

SAFETY DATA SHEET

NAME OF PRODUCT Benzo(a)pyrene

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product/Catalog Number(s):

60-114	200 µg/vial
60-114.1	100 µg/vial
60-114.2	2.5 mg/vial
60-114.25	250 µg/vial
60-114.3	10 µg/vial
60-114.4	30 µg/vial
60-114.5	1 mg/vial
60-114.51	5 mg/vial
60-114.6	60 µg/vial
60-114.7	60 mg/vial

Product name:	Benzo(a)pyrene
Synonyms:	3,4-benzopyrene, 3,4-benzopyrene, benzo[def]chrysene
Manufacturer:	Molecular Toxicology Inc.
Address:	157 Industrial Park Drive, Boone, North Carolina, 28607
Phone:	(1) 828 264 9099 (8:30 – 17:00 EST)
Fax:	828 264 0103
Emergency contact (Chemtrec):	Contact 1800-424-9300 (USA) or 703 527 3887 (International) at other times Email: chemtrec@chemtrec.com ; http://www.chemtrec.com/
Recommended use:	Laboratory, For Research Only
Restrictions on use:	Not for clinical use

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture per GSH and EU Directive 1272/2008



Danger

Physical hazards	None known
Health hazards	Skin Sensitization (Category 1) Germ Cell Mutagenicity (Category 1B) Reproductive Toxicity (Category 1B) Carcinogenicity (Category 1B) Target Organs: Lungs, skin
Environmental hazards	Acute Aquatic Toxicity (Category 1) Chronic Aquatic Toxicity (Category 1)

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Molecular Toxicology
828-264-9099

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See eco-toxicity section 12.

Labelling

Hazard Statements	H317 May cause an allergic skin reaction H340 May cause genetic defects H350 May cause cancer H360FD May damage fertility or the unborn child H400 Very toxic to aquatic life H410 Very toxic to aquatic life with long-lasting effects
Precautionary Statements	P308+313 IF exposed or concerned: Get medical attention/advice P302+352 IF ON SKIN: Wash with plenty of water P333+313 If skin irritation or rash occurs: Get medical attention/advice P273 Avoid release to the environment P272 Contaminated clothing should not be allowed out of the workplace P280 Wear protective gloves/protective clothing/eye protection/face protection P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. P201 Receive special instructions before use P202 Do not handle until all safety precautions are understood P363 Wash all contaminated clothing before reuse
Hazards not otherwise classified or not covered by GHS	None

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Component	Purpose	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
C ₂₀ H ₁₂ Benzo(a)pyrene	Biochemical used in the study of carcinogenesis	50-32-8	200-028-5	≥ 96%	Skin Sens. 1 (H317) Muta. 1B (H340) Carc. 1B (H350) Repr. 1B (H360) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)

SECTION 4. FIRST AID MEASURES

Description of first aid measures

Eye Contact	Rinse eyes and under eyelids immediately with plenty of water. Consult a doctor.
Skin Contact	Wash off immediately with plenty of soap and water and rinse thoroughly. Seek immediate medical advice.
Ingestion	Rinse mouth with plenty of water. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

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Inhalation Move to fresh air. If required, provide artificial respiration. Keep patient warm. Get medical attention for any breathing difficulties.

Protection of first-aiders Not required

In the event that symptoms develop or persists, obtain medical attention.

Most important symptoms and effects, both acute and delayed

Acute:

May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

Chronic: No data available

Indication of any immediate medical attention and special treatment needed

Seek medical attention if ingested or if breathing difficulties are observed.

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media

Not flammable; use media suitable for extinguishing surrounding fire (carbon dioxide, extinguishing powder or water spray). Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture

Hazardous thermal decomposition products: Carbon oxides

Advice for firefighters

Fire-fighters should wear fully protective impervious protective equipment and self-contained breathing apparatus (SCBA).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Evacuate surrounding areas. Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas.

Environmental precautions

Do not release material into drains.

Methods and material for containment and cleaning up

Dispose contaminated material as waste according to section 13. Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

Reference to other sections

Refer to Sections 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

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Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage, including any incompatibilities

Store according to product packaging, tightly sealed. Keep in a dry, well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits

Component	CAS-No	Limit	Source
Benzo(a)pyrene	50-32-8	0.2 mg/m ³	OSHA PEL
		0.1 mg/m ³	USA NIOSH Recommended Exposure Limits
		0.005 mg/m ³	Quebec

Monitoring methods

N/A

Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimize release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source. Use of a properly operating chemical fume hood designed for hazardous chemicals is recommended.

Personal protective equipment

Eye Protection: Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Hand Protection

Chemical resistant gloves; nitrile rubber recommended. Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves (refer to manufacturer/supplier for information). If material is solubilized, account for solvent in glove assessment.

Remove gloves with care avoiding skin contamination.

Skin and body protection

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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Respiratory Protection

Exposure risk assessment must be performed by a qualified Industrial Hygienist. Where risk assessment shows air purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. NIOSH approved Respiratory Protection is required by EPA. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hygiene Measures - Handle in accordance with good industrial hygiene and safety practice. Wash hands, forearms and face thoroughly after handling chemical products, before smoking, eating and using lavatory, and at the end of the work period. Employ techniques to avoid contamination of clothing. Keep away from food, beverages, and feed.

Environmental exposure controls – Properly operating chemical fume hood designed for hazardous chemicals.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Dark-Yellow Powder
Auto-ignition temperature	no data available
Boiling point	495°C
Decomposition temperature	no data available
Evaporation Rate	no data available
Flammable limits in air	no data available
Flash point	no data available
Formula	C ₂₀ H ₁₂
Melting point	175-179°C
Molecular weight	252.31 g/mol
Odor	Aromatic
Osmolality	no data available
Partition coefficient	Log Pow: 5.97
pH	no data available
Solubility in water	1.62*10 ⁻³ mg/L
Specific gravity	1.35 g/cm ³
Vapor density	no data available
Vapor pressure	no data available
Viscosity	no data available

Other information

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Not reactive.

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Chemical stability

Stable under normal conditions. Decomposition will not occur if used and stored appropriately.

Possibility of hazardous reactions

No hazardous reactions known.

Conditions to avoid

No specific data.

Incompatible materials

Strong oxidizers

Hazardous decomposition products

None under normal conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity

LD₅₀ subcutaneous, rat: 50 mg/kg

Other information on acute toxicity

None available

Skin corrosion/irritation

Mild skin irritation

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

Chronic exposure may cause dermatitis

Germ cell mutagenicity

May alter genetic material

In vivo tests showed mutagenic effects

Carcinogenicity

This substance is possibly carcinogenic according to IARC, ACGIH, NTP, and OSHA classifications

IARC: 1-Group 1: Carcinogenic to humans (benzo(a)pyrene)

ACGIH: Probably carcinogenic

NTP: Reasonably anticipated to be a carcinogen (benzo(a)pyrene)

OSHA: OSHA specifically regulated carcinogen

Reproductive toxicity

May cause congenital malformation in the fetus

Presumed human reproductive toxicant

May cause reproductive disorders

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Teratogenicity

No data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available

Aspiration hazard

No data available

Signs of exposure

Burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting.

Additional toxicological information:

RTECS: CA9275000

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Aquatic ecotoxicity:

Daphnia and other aquatic invertebrates:

EC50 Daphnia magna (Water flea) 0.25 mg/L 48 hours

Algae:

EC50 Pseudokirchneriella subcapitata (Green algae) 0.02 mg/L 72 hours

Persistence and degradability: No further relevant information available.

Behavior in environment systems: No further relevant information available.

Bioaccumulative potential:

Lepomis macrochirus (Bluegill) 48 hours 0.0005 mg/L

Bioconcentration factor (BCF): 3,208

Mobility in soil: log Pow = 6.06

Additional ecological information:

General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course, or sewage system.

Very toxic to aquatic life with long-lasting effects

Results of PBT and vPvB Assessment

PBT: Not applicable

vPvB: Not applicable

Other adverse effects: No further relevant information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

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Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

DOT regulations:

UN Number: UN 3077

Class: 9

Packing Group: III

Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (benzo(a)pyrene)

Reportable quantity (RQ): 1 lbs

Poison inhalation hazard: No

Land transport ADR/RID (cross-border)

UN Number: UN 3077

Class: 9

Packing Group: III

Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (benzo(a)pyrene)

Maritime transport IMDG:

UN Number: UN 3077

Class: 9

Packing Group: III

Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (benzo(a)pyrene)

Marine Pollutant: Yes

EMS-No: F-A, S-F

Air transport ICAO_TI and IATA-DGR:

UN Number: UN 3077

Class: 9

Packing Group: III

Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (benzo(a)pyrene)

Special precautions for user: Not applicable

Transport/Additional information: None available

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

Transport/Additional information:

When sold in quantities of less than or equal to 1 ml, or 1g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore, packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

SECTION 15. REGULATORY INFORMATION

International Inventories

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X = listed, Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), China (IECSC), Japan (ENCS), Australia (AICS), Korea (KECL).

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Benzo[a]pyrene	200-028-5	-		X	X	-	X	-	X	-	KE-05-0184

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Benzo[a]pyrene		<p>Use restricted. See item 72. (see http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT for restriction details)</p> <p>Use restricted. See item 30. (see http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT for restriction details)</p> <p>Use restricted. See item 28. (see http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT for restriction details)</p> <p>Use restricted. See item 50[a]. (see http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT for restriction details)</p> <p>Use restricted. See item 29. (see http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT for restriction details)</p>	SVHC Candidate list - 200-028-5 - Carcinogenic (article 57a); Mutagenic (Article 57b); Toxic for reproduction (Article 57c); PBT (Article 57d); vPvB (Article 57e)

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

National Regulations

WGK Classification

See table for value

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Benzo[a]pyrene	WGK3	Krebserzeugende Stoffe - Class I : 0.05 mg/m ³ (Massenkonzentration)

Component	France - INRS (Tables of occupational diseases)

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Benzo[a]pyrene	Tableaux des maladies professionnelles (TMP) - RG 16, RG 16bis, RG 36
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UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment
Take note of Directive 94/33/EC on the protection of young people at work
Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work
Take note of Dir 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16. OTHER INFORMATION

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 applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Molecular Toxicology, Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See www.moltox.com and/or the invoice or packing slip for additional terms and conditions of sale.