SAFETY DATA SHEET

Updated on 26/09/2024

1. Material Identification

Product Name : Anthracene
Catalog Number : io-1739
CAS Number : 120-12-7
Identified uses : Laboratory chemicals, manufacture of chemical compounds
Company : Ionz

>> R&D Use only

2. Hazards Identification

GHS Classification:

Flammable liquid (category 2)
Acute toxicity, oral (Category 3)
Acute toxicity, dermal (Category 3)
Acute toxicity, inhalation (Category 3)
Specific target organ toxicity, single exposure (Category 1)

Note

>> Pictograms displayed are for 99.5% (552 of 555) of reports that indicate hazard statements. This chemical does not meet GHS hazard criteria for 0.5% (3 of 555) of reports.

Pictogram(s)

GHS Hazard Statements

>> H315 (18.6%): Causes skin irritation [Warning Skin corrosion/irritation]

>> H319 (97.7%): Causes serious eye irritation [Warning Serious eye damage/eye irritation]

>> H350 (16%): May cause cancer [Danger Carcinogenicity]

>> H400 (18.6%): Very toxic to aquatic life [Warning Hazardous to the aquatic environment, acute hazard]

>> H410 (19.6%): Very toxic to aquatic life with long lasting effects [Warning Hazardous to the aquatic environment, long-term hazard]

Precautionary Statement Codes

>> P203, P264, P264+P265, P273, P280, P302+P352, P305+P351+P338, P318, P321, P332+P317, P337+P317, P362+P364, P391, P405, and P501

NFPA 704 Diamond

NFPA Health Rating

>> 1 - Materials that, under emergency conditions, can cause significant irritation.

NFPA Fire Rating

>> 1 - Materials that must be preheated before ignition can occur. Materials require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur.

NFPA Instability Rating

>> 0 - Materials that in themselves are normally stable, even under fire conditions.

Health Hazards:

>> Inhalation of dust irritates nose and throat. Contact with eyes causes irritation. (USCG, 1999)

>> This chemical is combustible. (NTP, 1992)

>> Combustible. Finely dispersed particles form explosive mixtures in air.

3. Composition/Information On Ingredients

Chemical name : Anthracene
CAS Number : 120-12-7
Molecular Formula : C14H10
Molecular Weight : 178.2300 g/mol

4. First Aid Measures

First Aid:

>> EYES: First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

>> SKIN: IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. If symptoms such as redness or irritation develop, IMMEDIATELY call a physician and be prepared to transport the victim to a hospital for treatment.

>> INHALATION: IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. If symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop, call a physician and be prepared to transport the victim to a hospital. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Protective Clothing.

>> INGESTION: DO NOT INDUCE VOMITING. If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. Be prepared to transport the victim to a hospital if advised by a physician. If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. IMMEDIATELY transport the victim to a hospital. (NTP, 1992)

First Aid Measures

Inhalation First Aid

>> Fresh air, rest. Refer for medical attention.

Skin First Aid

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

Eye First Aid

>> First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Ingestion First Aid

>> Rinse mouth. Rest. Refer for medical attention .

5. Fire Fighting Measures

>> Fire Extinguishing Agents: Water, foam, dry chemical, carbon dioxide (USCG, 1999)

>> Use water spray, powder, foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

6. Accidental Release Measures

Spillage Disposal:

Methods for containment and safety measures to protect workers dealing with a spillage of this chemical.

>> Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment. Personal protection: P2 filter respirator for harmful particles.

7. Handling And Storage

Safe Storage:

>> Separated from strong oxidants. Well closed.

Storage Conditions:

>> Keep container tightly closed in a dry and well-ventilated place. Storage class (TRGS 510): Non Combustible Solids.

8. Exposure Control/ Personal Protection

REL-TWA (Time Weighted Average)

>> 0.1 mg/m³

PEL-TWA (8-Hour Time Weighted Average)

>> 0.2 mg/m³ as Coal tar pitch volatiles (benzene soluble fraction)

>> 8 Hr Time Weighted Avg (TWA): 0.2 mg/cu m. /Coal tar pitch volatiles, as benzene soluble aerosol/

TLV-TWA (Time Weighted Average)

>> 0.2 mg/m³, as benzene soluble aerosol [1984]

Inhalation Risk:

>> Evaporation at 20 °C is negligible; a harmful concentration of airborne particles can, however, be reached quickly.

Effects of Short Term Exposure:

>> The substance is mildly irritating to the skin and respiratory tract.

Effects of Long Term Exposure:

>> Repeated or prolonged contact with skin may cause dermatitis under the influence of UV light.

Fire Prevention

>> NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust.

Exposure Prevention

>> PREVENT DISPERSION OF DUST!

Inhalation Prevention

>> Use ventilation (not if powder), local exhaust or breathing protection.

Skin Prevention

>> Protective gloves.

Eye Prevention

>> Wear safety spectacles, face shield or eye protection in combination with breathing protection if powder.

Ingestion Prevention

>> Do not eat, drink, or smoke during work.

9. Physical And Chemical Properties

Molecular Weight:

>> 178.23

Exact Mass:

>> 178.078250319

Physical Description:

>> Anthracene is a white to yellow solid with a weak aromatic odor. Sinks in water. (USCG, 1999)

>> WHITE CRYSTALS OR FLAKES.

Color/Form:

>> Monoclinic plates from alcohol recrystallization; when pure, colorless with violet fluorescence

Odor:

>> Weak aromatic odor

Boiling Point:

>> 644 °F at 760 mmHg (corrected); 439.7 °F at 53 mmHg, sublimes (NTP, 1992)

>> 342 °C

Melting Point:

>> 421 to 424 °F (NTP, 1992)

>> 218 °C

Flash Point:

>> 250 °F (NTP, 1992)

>> 121 °C

Solubility:

>> less than 1 mg/mL at 68 °F (NTP, 1992)

>> Solubility in water, g/100ml at 20 °C: 0.00013

Density:

>> 1.24 at 68 °F (USCG, 1999) - Denser than water; will sink

>> 1.25-1.28 g/cm³

Vapor Density:

>> 6.15 (NTP, 1992) - Heavier than air; will sink (Relative to Air)

>> Relative vapor density (air = 1): 6.15

Vapor Pressure:

>> 1 mmHg at 293 °F (sublimes) (NTP, 1992)

>> Vapor pressure, Pa at 25 °C: 0.08

LogP:

>> log Kow = 4.45

>> 4.5 (calculated)

Stability/Shelf Life:

>> Stable under recommended storage conditions.

Autoignition Temperature:

>> 1004 °F (USCG, 1999)

>> 538 °C

Decomposition:

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

Heat of Combustion:

>> 40,110 kJ/kg at 25 °C

Heat of Vaporization:

>> 294 kJ/kg

Ionization Efficiency:

The ratio of the number of ions formed to the number of electrons or photons used in an ionization process.

Ionization mode

>> Positive

logIE

>> 0.91

pH

>> 2.7

Instrument

>> Agilent XCT

Ion source

>> Electrospray ionization

Additive

>> formic acid (5.3nM)

Organic modifier

>> MeOH (80%)

Reference

>> DOI:10.1002/rcm.8545

Dissociation Constants:

Collision Cross Section:

Collision cross section (CCS) represents the effective area for the interaction between an individual ion and the neutral gas through which it is traveling (e.g., in ion mobility spectrometry (IMS) experiments). It quantifies the probability of a collision taking place between two or more particles.

>> 133.3 Å² [M+H]+

>> 132.3 Å² [M*]+

10. Stability And Reactivity

>> Flammable. Insoluble in water.

11. Toxicological Information

Toxicity Summary:

>> IDENTIFICATION AND USE: Anthracene (ANT) is a solid. It is used as an intermediate for dyes, alizarin, phenanthrene, carbazole, anthraquinone, calico printing, a component of smoke screens, scintillation counting crystals, and in organic semiconductor research. HUMAN EXPOSURE AND TOXICITY: Melanosis coli is associated with an increased risk of colorectal tumors but is not agreed to be a precancerous lesion. The condition has been associated with the ingestion of ANT laxatives and is believed to be caused by increased epithelial apoptosis. In a longitudinal analysis from 1946 to 2002, a total of 618 employees with exposure to soot, raw paraffin, tar, anthracene, pitch or similar substances were examined. Squamous cell carcinomas, basal cell carcinomas, keratoacanthomas and melanomas were diagnosed. ANT failed in a large number of studies to induce unscheduled DNA synthesis in human HeLa cells with metabolic activation, while it gave a marginally positive, nondose-related response in primary human skin epithelial cells. It yielded negative results in tests for forward mutation in human lymphoblastoid cells (36 ug/mL). UV radiation (295 nm) induced covalent binding of ANT to DNA which increased with time and was not affected by oxygen. Irradiation of human serum albumin in the presence of ANT induced covalent binding of the hydrocarbon to the protein accompanied by cross-linking of the protein. Protein cross-linking decreased under anaerobic conditions. ANIMAL STUDIES: Very slight erythema and/or edema was observed in five of six rabbits after skin application. Tests for complete carcinogenicity and initiating activity in mouse skin-painting assays have not shown positive results. ANT has been tested in a number of studies for skin carcinogenicity in combination with UV or visible radiation. The group of mice receiving the combined ANT and UV treatment showed "broadness of the epidermis", but no skin papillomas or carcinomas were observed in either group. ANT has been tested for the induction of genotoxicity (DNA damage and mutations) in a large number of bacterial systems, including Escherichia coli, Salmonella typhimurium and Bacillus subtilis, with and without metabolic activation, giving negative results in the great majority of cases. ANT has been tested for the induction of sister chromatid exchanges in Chinese hamster ovary cells with metabolic activation, in a rat liver epithelial cell line and in a combined in vitro/in vivo test using Chinese hamster V79 cells implanted into mice. All studies reported negative results except for one which was marginally positive. ECOTOXICITY STUDIES: ANT exposure generated compound-dependent oxidative stress in the tissues of V. decussata. Acute mortality of bluegill sunfish, Lepomis macrochirus, dosed with ANT at 12.7 ug/L and exposed to natural sunlight conditions was observed during a study of ANT fate in outdoor channel microcosms. No mortality was observed under control conditions (natural sunlight and no ANT). The results obtained in short-term experiments with algae indicate that ANT acts as a photosensitizer causing an oxidative damage of cells.

EPA Provisional Peer-Reviewed Toxicity Values:

This section provides the EPA Provisional Peer-Reviewed Toxicity Values (PPRTVs) and links of related assessment documents.

Chemical Substance

>> Anthracene

Reference Dose (RfD), Subchronic

>> 1 mg/kg-day

PPRTV Assessment

>> PDF Document

Weight-Of-Evidence (WOE)

>> Inadequate information to assess carcinogenic potential

Last Revision

>> 2009

USGS Health-Based Screening Levels for Evaluating Water-Quality:

This section provides the USGS Health-Based Screening Levels for Evaluating Water-Quality data.

Chemical

>> Anthracene

Noncancer HBSL (Health-Based Screening Level)[µg/L]

>> 2000

Reference

>> Smith, C.D. and Nowell, L.H., 2024. Health-Based Screening Levels for evaluating water-quality data (3rd ed.). DOI:10.5066/F71C1TWP

Evidence for Carcinogenicity:

Evidence that this chemical does or may cause cancer. The information here is collected from various sources by the Hazardous Substances Data Bank (HSDB).

>> OVERALL EVALUATION: Group 3: The agent is not classifiable as to its carcinogenicity to humans.

Carcinogen Classification:

This section provides the International Agency for Research on Cancer (IARC) Carcinogenic Classification and related monograph links. In the IARC Carcinogenic classification, chemicals are categorized into four groups: Group 1 (carcinogenic to humans), Group 2A (probably carcinogenic to humans), Group 2B (possibly carcinogenic to humans), and Group 3 (not classifiable as to its carcinogenicity to humans).

IARC Carcinogenic Agent

>> Anthracene

IARC Carcinogenic Classes

>> Group 2B: Possibly carcinogenic to humans

IARC Monographs

>> Volume 92: (2010) Some Non-heterocyclic Polycyclic Aromatic Hydrocarbons and Some Related Exposures

>> Volume Sup 7: Overall Evaluations of Carcinogenicity: An Updating of IARC Monographs Volumes 1 to 42, 1987; 440 pages; ISBN 92-832-1411-0 (out of print)

>> Volume 133

>> 3, not classifiable as to its carcinogenicity to humans. (L135)

Health Effects:

>> PAHs are carcinogens and have been associated with the increased risk of skin, respiratory tract, bladder, stomach, and kidney cancers. They may also cause reproductive effects and depress the immune system. (L10)

Exposure Routes:

>> The substance can be absorbed into the body by inhalation.

>> Oral (L10) ; inhalation (L10)

Inhalation Exposure

>> Cough. Sore throat.

Skin Exposure

>> Redness.

Eye Exposure

>> Redness. Pain.

Ingestion Exposure

>> Abdominal pain.

>> Acute exposure to PAHs causes irritation and inflammation of the skin and lung tissue. (A10)

Adverse Effects:

An adverse effect is an undesired harmful effect resulting from a medical treatment or other intervention.

>> Occupational hepatotoxin - Secondary hepatotoxins: the potential for toxic effect in the occupational setting is based on cases of poisoning by human ingestion or animal experimentation.

>> Dermatotoxin - PICD (photoirritant contact dermatitis).

Toxicity Data:

>> LD50: 1470-2440 mg/kg (Oral, Mouse) (L910) LD50: 430 mg/kg (Intraperitoneal, Mouse) (L910)

Treatment:

Treatment when exposed to toxin

>> There is no know antidote for PAHs. Exposure is usually handled with symptomatic treatment. (L10)

Interactions:

>> The toxicity of polycyclic aromatic hydrocarbons (PAHs) can be enhanced by both biotic and abiotic processes. This is exemplified by light, which, by virtue of the extensive p-orbital systems of PAHs, can be a major factor in PAH toxicity. Light activation of PAHs is known to occur via photosensitization reactions (generation of singlet oxygen and superoxide) and potentially by photomodification of the chemicals (photooxidation and/or photolysis) to more toxic species. To examine the modes of PAH action in the light and determine if the photomodified compounds are hazardous, we investigated the photoinduced toxicity of anthracene, phenanthrene and benzo[a]pyrene to the aquatic higher plant Lemna gibba (a duckweed). Toxicity end points were inhibition of growth and extent of chlorosis. Light did indeed activate the phytotoxicity of PAHs, with UV radiation more effective than visible light. Dose-response curves

based on chemical concentration and light intensity revealed the order of phytotoxic strength to be anthracene > phenanthrene > benzo[a]pyrene. To explore whether photomodified PAHs were contributing to toxicity, the chemicals were irradiated before toxicity testing. The rates of photomodification of the three PAHs were rapid (half-lives in hours), and the relative velocities were coincident with the order of toxic strength. Furthermore, the photomodified PAHs were more hazardous to Lemna than the intact compounds. Because interpretations of the potential impacts of PAHs in the environment are based mostly on measurements of the structurally intact chemicals, the severity of PAH hazards is possibly underestimated.

Antidote and Emergency Treatment:

>> 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/

Human Toxicity Excerpts:

>> /HUMAN EXPOSURE STUDIES/ Five normal adult volunteers without cutaneous disease applied to their skin a 2% solution of crude coal tar in petrolatum, containing 190 mg/L anthracene. In total, 85 g of the solution were applied for 8-hour periods on two consecutive days. Organic extracts of blood collected after completion of the second application and subjected to gas chromatography and mass spectrometry yielded evidence of anthracene adsorption in four of the five volunteers, with blood concentrations ranging 0.08-0.47 ug/L.

Non-Human Toxicity Excerpts:

>> /LABORATORY ANIMALS: Acute Exposure/ To a 1 sq inch area of intact or abraded skin (clipped free of hair) of 6 albino rabbits, 0.5 g of anthracene (reinst = purest), in the form of a 10% suspension in 0.5% carboxymethlcellulose, was applied under an occlusive gauze for 24 hours. The skin condition was assessed for erythema/eschar and edema formation, using the standard Draize scale, at the time of removal of the gauze as well as 48 hours later. The values for erythema/eschar formation at the two observation times for intact skin were added to those for abraded skin (4 values), as were the values for edema formation at the two observation times for intact skin (4 values). The total of the 8 values was divided by 4 to give the primary irritation score. Very slight erythema and/or edema was observed in five of the six rabbits, giving an overall irritation score of 0.79 and leading to its characterization as "slightly irritating" according to the criteria of the method used. ...

Non-Human Toxicity Values:

>> LD50 Rat oral >16 000 mg/kg bw

TSCA Test Submissions:

Under the Toxic Substances Control Act (TSCA), EPA has broad authority to issue regulations designed to require manufacturers (including importers) or processors to test chemical substances and mixtures for health and environmental effects. This section provides information on test reports submitted for this chemical under TSCA.

>> Anthracene was evaluated for mutagenicity among polycyclic aromatic hydrocarbon components of kerosene soot. Exposed exponentially-growing cultures of Salmonella typhimurium strain TM677 were observed for expression of mutagenicity in treatment-induced resistance to 8-azaguanine, a purine analog. Simultaneous exposure to 25% (w/v) postmitochondrial supernatant from the liver of phenobarbital and aroclor-induced rats potentiated metabolism of any promutagens to their active forms in treated bacterial cultures. Following 2-hour incubation, the treated colonies were resuspended in phosphate-buffered saline and plated either with or without 50 ug/ml 8-azaguanine for selective and non-selective determination of mutation. Exposure to concentrations up to 225 uM anthracene (serial concentrations unspecified) for 2 hours was associated with no significantly induced mutant fraction resistance to 8-azaguanine. The authors noted solubility limitations to mutagenicity testing of higher anthracene concentrations under the conditions of this study. Further details of study methodology, statistical criterion for significance and data/assay were not provided.

12. Ecological Information

Resident Soil (mg/kg)

>> 1.80e+04

Industrial Soil (mg/kg)

>> 2.30e+05

Tapwater (ug/L)

>> 1.80e+03

MCL (ug/L)

>> 5.00e-01

Risk-based SSL (mg/kg)

>> 5.80e+01

Chronic Oral Reference Dose (mg/kg-day)

>> 3.00e-01

Volatile

>> Volatile

Mutagen

>> Mutagen

Fraction of Contaminant Absorbed in Gastrointestinal Tract

>> 1

Fraction of Contaminant Absorbed Dermally from Soil

>> 0.13

ICSC Environmental Data:

>> The substance is very toxic to aquatic organisms. The substance may cause long-term effects in the aquatic environment.

Sediment/Soil Concentrations:

Concentrations of this compound in sediment/soil.

>> SEDIMENT: Anthracene was detected in water and sediments from the Lower Tennessee River at a concentration of 12.1 ppb(1). Anthracene/phenanthrene was detected in Racoon Creek sediments from Bridgeport, NJ at 2.6 ppb(2). Anthracene was detected in suspended solids, 497 ppb, and sediments, 120 ppb from the Tamar Estuary, UK(3). Estuarine sediments collected 0.5 miles offshore in Buzzards Bay, Cape Cod, MA, contained anthracene at a concentration of 170 ppb(4). Anthracene was detected in sediments from the Baltic Sea, Gulf of Finland at concentrations ranging from 4 to 13 ppb(5). UK sediment samples from 9 sites in the Severn Estuary and River Taff, contained anthracene/phenanthrene at concentrations ranging from 0.1 to 6.4 ppm(6). Anthracene was detected in 38% of the sediment samples collected from 23 locations in the Strait of Juan de Fuca Islands, Northern Puget Sound, WA, between April 1977 and Feb 1978, at concentrations ranging from 0.03 to 79 ppb(7). Anthracene was detected in lake sediments, 0.03 ppm, river sediments, 0.02 ppm, river particulates, 0.33, and Atlantic shelf sediments, 0.0011 to 0.0013 ppb(8). 46 samples collected from 22 stations in the Georges Bank region between 1977 and 1982 contained anthracene/phenanthrene at concentrations ranging from <1 to 35 ppb(9). Cayuga Lake, NY, Sept 1978, near Milliken Station (coal fired power plant), deepwater seds, 16 km North to 8 km South, 10 samples 90% pos, 13 to 42 ppb, average of pos 27.6 ppb, littoral seds, 48 km North to 8 km South, 12 samples, 83% pos, <6 to 165 ppb, avgs, 32 to 520 ppb, average 121 ppb; set 2, 9 data set avgs, 110 to 360 ppb, average 290 ppb(12). Anthracene was detected in sediment core samples collected from three northern NJ waterways during Nov and Dec 1991 (frequency of detection, median concentration mg/kg): Arthur Kill (42.9%, 1.40); Hackensack River (50%, 1.33); and Passaic River (36.7%, 1.30)(13).

Fish/Seafood Concentrations:

Concentrations of this compound in fish or seafood.

>> Anthracene was detected in Nigerian freshwater fish, ppb dry wt: smoked, 15.14 to 30.13; solar dried, 0.2 to 11.22; and oven-dried, 0.20 to 0.75(1). It was detected in Japanese horse mackerel, broiler type, smoke, 1.9 to 2.3 ppb; scorch, 0.2 to 2.0 ppb(2). 5% of the mussels sampled from 23 locations in the Strait of Juan de Fuca, San Juan Islands, Northern Puget Sound, WA between April 1977 and Feb 1978, contained anthracene at concentrations ranging from 30 to 200 ppb(3). The following anthracene concentrations were detected in different types of smoked fish: eel, 4 ppb; lumpfish, trace; trout, 26 ppb; redfish, 1.5 ppb; and mackerel, 1.9 to 2.3 ppb(4). 54.4% of the mussels from 54 samples in the Thermaikos Gulf, Greece, contained anthracene at an average concentration of 9 ppb wet wt(5). 10 samples of oysters and clams collected from Lake Pontchartrain, LA between May and June 1980 contained anthracene at average concentration of 36 to 44 ppb wet wt(6). 80% of the mussels sampled from Suadafjord, Norway in Oct 1976 contained anthracene at concentrations ranging from 7 to 524 ppb dry wt, average 144 ppb(7). Anthracene was detected in 100% of the 22 Lake Erie white suckers stomach contents from 3 stations, avgs 1.95 to 2.17 ppb wet wt, overall average 2.11 ppb(8). Anthracene was detected in crayfish, redbreast sunfish, and stonerollers collected from the East Fork Poplar Creek in Oak Ridge, TN at average concentrations of 13.0, 2.01, and 6.35 ug/kg, respectively(9). Anthracene was detected

in a variety of fish from the Arabian Gulf at levels of 0.2-2.4 ug/g(10). Anthracene was detected in fish from the Abu Qir Bay (Egyptian Mediterranean Sea) at levels of 138.33-517.22 ng/g, sampled in 2004(11).

Animal Concentrations:

Concentrations of this compound in animals.

>> Anthracene was detected in Oligocheate worm, 20 to 25 ppb, and midges, 10 to 25 ppb(1). Anthracene was detected in two populations of southern sea lions (Otaria flavescens), one from Mar del Plata and the second from Punta Bermeja, Argentina in the fur at 59.81 and 14.29 ng/g fresh weight, respectively; in the blood at average concentrations of 81.32 and 100.3 ng/g dry weight, respectively; and in the liver at average concentrations of 0.30 and 10.57 ng/g fresh weight, respectively(2). Anthracene was detected in the muscle of harbor porpoises (Phocoena phocoena) from coastal waters of the UK at concentrations ranging from <0.1 to 3.6 ng/g wet weight, mean 0.6(3). Mean anthracene concentrations were reported as 4.97 ng/mL (95.2% freqency) and 0.08 ng/mL (46.2% frequency) in blood samples from juvenile green turtle (Chelonia mydas) and hawksbill turtle (Eretmochelys imbricata), respectively, from Cape Verde, Western Africa coast, central Atlantic Ocean, sampled between 2009 and 2011(4).

Average Daily Intake:

The average amount of the compound taken into the body through eating, drinking, or breathing.

>> AIR INTAKE: Based on the assumptions that the mean level of anthracene in USA air is 0.54 ng/cu m (same as concn in Los Angeles) and that an adult individual inhales 20 cu m air/day, the average daily intake of anthracene from inhalation is 11 ng(1). The daily dietary intake of six Japanese women between 25 and 56 years of age was monitored for one week in July 1985; anthracene intake ranged from undetectable levels to 1.8 ug/day/female with a mean and median concn of 0.23 and 0.13 ug/day/female, respectively(2).

13. Disposal Considerations

Spillage Disposal

>> Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment. Personal protection: P2 filter respirator for harmful particles.

Disposal Methods

>> SRP: Recycle any unused portion of the material for its approved use or return it to the manufacturer or supplier. Ultimate disposal of the chemical must consider: the material's impact on air quality; potential migration in air, soil or water; effects on animal, aquatic and plant life; and conformance with environmental and public health regulations. If it is possible or reasonable use an alternative chemical product with less inherent propensity for occupational harm/injury/toxicity or environmental contamination.

>> SRP: Wastewater from contaminant suppression, cleaning of protective clothing/equipment, or contaminated sites should be contained and evaluated for subject chemical or decomposition product concentrations. Concentrations shall be lower than applicable environmental discharge or disposal criteria. Alternatively, pretreatment and/or discharge to a permitted wastewater treatment facility is acceptable only after review by the governing authority and assurance that "pass through" violations will not occur. Due consideration shall be given to remediation worker exposure (inhalation, dermal and ingestion) as well as fate during treatment, transfer and disposal. If it is not practicable to manage the chemical in this fashion, it must be evaluated in accordance with EPA 40 CFR Part 261, specifically Subpart B, in order to determine the appropriate local, state and federal requirements for disposal.

>> 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: Dispose of as unused product.

>> Anthracene is a waste chemical stream constituent which may be subjected to ultimate disposal by controlled incineration.

14. Transport Information

DOT

Anthracene

Reportable Quantity of 5000 lb or 2270 kg

IATA

Anthracene

,

15. Regulatory Information

Clean Water Act Requirements:

The Clean Water Act (CWA) of 1972 establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Under CWA, the U.S. Environmental Protection Agency (EPA) developed the Toxic Pollutant List (40 CFR Part 401.15) and the Priority Pollutant List (40 CFR Part 423, Appendix A). These lists are to be used by EPA and States to develop the Effluent Guidelines regulations and ensure water quality criteria and standards.

>> Toxic pollutant designated pursuant to section 307(a)(1) of the Federal Water Pollution Control Act and is subject to effluent limitations. /Polynuclear aromatic hydrocarbons (including benzanthracenes, benzopyrenes, benzofluoranthene, chrysenes, dibenz-anthracenes, and indenopyrenes)/

TSCA Requirements:

This section provides information on requirements concerning this chemical under the Toxic Substances Control Act (TSCA) of 1976. TSCA provides EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. Certain substances are generally excluded from TSCA, including, among others, food, drugs, cosmetics and pesticides.

>> Pursuant to section 8(d) of TSCA, EPA promulgated a model Health and Safety Data Reporting Rule. The section 8(d) model rule requires manufacturers, importers, and processors of listed chemical substances and mixtures to submit to EPA copies and lists of unpublished health and safety studies. Anthracene is included on this list. Effective date 6/1/87; Sunset date: 6/1/97.

Regulatory Information

The Australian Inventory of Industrial Chemicals

>> Chemical: Anthracene

REACH Registered Substance

>> Status: Active Update: 06-11-2020 https://echa.europa.eu/registration-dossier/-/registered-dossier/2151

REACH Substances of Very High Concern (SVHC)

>> Substance: Anthracene

>> EC: 204-371-1

>> Date of inclusion: >28-Oct-2008

>> Reason for inclusion: PBT (Article 57d)

New Zealand EPA Inventory of Chemical Status

>> Anthracene: Does not have an individual approval but may be used under an appropriate group standard

16. Other Information

Toxic Combustion Products:

Toxic products (e.g., gases and vapors) produced from the combustion of this chemical.

>> Poisonous gases are produced in fire.

Other Safety Information

Chemical Assessment

>> IMAP assessments - Anthracene: Human health tier I assessment

"The information provided is believed to be accurate but is not comprehensive and should be used as a reference. It reflects our current knowledge and is intended for safety guidance related to the product. This document does not constitute a warranty of the product's properties. Ionz is not responsible for any damages resulting from handling or contact with the product incorrectly."