Government Pond, Grand Haven, MI and Lake Michigan, respectively(7). Sorption of (14)C-benzo(a)pyrene on sediment collected in the harbor of Rotterdam was measured using batch experiments; cosolvent partition coefficients(log) ranged from 5.2 to 6.3(8). Partition coefficients (log) for (14)C-benzo(a)pyrene using fulvic and humic acids derived from salt-marsh estuaries ranged from 3.48 to 3.86 and 4.12 to 4.29, respectively(9). Benzo(a)pyrene log Kp values ranged from 5.18 to 5.79 in porewater and 4.90 to 5.36 in elutriates(10). 22% benzo(a)pyrene removal over 36 days in an activated sludge pilot reactor was attributed to adsorption to sludge(11). According to a recommended classification scheme(12), these Koc values suggest that benzo(a)pyrene is expected to have low to no mobility in soil(SRC).

12.5 Other adverse effects

no data available

13: Disposal considerations

13.1 Disposal methods for waste chemicals

It must be handled by an organization with hazardous waste disposal qualifications, with high-temperature incineration (temperature ? 900°C) being preferred to completely destroy hazardous substances. Waste that cannot be incinerated must be chemically degraded or stabilized before being safely landfilled. Contaminated containers must be sterilized at high temperatures or chemically before disposal.

13.2 Precautions

Disposal personnel must wear special protective equipment and undergo regular health checks; waste must be tightly sealed to prevent leakage; waste gas and wastewater generated during the disposal process must undergo special treatment to ensure compliance with standards; disposal records must be kept for a long time (at least 30 years); and mixing with ordinary waste is prohibited.

14: Transport information

14.1 UN Number

ADR/RID: UN3077 IMDG: UN3077 IATA: UN3077

14.2 UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

14.3 Transport hazard class(es)

ADR/RID: 9	IMDG: 9	IATA: 9

14.4 Packing group, if applicable

ADR/RID: III	IMDG: III	IATA: III

14.5 Environmental hazards

ADR/RID: yes	IMDG: yes	IATA: yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

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
Benzo[a]pyrene	Benzo[a]pyrene	50-32-8	200-028-5
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Australian Inventory of Industrial Chemicals (AIIC)			Not Listed.
Catalogue of Strictly Restricted Toxic Chemicals in China			Not Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
European INventory of Existing Commercial chemical Substances			Not Listed.
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans			Listed.
TSCA Inventory of Chemical Substances			Listed.

16: Other information

Information on revision

SDS Creation Date	July 1, 2025
SDS Revision Date	July 1, 2025

Abbreviations and acronyms in SDS

- 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%

SDS 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/

Any questions regarding this Safety Data Sheet, Please send your inquiry to sales@MolBest.com

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