

## Chemical Safety Data Sheet MSDS / SDS

## Fluoranthene

Revision Date:2024-12-21 Revision Number:1

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

**Product identifier**

Product name : Fluoranthene  
CBnumber : CB3123401  
CAS : 206-44-0  
EINECS Number : 205-912-4  
Synonyms : fluoranthene,Fluoranthen

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

## SECTION 2: Hazards identification

**Classification of the substance or mixture**

Acute toxicity - Category 4, Oral  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

**Label elements****Pictogram(s)**

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Signal word : Danger

**Hazard statement(s)**

H225 Highly Flammable liquid and vapour  
H302 Harmful if swallowed  
H315 Causes skin irritation  
H319 Causes serious eye irritation  
H335 May cause respiratory irritation  
H336 May cause drowsiness or dizziness

H351 Suspected of causing cancer

H370 Causes damage to organs

H373 May cause damage to organs through prolonged or repeated exposure

H410 Very toxic to aquatic life with long lasting effects

H412 Harmful to aquatic life with long lasting effects

#### **Precautionary statement(s)**

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

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.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P281 Use personal protective equipment as required.

P311 Call a POISON CENTER or doctor/physician.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P501 Dispose of contents/container to.....

#### **Prevention**

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

#### **Response**

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P391 Collect spillage.

#### **Storage**

none

#### **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.

#### **Other hazards**

no data available

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name : Fluoranthene

Synonyms : fluoranthene,Fluoranthen

CAS	: 206-44-0
EC number	: 205-912-4
MF	: C16H10
MW	: 202.25

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## SECTION 4: First aid measures

### Description of first aid measures

#### If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

#### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

#### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

### Most important symptoms and effects, both acute and delayed

ACUTE/CHRONIC HAZARDS: When heated to decomposition this compound emits acrid smoke and fumes. (NTP, 1992)

### Indication of any immediate medical attention and special treatment needed

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 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. Aromatic hydrocarbons and related compounds

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## SECTION 5: Firefighting measures

### Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### Specific Hazards Arising from the Chemical

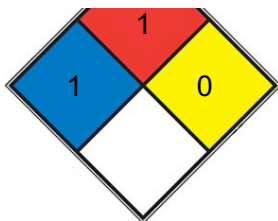
Flash point data for this chemical are not available. It is probably combustible. (NTP, 1992)

### Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### NFPA 704





**HEALTH** 1 Exposure would cause irritation with only minor residual injury (e.g. [acetone](#), sodium bromate, potassium chloride)

Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion

**FIRE** 1 can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. [mineral oil](#), ammonia)

**REACT** 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N<sub>2</sub>](#))

**SPEC.**

**HAZ.**

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up

Adsorption by activated carbon.

## SECTION 7: Handling and storage

### Precautions for safe handling

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.

### Conditions for safe storage, including any incompatibilities

Storage conditions shall be controlled to prevent overheating and pressure buildup in containers of coal tar products. Transfer and storage systems shall be designed and operated to prevent blockage by condensed coal tar products. Coal tar products

## SECTION 8: Exposure controls/personal protection

### Control parameters

### Occupational Exposure limit values

<b>Component</b>	Fluoranthene
<b>CAS No.</b>	206-44-0
	Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 0.1 mg/cu m (cyclohexane-extractable fraction). /Coal tar pitch volatiles/ NIOSH considers coal tar pitch volatiles to be potential occupational carcinogens. NIOSH usually recommends that occupational exposures to carcinogens be limited to the lowest feasible concentration. /Coal tar pitch volatiles/

#### Biological limit values

no data available

#### Exposure controls

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

#### Individual protection measures

##### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

##### Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

##### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

##### Thermal hazards

no data available

## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical state    Crystalline Powder, Crystals and/or Chunks

Colour    Yellow or yellow-green to gray-beige

Odour    no data available

Melting point/freezing point                    320°C(dec.)(lit.)

Boiling point or initial boiling point and      384°C(lit.)

boiling range

Flammability    no data available

Lower and upper explosion                      no data available

limit/flammability limit

Flash point    88°C(lit.)

Auto-ignition temperature                      no data available

Decomposition temperature                      no data available

pH    no data available

Kinematic viscosity                                no data available

Solubility    less than 1 mg/mL at 64° F (NTP, 1992)

Partition coefficient n-octanol/water	log Kow = 5.16
Vapour pressure	1.73E-05mmHg at 25°C
Density and/or relative density	1.252 at 32° F (NTP, 1992)
Relative vapour density	no data available
Particle characteristics	no data available

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## SECTION 10: Stability and reactivity

### Reactivity

NIOSH considers coal tar pitch volatiles to be potential occupational carcinogens. Coal tar pitch volatiles

### Chemical stability

Does not undergo photooxidation in organic solvents under fluorescent light or sunlight; resistant to photodecomposition

### Possibility of hazardous reactions

Combustible when exposed to heat or flame. Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic hydrocarbons, such as FLUORANTHENE, and strong oxidizing agents. They can react exothermically with bases and with diazo compounds. Substitution at the benzene nucleus occurs by halogenation (acid catalyst), nitration, sulfonation, and the Friedel-Crafts reaction.

### Conditions to avoid

no data available

### Incompatible materials

Incompatible materials Strong oxidizing agents.

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat oral 2000 mg/kg bw (1270-3130)
- Inhalation: no data available
- Dermal: no data available

### 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**

CLASSIFICATION: D; not classifiable as to human carcinogenicity. BASIS FOR CLASSIFICATION: Based on no human data and inadequate data from animal bioassays. HUMAN CARCINOGENICITY DATA: None. ANIMAL CARCINOGENICITY DATA: Inadequate.

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

no data available

### **STOT-repeated exposure**

no data available

### **Aspiration hazard**

no data available

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## SECTION 12: Ecological information

### **Toxicity**

Toxicity to fish: LC50; Species: /Lepomis macrochirus/ (Bluegill); Conditions: static; Concentration: 3,980 ug/L for 96 hr

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water Flea) age 8-9 days, clone F, female; Conditions: freshwater, renewal, 20 deg C; Concentration: 104.38 ug/L for about 3 days (95% confidence interval: 70.82-131.08 ug/L); Effect: growth, decreased biomass /98% purity

Toxicity to algae: EC50; Species: Chlorella fusca var. vacuolata (Green Algae) strain 21115, 75000 cells/mL; Conditions: freshwater, static, 28 deg C, pH 6.9; Concentration: 0.17 umol/L for 24 hr (95% confidence interval: 0.153-0.201 umol/L); Effect: population, decreased population growth rate /98% purity

Toxicity to microorganisms: no data available

### **Persistence and degradability**

AEROBIC: Laboratory studies show that fluoranthene can be substantially mineralized in sediments containing indigenous microorganisms; major metabolites include fluoranthene trans-2,3-dihydrodiol, and 8 and 9-hydroxyfluoranthene trans-2,3-dihydrodiols(1). In shake flask studies, an initial fluoranthene concentration of 16.2 ug/mL was reduced to 7.6 ug/mL following 2 weeks incubation in contaminated groundwater from the American Creosote Works Superfund site, Pensacola, FL(2). In a pilot wastewater treatment plant, no fluoranthene was lost due to biodegradation(3). The presence of the anionic surfactant SDS was found to enhance the biodegradation of fluoranthene(4). Mixed results were reported in a static biodegradability test employing a domestic wastewater inoculum where 100% and 0% of the fluoranthene was degraded in four successive weekly subcultures at concentrations of 5 and 10 mg/L, respectively(5). Fluoranthene removal from the waste water of six municipal waste water treatment plants along the Rhine River in The Netherlands avgd 95%(6).

### **Bioaccumulative potential**

The BCF of fluoranthene in sunfish was determined to range between 2,640-6,110(1). In a 21 day bioconcentration test in a flow through tank,

the log BCF in rainbow trout was 2.58 (BCF = 380)(2). A 28 day experiment in a flow through tank detected a log BCF of 3.60 (BCF = 3,981) after 7 days in fathead minnows; depuration occurred in 2 days(3). According to a classification scheme(4), the BCF values in sunfish, rainbow trout and fathead minnows suggest that the potential for bioconcentration in aquatic organisms is high to very high(SRC). However, it may not bioconcentrate in aquatic organisms which contain microsomal oxidase, such as fish, as this enzyme enables the rapid metabolism of certain polycyclic aromatic hydrocarbons(5). The BCF for fluoranthene in the clam *Crassostrea virginica* was 10,000 from 8 days exposure to 0.004 ppm fluoranthene via the overlying water column(6). Bioconcentration factors (ratio between tissue and sediment concentrations) of 5.7 and 12.0 were measured in *Polychaete* sp. and *Capitella capitata*(7). The BCF of fluoranthene in crayfish was determined to range between 1,520-3,510(1). A mean BCF of 76,696 was measured in the fresh-water amphipod *Pontoporeia hoyi*(8). When oysters were suspended in oil treated enclosures contaminated with fluoranthene dissolved in Prudhoe crude oil, the log BCF was 4.09 after 2 days exposure; after the oysters were transferred to clean water, depuration half-life was 5 days(9).

### **Mobility in soil**

The measured log Koc for fluoranthene following 15 days of incubation in Oakland, Mixed and Red Hook sediments was determined to be 4.67 to 5.28, 4.72 to 5.47, and 4.47 to 4.62, respectively(1). The average log Koc value for fluoranthene in sediment from Brown's Lake, MS, and Hamlet City Lake, NC after six months incubation was reported to be 4.51 and 5.05, respectively(2). Sorption coefficients for fluoranthene obtained during 48 hour batch experiments using two lake sediments with an organic carbon content of 1.87 and 2.07%, and a high chemical concentration were 2600 and 2700, respectively(3). The log Koc values for fluoranthene on three soils from Germany and one from China were determined to be 4.81, 4.65, 4.80, and 4.83, respectively(4). The log Kdoc (partition coefficient for sorption to dissolved organic carbon) of fluoranthene was reported to range from 5.12 to 5.22; the log Kpoc (partition coefficient for sorption to particulate organic material) was reported to be 5.4(5). Log Koc values reported in the literature were reported to be 4.79(6), 4.62(7), 4.74(8) and 4.87(9). According to a classification scheme(10), these log Koc values suggest that fluoranthene is expected to be immobile in soil(SRC).

### **Other adverse effects**

no data available

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## **SECTION 13: Disposal considerations**

### **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.

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## **SECTION 14: Transport information**

### **UN Number**

ADR/RID: UN2811 (For reference only, please check.)

IMDG: UN2811 (For reference only, please check.)

IATA: UN2811 (For reference only, please check.)



### **UN Proper Shipping Name**

ADR/RID: TOXIC SOLID, ORGANIC, N.O.S. (For reference only, please check.)

IMDG: TOXIC SOLID, ORGANIC, N.O.S. (For reference only, please check.)

IATA: TOXIC SOLID, ORGANIC, N.O.S. (For reference only, please check.)

### **Transport hazard class(es)**

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

### **Packing group, if applicable**

ADR/RID: I (For reference only, please check.)

IMDG: I (For reference only, please check.)

IATA: I (For reference only, please check.)

### **Environmental hazards**

ADR/RID: Yes

IMDG: Yes

IATA: Yes

### **Special precautions for user**

no data available

### **Transport in bulk according to IMO instruments**

no data available

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## SECTION 15: Regulatory information

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

#### **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**

Listed.

#### **New Zealand Inventory of Chemicals (NZIoC)**

Listed.

#### **PICCS**

Not Listed.

#### **Vietnam National Chemical Inventory**

Listed.

**IECSC**

Listed.

**Korea Existing Chemicals List (KECL)**

Not Listed.

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## SECTION 16: Other information

### 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](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/>

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