

1 Identification

Product identifier

Product name: Benzo(a)pyrene

Stock number: A17421

CAS Number:
50-32-8

EC number:
200-028-5

Index number:
601-032-00-3

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

Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)



GHS08 Health hazard

Muta. 1A H340 May cause genetic defects.

Carc. 1A H350 May cause cancer.

Repr. 1A H360 May damage fertility or the unborn child.



GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

Hazards not otherwise classified No information known.

Label elements

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

Hazard pictograms



GHS07 GHS08

Signal word

Danger

Hazard statements

H317 May cause an allergic skin reaction.

H340 May cause genetic defects.

H350 May cause cancer.

H360 May damage fertility or the unborn child.

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

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

P281 Use personal protective equipment as required.

P363 Wash contaminated clothing before reuse.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

D1B - Toxic material causing immediate and serious toxic effects

D2A - Very toxic material causing other toxic effects



Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 2 Health (acute effects) = 2

FIRE 1 Flammability = 1

REACTIVITY 1 Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances

CAS# Description:

50-32-8 Benzo(a)pyrene

Identification number(s):

EC number: 200-028-5

Product name: Benzo(a)pyrene											
Index number: 601-032-00-3											
(Contd. of page 1)											
4 First-aid measures Description of first aid measures After inhalation Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice. After skin contact Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice. After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor. After swallowing Seek medical treatment. Information for doctor Most important symptoms and effects, both acute and delayed No further relevant information available. Indication of any immediate medical attention and special treatment needed No further relevant information available.											
5 Fire-fighting measures Extinguishing media Suitable extinguishing agents 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 If this product is involved in a fire, the following can be released: Carbon monoxide and carbon dioxide Advice for firefighters Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.											
6 Accidental release measures Personal precautions, protective equipment and emergency procedures Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation Environmental precautions: Do not allow material to be released to the environment without proper governmental permits. Methods and material for containment and cleaning up: Dispose of contaminated material as waste according to section 13. Ensure adequate ventilation. Prevention of secondary hazards: No special measures required. Reference to other sections See Section 7 for information on safe handling See Section 8 for information on personal protection equipment. See Section 13 for disposal information.											
7 Handling and storage Handling Precautions for safe handling Keep container tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation at the workplace. Open and handle container with care. Information about protection against explosions and fires: No information known. Conditions for safe storage, including any incompatibilities Storage Requirements to be met by storerooms and receptacles: No special requirements. Information about storage in one common storage facility: Store away from oxidizing agents. Further information about storage conditions: Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. Specific end use(s) No further relevant information available.											
8 Exposure controls/personal protection Additional information about design of technical systems: Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute. Control parameters Components with limit values that require monitoring at the workplace: 50-32-8 Benzo(a)pyrene (100.0%) <table><tr><td>PEL (USA)</td><td>Long-term value: 0.2 mg/m³ see Coal tar pitch volatiles</td></tr><tr><td>REL (USA)</td><td>Long-term value: 0.1 mg/m³ Coal tar pitch volatile; Pocket Guide Apps. A+C</td></tr><tr><td>TLV (USA)</td><td>L; BEIp</td></tr><tr><td>EL (Canada)</td><td>ACGIH A2; IARC 1</td></tr></table> Ingredients with biological limit values: 50-32-8 Benzo(a)pyrene (100.0%) <table><tr><td>BEI (USA)</td><td>- Medium: urine Time: end of shift at end of workweek Parameter: 1-Hydroxypyrene with hydrolysis (nonquantitative)</td></tr></table> Additional information: No data Exposure controls Personal protective equipment General protective and hygienic measures The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work. Store protective clothing separately. Maintain an ergonomically appropriate working environment.		PEL (USA)	Long-term value: 0.2 mg/m³ see Coal tar pitch volatiles	REL (USA)	Long-term value: 0.1 mg/m³ Coal tar pitch volatile; Pocket Guide Apps. A+C	TLV (USA)	L; BEIp	EL (Canada)	ACGIH A2; IARC 1	BEI (USA)	- Medium: urine Time: end of shift at end of workweek Parameter: 1-Hydroxypyrene with hydrolysis (nonquantitative)
PEL (USA)	Long-term value: 0.2 mg/m³ see Coal tar pitch volatiles										
REL (USA)	Long-term value: 0.1 mg/m³ Coal tar pitch volatile; Pocket Guide Apps. A+C										
TLV (USA)	L; BEIp										
EL (Canada)	ACGIH A2; IARC 1										
BEI (USA)	- Medium: urine Time: end of shift at end of workweek Parameter: 1-Hydroxypyrene with hydrolysis (nonquantitative)										
(Contd. on page 3) USA											

Product name: Benzo(a)pyrene

Breathing equipment: Use suitable respirator when high concentrations are present.
Protection of hands:
Impervious gloves
Check protective gloves prior to each use for their proper condition.
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
Penetration time of glove material (in minutes) Not determined
Eye protection: Safety glasses
Body protection: Protective work clothing.

(Contd. of page 2)

9 Physical and chemical properties

Information on basic physical and chemical properties
General Information

Appearance:
Form: Crystalline
Color: Yellow
Odor: Not determined
Odor threshold: Not determined.
pH-value: Not applicable.

Change in condition
Melting point/Melting range: 179 °C (354 °F)
Boiling point/Boiling range: 495 °C (923 °F)
Sublimation temperature / start: Not determined

Flash point: Not applicable
Flammability (solid, gaseous) Not determined.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Auto igniting: Not determined.

Danger of explosion: Product does not present an explosion hazard.
Explosion limits:
Lower: Not determined
Upper: Not determined
Vapor pressure: Not applicable.
Density: Not determined
Relative density Not determined.
Vapor density Not applicable.
Evaporation rate Not applicable.
Solubility in / Miscibility with
Water: Insoluble
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
dynamic: Not applicable.
kinematic: Not applicable.
Other information No further relevant information available.

10 Stability and reactivity

Reactivity No information known.
Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions No dangerous reactions known
Conditions to avoid No further relevant information available.
Incompatible materials: Oxidizing agents
Hazardous decomposition products: Carbon monoxide and carbon dioxide

11 Toxicological information

Information on toxicological effects

Acute toxicity: No effects known.
LD/LC50 values that are relevant for classification: No data
Skin irritation or corrosion: Irritant to skin and mucous membranes.
Eye irritation or corrosion: Irritating effect.
Sensitization: May cause an allergic skin reaction.
Germ cell mutagenicity: May cause genetic defects.
Carcinogenicity:
May cause cancer.
EPA-B2: Probable human carcinogen, sufficient evidence from animal studies; inadequate evidence or no data from epidemiologic studies.
NTP-R: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.
IARC-2A: Probably carcinogenic to humans: limited human evidence; sufficient evidence in experimental animals
ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans.
Reproductive toxicity: May damage fertility or the unborn child.
Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure: No effects known.
Aspiration hazard: No effects known.
Other information (about experimental toxicology):
Tumorigenic effects have been observed on tests with laboratory animals.
Reproductive effects have been observed on tests with laboratory animals.
Mutagenic effects have been observed on tests with bacteria.
Mutagenic effects have been observed on tests with insects.
Mutagenic effects have been observed on tests with non-mammalian species cells.
Mutagenic effects have been observed on tests with fish.
Mutagenic effects have been observed on tests with human lymphocytes.
Mutagenic effects have been observed with humans.
Mutagenic effects have been observed with human leukocyte.
Mutagenic effects have been observed on tests with laboratory animals.
Subacute to chronic toxicity: Benzo(a)pyrene is an experimental teratogen, mutagen and carcinogen.
Subacute to chronic toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:
Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - multiple enzyme effects.
Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - other oxidoreductases.

(Contd. on page 4)
USA

Product name: Benzo(a)pyrene

(Contd. of page 3)

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - other transferases.
Biochemical - Metabolism (Intermediary) - other.
Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - hepatic microsomal mixed oxidase.
Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - dehydrogenases.
Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - other enzymes.
Kidney, Ureter, Bladder - changes in tubules (including acute renal failure, acute tubular necrosis).
Kidney, Ureter, Bladder - changes primarily in glomeruli
Lungs, Thorax, or Respiration - other changes.
Lungs, Thorax, or Respiration - bronchiogenic carcinoma.
Blood - changes in bone marrow (not otherwise specified).
Blood - changes in spleen.
Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol).
Blood - leukemia.
Sense Organs and Special Senses (Olfaction) - effect, not otherwise specified.
Peripheral Nerve and Sensation - structural change in nerve or sheath.
Reproductive - Maternal Effects - ovaries, fallopian tubes.
Reproductive - Maternal Effects - oogenesis.
Reproductive - Paternal Effects - spermatogenesis (including genetic material, sperm morphology, motility, and count).
Reproductive - Specific Developmental Abnormalities - respiratory system.
Reproductive - Effects on Embryo or Fetus - extra-embryonic structures (e.g., placenta, umbilical cord)
Reproductive - Effects on Embryo or Fetus - other effects to embryo.
Reproductive - Effects on Newborn - stillbirth.
Reproductive - Effects on Newborn - growth statistics (e.g. %, reduced weight gain).
Reproductive - Effects on Newborn - live birth index (measured after birth)
Reproductive - Effects on Newborn - biochemical and metabolic.
Reproductive - Fertility - post-implantation mortality (e.g. dead/or resorbed implants per total number of implants).
Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).
Reproductive - Effects on Newborn - behavioral.
Reproductive - Effects on Newborn - germ cell effects (in offspring)
Reproductive - Effects on Newborn - delayed effects.
Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured before birth).
Reproductive - Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated)
Reproductive - Fertility - male fertility index (e.g. # males impregnating females per # males exposed to fertile nonpregnant females)
Reproductive - Specific Developmental Abnormalities - immune and reticuloendothelial system
Reproductive - Specific Developmental Abnormalities - craniofacial (including nose and tongue).
Reproductive - Effects on Embryo or Fetus - cytological changes (including somatic cell genetic material)
Reproductive - Specific Developmental Abnormalities - blood and lymphatic systems (including spleen and marrow).
Liver - change in gall bladder structure or function.
Liver - other changes.
Liver - changes in liver weight.
Immunological Including Allergic - decrease in humoral immune response.
Immunological including Allergic - decreased immune response.
Nutritional and Gross Metabolic - weight loss or decreased weight gain.
Endocrine - androgenic.
Endocrine - estrogenic.
Endocrine - changes in luteinizing hormone.
Related to Chronic Data - changes in ovarian weight.
Brain and Coverings - other degenerative changes.
Brain and Coverings - tumors.
Behavioral - changes in motor activity (specific assay).
Gastrointestinal - tumors.
Musculoskeletal - tumors.
Tumorigenic - carcinogenic by RTECS criteria.
Reproductive - Tumorigenic effects - transplacental tumorigenesis.
Tumorigenic - equivocal tumorigenic agent by RTECS criteria.
Tumorigenic - tumors at site of application.
Tumorigenic - neoplastic by RTECS criteria.
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

12 Ecological information

Toxicity
Aquatic toxicity: No further relevant information available.
Persistence and degradability No further relevant information available.
Bioaccumulative potential No further relevant information available.
Mobility in soil No further relevant information available.
Ecotoxical effects:
Remark: Very toxic for aquatic organisms
Additional ecological information:
General notes:
Do not allow material to be released to the environment without proper governmental permits.
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.
Very toxic for aquatic organisms
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
Other adverse effects No further relevant information available.

13 Disposal considerations

Waste treatment methods
Recommendation Consult state, local or national regulations to ensure proper disposal.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.



14 Transport information

UN-Number
DOT, IMDG, IATA UN2811



(Contd. on page 5)
USA

Product name: Benzo(a)pyrene

(Contd. of page 4)

UN proper shipping name DOT IMDG, IATA	Toxic solids, organic, n.o.s. TOXIC SOLID, ORGANIC, N.O.S. (Benzo[a]pyrene)
Transport hazard class(es) DOT 	
Class Label Class Label IMDG, IATA 	6.1 Toxic substances. 6.1 6.1 (T2) Toxic substances 6.1
Class Label	6.1 Toxic substances. 6.1
Packing group DOT, IMDG, IATA	III
Environmental hazards:	Environmentally hazardous substance, solid
Special precautions for user	Warning: Toxic substances
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information: DOT Marine Pollutant (DOT): UN "Model Regulation":	No UN2811, Toxic solids, organic, n.o.s., 6.1, III

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS) Hazard pictograms   GHS07 GHS08 Signal word Danger Hazard statements H317 May cause an allergic skin reaction. H340 May cause genetic defects. H350 May cause cancer. H360 May damage fertility or the unborn child. Precautionary statements P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P280 Wear protective gloves/protective clothing/eye protection/face protection. P281 Use personal protective equipment as required. P363 Wash contaminated clothing before reuse. P405 Store locked up. P501 Dispose of contents/container in accordance with local/regional/national/international regulations. National regulations All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory. All components of this product are listed on the Canadian Domestic Substances List (DSL). SARA Section 313 (specific toxic chemical listings) 50-32-8 Benzo(a)pyrene California Proposition 65 Prop 65 - Chemicals known to cause cancer 50-32-8 Benzo(a)pyrene Prop 65 - Developmental toxicity Substance is not listed. Prop 65 - Developmental toxicity, female Substance is not listed. Prop 65 - Developmental toxicity, male Substance is not listed. Information about limitation of use: Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases. For use only by technically qualified individuals. This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372. Other regulations, limitations and prohibitive regulations Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed. The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed. Substance is not listed. Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.
--

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user. Department issuing SDS: Global Marketing Department Date of preparation / last revision 11/23/2015 / - Abbreviations and acronyms: ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association
--

(Contd. on page 6)
USA

Product name: Benzo(a)pyrene	
<div>EINECS: European Inventory of Existing Commercial Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) HMIS: Hazardous Materials Identification System (USA) WHMIS: Workplace Hazardous Materials Information System (Canada) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent vPvB: very Persistent and very Bioaccumulative ACGIH: American Conference of Governmental Industrial Hygienists (USA) OSHA: Occupational Safety and Health Administration (USA) NTP: National Toxicology Program (USA) IARC: International Agency for Research on Cancer EPA: Environmental Protection Agency (USA)</div>	(Contd. of page 5)
USA	