ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

Chrysene

Revision Date:2025-06-21 Revision Number:1

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

Product identifier

Product name	: Chrysene
CBnumber	: CB9853344
CAS	: 218-01-9
EINECS Number	: 205-923-4
Synonyms	: Chrysene,chrysen

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	: 010-86108875

SECTION 2: Hazards identification

Classification of the substance or mixture

Germ cell mutagenicity, Category 2

Carcinogenicity, Category 1B

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)

□□□□

Signal word Danger

Hazard statement(s)

H225 Highly Flammable liquid and vapour

H319 Causes serious eye irritation

H336 May cause drowsiness or dizziness

H341 Suspected of causing genetic defects

H350 May cause cancer

H351 Suspected of causing cancer

H410 Very toxic to aquatic life with long lasting effects

H412 Harmful to aquatic life with long lasting effects

Precautionary statement(s)

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

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

P273 Avoid release to the environment.

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

P281 Use personal protective equipment as required.

P391 Collect spillage. Hazardous to the aquatic environment

P308+P313 IF exposed or concerned: Get medical advice/attention.

P405 Store locked up.

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

Prevention

P203 Obtain, read and follow all safety instructions before use.

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

P273 Avoid release to the environment.

Response

P318 IF exposed or concerned, get medical advice.

P391 Collect spillage.

Storage

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.

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: Chrysene
Synonyms	: Chrysene,chrysen
CAS	: 218-01-9
EC number	: 205-923-4
MF	: C18H12
MW	: 228.29

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

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.

Most important symptoms and effects, both acute and delayed

ACUTE/CHRONIC HAZARDS: Toxic. (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. Naphthalene 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.

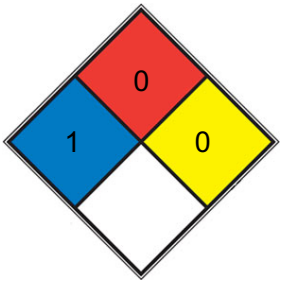
Specific Hazards Arising from the Chemical

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: Some may burn but none ignite readily. Containers may explode when heated. Some may be transported hot. For UN3508, be aware of possible short circuiting as this product is transported in a charged state. (ERG, 2016)

Advice for firefighters

Use water spray, dry powder, foam, carbon dioxide.

NFPA 704



HEALTH	1	Exposure would cause irritation with only minor residual injury (e.g. acetone, sodium bromate, potassium chloride)
		Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete,

■	FIRE	0	stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)
■	REACT	0	Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,N2)
□	SPEC. HAZ.		

SECTION 6: Accidental release measures

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 covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

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 covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. Closed system, dust 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.

Conditions for safe storage, including any incompatibilities

Separated from strong oxidants. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing.Keep container tightly closed in a dry and well-ventilated place.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued.MAK: skin absorption (H); carcinogen category: 2

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 safety goggles.

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

Information on basic physicochemical properties

Physical state	neat
Colour	Red blue fluorescent orthorhombic plates from benzene, acetic acid
Odour	no data available
Melting point/freezing point	250°C(lit.)
Boiling point or initial boiling point and boiling range	448°C(lit.)
Flammability	Combustible.
Lower and upper explosion limit/flammability limit	no data available
Flash point	100°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	<0.0001g/l
Partition coefficient n-octanol/water	log Kow = 5.73
Vapour pressure	4.3 at 25 °C (de Kruif, 1980)
Density and/or relative density	1.274
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

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

Decomposes on burning. This produces toxic fumes. Reacts violently with strong oxidants.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Dust explosion possible if in powder or granular form, mixed with air.Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic hydrocarbons, such as CHRYSENE, 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.

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- 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: B2; probable human carcinogen. BASIS FOR CLASSIFICATION: No human data and sufficient data from animal bioasays. Chrysene produced carcinomas and malignant lymphoma in mice after intraperitoneal injection and skin carcinomas in mice following dermal exposure. Chrysene produced chromosomal abnormalities in hamsters and mouse germ cells after gavage exposure, positive responses in bacterial gene mutation assays and transformed mammalian cells exposed in culture. HUMAN CARCINOGENICITY DATA: None. ANIMAL CARCINOGENICITY DATA: Sufficient.

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

This substance is possibly carcinogenic to humans.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna /(Water flea)/; Concentration: 1.9 mg/L for 2 hr /Conditions of bioassay not specified

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Biodegradation half-lives of 371 and 387 days were observed for chrysene in Kidman and McLaurin sandy loam soils, respectively(1). No significant degradation of chrysene was observed in soil obtained from a former tar-oil refinery following 8 weeks of incubation in a percolator(2). However, when sand was contaminated with soil extracts containing polycyclic aromatic hydrocarbons, including chrysene, and inoculated with a polycyclic aromatic hydrocarbon degrading mixed culture, the chrysene concentration was reduced from approx. 50 mg/kg soil to approx. 19 mg/kg soil(2). The inhibition of chrysene biodegradation was attributed to binding of chrysene with the soil(2). In a 240 day soil microcosm study, half-lives of 980, 1000, and 730 days at 10, 20, and 30 deg C, respectively, were estimated for chrysene(3). In bench-scale biotreatability studies using a solid-phase bioremediation process (landfarming chambers containing sediment and soil collected from the American Creosote Works Superfund site, Pensacola, FL), the chrysene concentration was reduced from 114.0 to 53.4 mg/landfarming chamber in unamended surface soil; 114.0 to 46.2 mg/landfarming chamber in nutrient-amended surface soil; 1443.6 to 1146.6 mg/landfarming chamber in unamended sediment; and 1443.6 to 992.4 mg/landfarming chamber in nutrient-amended sediment following 12 weeks incubation(4). After 16 months incubation in biologically active soils containing 1-phenyldecane as a primary substrate, 84% of chrysene was recovered; 95% of chrysene was recovered from a poisoned control after 16 months incubation(5). Half-lives for chrysene ranged from 1000 days, using a synthetic mixture of polycyclic aromatic hydrocarbons applied and incubated together in Kidman sandy loam soil, to 77 days in a mixture of oil refinery wastes applied to Kidman sandy loam soil(6). A half-life of 371 days was observed for chrysene when applied and incubated as a single constituent in Kidman sandy loam soil(6).

Bioaccumulative potential

Some marine organisms have no detectable aryl hydrocarbon hydroxylase enzyme systems, namely: phytoplankton, certain zooplankton, mussels (Mytilus edulis), scallops (Placopecten sp), and snails (Litternia littorea). ... Those organisms which lack a metabolic detoxification enzyme system, tend to accumulate polycyclic aromatic hydrocarbons. Polycyclic aromatic hydrocarbons

Mobility in soil

The log Koc value for chrysene in 100 soil samples was 6.11-7.34(1). The log Koc for chrysene was reported as 5.40(2). The log Koc value of chrysene measured in sediment from San Francisco Bay was 5.98(3). The log Koc of chrysene in sediment collected from Utica Harbor, NY and the Rouge River, MI was 4.81-6.75(4). The log Koc values for chrysene in 52 sediment samples was 5.12-7.79(5). According to a classification scheme(6), the reported log Koc values suggest that chrysene is expected to be immobile in soil. Sorption removal accounted for >6.2% and >8.5% of the chrysene present in the influent of a high-loaded laboratory scale activated sludge reactor and a biological aerated filter reactor, respectively(7).

Toxics Screening Level

The IRSL for Chrysene is 1.76E-3 per µg/m3.

Other adverse effects

no data available

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.

SECTION 14: Transport information

UN Number

ADR/RID: UN3077 (For reference only, please check.)

IMDG: UN3077 (For reference only, please check.)

IATA: UN3077 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 9 (For reference only, please check.)

IMDG: 9 (For reference only, please check.)

IATA: 9 (For reference only, please check.)

Packing group, if applicable

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

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

IATA: III (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

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

Not Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

PICCS

Not Listed.

Vietnam National Chemical Inventory

Listed.

IECSC

Not Listed.

Korea Existing Chemicals List (KECL)

Listed.

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

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

Depending on the degree of exposure, periodic medical examination is suggested.Do NOT take working clothes home.This substance does not usually occur as a pure substance but as a component of polyaromatic hydrocarbon (PAH) mixtures.Human population studies have associated PAH's exposure with cancer and cardiovascular diseases.TLV Note: Exposure by all routes should be carefully controlled to levels as low as possible.