



BENZO[B]FLUORANTHENE (D12, 98%)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 27/01/2011

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Supersedes: 11/11/2016

Version: 4.1

DLM-2136

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

1.1. Product identifier

Product form	: Substance
Substance name	: BENZO[B]FLUORANTHENE (D12, 98%)
EC Index-No.	: 601-034-00-4 (Unlabeled)
EC-No.	: 205-911-9 (Unlabeled)
CAS-No.	: 205-99-2 (Unlabeled)
Product code	: DLM-2136
Formula	: C20D12
Synonyms	: 3,4-Benzofluoranthene / Benz[e]acephenanthrylene / 2,3-Benzfluoranthene / 3,4-Benz[e]acephenanthrylene / Benzo[b]fluoranthene / Benzo[e]fluoranthene / NSC 89265

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

1.2.1. Relevant identified uses

Main use category	: Professional use
Industrial/Professional use spec	: For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Carc. 1A	H350
Asp. Tox. 1	H304
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Full text of hazard classes and H-statements : see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Xn; R65
Carc.Cat.1; R45
Carc.Cat.1; R49
N; R50/53

Full text of R-phrases: see section 16

GHS-US classification

Carc. 1B	H350
Asp. Tox. 1	H304
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

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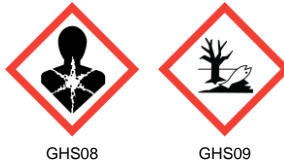
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2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

: Danger

Hazard statements (CLP) :

: H304 - May be fatal if swallowed and enters airways
H350 - May cause cancer (in contact with skin, if inhaled, if swallowed)
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (CLP) :

: P273 - Avoid release to the environment.
P280 - Wear eye protection, face protection, protective clothing, protective gloves.
P301+P310 - IF SWALLOWED: Immediately call a doctor, a POISON CENTER.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P331 - Do NOT induce vomiting.
P391 - Collect spillage.
P405 - Store locked up.
P501 - Dispose of contents/container to Comply with local regulations for disposal

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

: Danger

Hazard statements (GHS-US) :

: H304 - May be fatal if swallowed and enters airways
H350 - May cause cancer (Dermal, Inhalation, oral)
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) :

: P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P273 - Avoid release to the environment.
P280 - Wear eye protection, face protection, protective clothing, protective gloves.
P301+P310 - If swallowed: Immediately call a poison center or doctor
P308+P313 - If exposed or concerned: Get medical advice/attention.
P331 - Do NOT induce vomiting.
P391 - Collect spillage.
P405 - Store locked up.
P501 - Dispose of contents/container to Comply with applicable regulations

2.3. Other hazards

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Directive 67/548/EEC
BENZO[B]FLUORANTHENE (D12, 98%)	(CAS-No.) 205-99-2 (Unlabeled) (EC-No.) 205-911-9 (Unlabeled) (EC Index-No.) 601-034-00-4 (Unlabeled)	100	Xn; R65 Carc.Cat.1; R45 Carc.Cat.1; R49 N; R50/53

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
BENZO[B]FLUORANTHENE (D12, 98%)	(CAS-No.) 205-99-2 (Unlabeled) (EC-No.) 205-911-9 (Unlabeled) (EC Index-No.) 601-034-00-4 (Unlabeled)	100	Carc. 1A, H350 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of R- and H- phrases: see section 16

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Name	Product identifier	%	GHS-US classification
BENZO[B]FLUORANTHENE (D12, 98%) (Main constituent)	(CAS-No.) 205-99-2 (Unlabeled)	100	Carc. 1B, H350 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of H-phrases: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
First-aid measures after inhalation	: If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician.
First-aid measures after skin contact	: Wash with soap and plenty of water. Consult a physician.
First-aid measures after eye contact	: Flush eyes with water as a precaution.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

Symptoms/effects after inhalation	: May be fatal if inhaled. May cause respiratory tract irritation.
Symptoms/effects after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.
Symptoms/effects after eye contact	: May cause eye irritation.
Symptoms/effects after ingestion	: May be fatal if swallowed.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

5.2. Special hazards arising from the substance or mixture

Reactivity : Not available.

5.3. Advice for firefighters

Firefighting instructions	: Wear self contained breathing apparatus for fire fighting if necessary.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

6.1.2. For emergency responders

No additional information available

6.2. 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.

6.3. Methods and material for containment and cleaning up

For containment : Pick up and arrange disposal without creating dust. Sweep up and shovel. Do not flush with water. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep container tightly closed in a dry and well-ventilated place.

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Storage conditions : Store at room temperature away from light and moisture.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



Materials for protective clothing : Wear suitable protective clothing and gloves.

Hand protection : Wear suitable protective clothing and gloves.

Eye protection : Wear safety glasses with side shields (or goggles) and a face shield.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : When appropriate, use NIOSH/CEN approved respirator.

Environmental exposure controls : Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Solid
Molecular mass	: 264.4 g/mol (Labeled)
Color	: White to tan
Odor	: No data available
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: 163 - 165 °C (325 - 329 °F) - lit.
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Not available.

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10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Not available.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

BENZO[B]FLUORANTHENE (D12, 98%) (205-99-2 (Unlabeled))

LD50 oral rat	7.57 mg/kg TDL _o Oral Remarks: Liver: Changes in liver weight. Endocrine: Changes in thymus weight.
Additional information	LD50 Oral Mouse, 7.57 mg/kg

Skin corrosion/irritation : Not classified

No data available

Serious eye damage/irritation : Not classified

No data available

Respiratory or skin sensitization : Not available

No data available

Germ cell mutagenicity : Not available

Carcinogenicity : This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification. Possible human carcinogen. Possible human carcinogen

Reproductive toxicity : Not available

Specific target organ toxicity – single exposure : Not classified

No data available

Specific target organ toxicity – repeated exposure : Not classified

No data available

Aspiration hazard : May be fatal if swallowed and enters airways.

Potential Adverse human health effects and symptoms : To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

IARC group : 2B

Symptoms/effects after inhalation : May be fatal if inhaled. May cause respiratory tract irritation.

Symptoms/effects after skin contact : May be harmful if absorbed through skin. May cause skin irritation.

Symptoms/effects after eye contact : May cause eye irritation.

Symptoms/effects after ingestion : May be fatal if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

BENZO[B]FLUORANTHENE (D12, 98%) (205-99-2 (Unlabeled))

EC50 Daphnia 1	> 1.024 mg/l Immobilization EC50 - Daphnia magna (Water flea) - 24 h
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12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.
- Product/Packaging disposal recommendations : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
- Ecology - waste materials : Dispose of as unused product.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

- UN-No.(DOT) : 3077
- DOT NA no. UN3077

14.2. UN proper shipping name

- Proper Shipping Name (DOT) : Environmentally hazardous substances, solid, n.o.s.
(Benz[e]acephenanthrylene)
- Class (DOT) : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140
- Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)



- DOT Symbols : G - Identifies PSN requiring a technical name
- Packing group (DOT) : III - Minor Danger
- DOT Special Provisions (49 CFR 172.102) : 8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description "Other regulated substances, liquid or solid, n.o.s.", as appropriate. In addition, for solid materials, special provision B54 applies.
146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination.
335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as "Environmentally hazardous substances, solid, n.o.s.," UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leak-proof when used as bulk packaging.
A112 - Notwithstanding the quantity limits shown in Column (9A) and (9B) for this entry, the following IBCs are authorized for transportation aboard passenger and cargo-only aircraft. Each IBC may not exceed a maximum net quantity of 1,000 kg:
a. Metal: 11A, 11B, 11N, 21A, 21B and 21N
b. Rigid plastics: 11H1, 11H2, 21H1 and 21H2
c. Composite with plastic inner receptacle: 11HZ1, 11HZ2, 21HZ1 and 21HZ2
d. Fiberboard: 11G
e. Wooden: 11C, 11D and 11F (with inner liners)
f. Flexible: 13H2, 13H3, 13H4, 13H5, 13L2, 13L3, 13L4, 13M1 and 13M2 (flexible IBCs must be sift-proof and water resistant or must be fitted with a sift-proof and water resistant liner).
B54 - Open-top, sift-proof rail cars are also authorized.
IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.
N20 - A 5M1 multi-wall paper bag is authorized if transported in a closed transport vehicle.
T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2)
TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

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DOT Packaging Exceptions (49 CFR 173.xxx) : 155
DOT Packaging Non Bulk (49 CFR 173.xxx) : 213
DOT Packaging Bulk (49 CFR 173.xxx) : 240
Marine pollutant : Yes



14.3. Additional information

Other information : No supplementary information available.
Special transport precautions : IMDG: Marine Pollutant.

Overland transport

Packing group (ADR) : III
Class (ADR) : 9 - Miscellaneous dangerous substances and articles
Hazard identification number (Kemler No.) : 90
Classification code (ADR) : M7
Hazard labels (ADR) : 9 - Miscellaneous dangerous substances and articles



Orange plates :



Tunnel restriction code (ADR) : E
Limited quantities (ADR) : 5kg
EAC : 2Z
Excepted quantities (ADR) : E1

Transport by sea

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
MFAG-No : 171

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : No limit
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : No limit
Civil Aeronautics Law : Miscellaneous dangerous substances & articles

14.4. Environmental hazards

Dangerous for the environment :



Other information : No supplementary information available.

14.5. Special precautions for user

Special transport precautions : IMDG: Marine Pollutant.

14.6. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

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SECTION 15: Regulatory information

15.1. US Federal regulations

BENZO[B]FLUORANTHENE (D12, 98%) (205-99-2 (Unlabeled))

Subject to reporting requirements of United States SARA Section 313

SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard
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15.2. International regulations

CANADA

BENZO[B]FLUORANTHENE (D12, 98%) (205-99-2 (Unlabeled))

Not listed on the Canadian DSL (Domestic Substances List)

15.2.1. National regulations

No additional information available

15.3. US State regulations

BENZO[B]FLUORANTHENE (D12, 98%)(205-99-2 (Unlabeled))

U.S. - California - Proposition 65 - Carcinogens List	Yes
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of R-, H- and EUH-phrases:

Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Asp. Tox. 1	Aspiration hazard Category 1
Carc. 1A	Carcinogenicity Category 1A
H304	May be fatal if swallowed and enters airways
H350	May cause cancer
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
R45	May cause cancer
R49	May cause cancer by inhalation
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R65	Harmful: may cause lung damage if swallowed
N	Dangerous for the environment
Xn	Harmful

NFPA health hazard

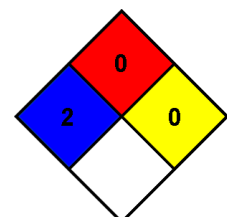
: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard

: 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity

: 0 - Material that in themselves are normally stable, even under fire conditions.



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Hazard Rating

Health	: 1 Slight Hazard - Irritation or minor reversible injury possible
Flammability	: 0 Minimal Hazard
Physical	: 0 Minimal Hazard

CIL Substance SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product