# **SAFETY DATA SHEET**

## 1. Material Identification

 Product Name
 : Pyrene

 Catalog Number
 : io-2949

 CAS Number
 : 129-00-0

 Identified uses
 : Laboratory chemicals, manufacture of chemical compounds

 Company
 : lonz

## >> 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 69.7% (124 of 178) of reports that indicate hazard statements. This chemical does not meet GHS hazard criteria for 30.3% (54 of 178) of reports.

#### Pictogram(s)



>> Warning

#### **GHS Hazard Statements**

- >> H315 (48.9%): Causes skin irritation [Warning Skin corrosion/irritation]
- >> H319 (48.9%): Causes serious eye irritation [Warning Serious eye damage/eye irritation]
- >> H335 (48.9%): May cause respiratory irritation [Warning Specific target organ toxicity, single exposure; Respiratory tract irritation]
- >> H400 (62.9%): Very toxic to aquatic life [Warning Hazardous to the aquatic environment, acute hazard]
- >> H410 (67.4%): Very toxic to aquatic life with long lasting effects [Warning Hazardous to the aquatic environment, long-term hazard]

#### **Precautionary Statement Codes**

>> P261, P264, P264+P265, P271, P273, P280, P302+P352, P304+P340, P305+P351+P338, P319, P321, P332+P317, P362+P364, P391, P403+P233, P405, and P501

## **Health Hazards:**

>> Pyrene is a carcinogenic agent and is absorbed by the skin. It is a skin irritant, a suspected mutagen, and an equivocal tumor-causing agent. Workers exposed to 3 to 5 mg/m3 of pyrene exhibited some teratogenic effects. Pyrene is a polycyclic aromatic hydrocarbon (PAH). The acute toxicity of pure PAHs appears low when administered orally or dermally to rats or mice. Human exposure to PAHs is almost exclusively via the gastrointestinal and respiratory tracts, and approximately 99 percent is ingested in the diet. Despite the high concentrations of pyrene to which humans may be exposed through food, there is currently little information available to implicate diet-derived PAHs as the cause of serious health effects. (EPA, 1998)

- >> When heated to decomposition, it emits acrid smoke and fumes. (EPA, 1998)
- >> Gives off irritating or toxic fumes (or gases) in a fire.

### 3. Composition/Information On Ingredients

Chemical name: PyreneCAS Number: 129-00-0Molecular Formula: C16H10Molecular Weight: 202.2500 g/mol

## 4. First Aid Measures

#### **First Aid:**

- >> Warning: Pyrene is absorbed by the skin. It is a skin irritant, and a suspected mutagen and tumor-causing agent.
- >> Signs and Symptoms of Pyrene Exposure: Signs and symptoms of acute exposure to pyrene may result in irritation and burning of the exposed skin, esophageal or gastrointestinal tract, and eyes. Excitation and muscle spasticity may also be noted following acute exposure.
- >> Emergency Life-Support Procedures: Acute exposure to pyrene may require decontamination and life support for the victims. Emergency personnel should wear protective clothing appropriate to the type and degree of contamination. Air-purifying or supplied-air respiratory equipment should also be worn, as necessary. Rescue vehicles should carry supplies such as plastic sheeting and disposable plastic bags to assist in preventing spread of contamination.
- >> Inhalation Exposure:
- >> 1. Move victims to fresh air. Emergency personnel should avoid self-exposure to pyrene.
- >> 2. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer 100% humidified oxygen or other respiratory support.
- >> 3. Obtain authorization and/or further instructions from the local hospital for performance of other invasive procedures.
- >> 4. Transport to a health care facility.
- >> Dermal/Eye Exposure:
- >> 1. Remove victims from exposure. Emergency personnel should avoid self-exposure to pyrene.
- >> 3. Remove and isolate contaminated clothing as soon as possible.
- >> 4. If eye exposure has occurred, eyes must be flushed with lukewarm water for at least 15 minutes.
- >> 5. Wash exposed skin areas thoroughly with soap and water.
- >> 6. Obtain authorization and/or further instructions from the local hospital for performance of other invasive procedures.
- >> 7. Transport to health care facility.
- >> Ingestion Exposure:
- >> 1. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer 100% humidified oxygen or other respiratory support.
- >> 2. DO NOT induce vomiting.
- >> 4. Immediately give the victims water or milk: children up to 1 year old, 125 mL (4 oz or 1/2 cup); children 1 to 12 years old, 200 mL (6 oz or 3/4 cup); adults, 250 mL (8 oz or 1 cup). Water or milk should be given only if victims are conscious and alert.
- >> 5. Transport to a health care facility. (EPA, 1998)

#### **First Aid Measures**

## **Inhalation First Aid**

- >> Fresh air, rest.
- **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**

>> Do NOT induce vomiting. Give one or two glasses of water to drink. Refer for medical attention .

### 5. Fire Fighting Measures

- >> Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)
- >> Use water spray, carbon dioxide, dry powder, alcohol-resistant foam, polymer foam.

## 6. Accidental Release Measures

### **Spillage Disposal:**

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

>> Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder.

## 7. Handling And Storage

### Safe Storage:

>> Separated from strong oxidants. Keep in a well-ventilated room.

### **Storage Conditions:**

>> Keep container tightly closed in a dry and well-ventilated place.

## 8. Exposure Control/ Personal Protection

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

#### **Inhalation Risk:**

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

#### **Effects of Short Term Exposure:**

>> Exposure to sun may enhance the irritating effect of this substance. This may result in chronic skin discoloration.

#### **Fire Prevention**

>> NO open flames, NO sparks and NO smoking.

#### Inhalation Prevention

>> Avoid inhalation of dust.

#### **Skin Prevention**

>> Protective gloves.

#### **Eye Prevention**

>> Wear safety spectacles.

#### **Ingestion Prevention**

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

## 9. Physical And Chemical Properties

#### Molecular Weight:

>> 202.25

#### Exact Mass:

>> 202.078250319

## **Physical Description:**

>> Pyrene is a colorless solid, solid and solutions have a slight blue fluorescence. Used in biochemical research. (EPA, 1998)

### >> PALE YELLOW OR COLOURLESS SOLID IN VARIOUS FORMS.

#### Color/Form:

>> Monoclinic prismatic tablets from alcohol or by sublimation; pure pyrene is colorless

#### **Boiling Point:**

>> 759 °F at 760 mmHg (EPA, 1998)

>> 404 °C

## Melting Point:

>> 313 °F (EPA, 1998)

>> 151 °C

#### Flash Point:

>> >200.0 °C (>392.0 °F)

#### Solubility:

>> less than 1 mg/mL at 72 °F (NTP, 1992)

>> Solubility in water, mg/l at 25 °C: 0.135

#### Density:

>> 1.27 at 73.4 °F (EPA, 1998) - Denser than water; will sink

>> 1.27 g/cm<sup>3</sup>

#### Vapor Pressure:

>> 2.6 mmHg at 392.7 °F ; 6.90 mmHg at 429.4 °F (NTP, 1992)

>> Vapor pressure, Pa at ? °C: 0.08

#### LogP:

>> log Kow = 4.88

>> 4.88

## Stability/Shelf Life:

>> Stable under recommended storage conditions.

**Decomposition:** 

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

## Heat of Combustion:

>> 3.878X10+7 J/kg at 25 °C

## Heat of Vaporization:

>> 3.21X10+5 J/kg

Ionization Efficiency:

Ionization mode	
>> Positive	
logIE	
>> 0.9	
рН	
>> 2.7	
Instrument	
>> Agilent XCT	
lon source	
>> Electrospray ionization	
Additive	
>> formic acid (5.3nM)	
Organic modifier	
>> MeOH (80%)	
Reference	
>> DOI:10.1002/rcm.8545	
Dissociation Constants:	
Relative Evaporation Rate:	
The rate at which a material will vaporize (evaporate, change from liquid to vapor), compared to the rate of vaporization specific known material.	of a
>> Evaporation at 20 °C is negligible	
Collision Cross Section:	
Collision cross section (CCS) represents the effective area for the interaction between an individual ion and the neutral through which it is traveling (e.g., in ion mobility spectrometry (IMS) experiments). It quantifies the probability of a colli	gas

taking place between two or more particles.

>> 137 Ų [M+H]+

>> 136.1 Å<sup>2</sup> [M\*]+

## **10. Stability And Reactivity**

>> Insoluble in water.

## **11. Toxicological Information**

#### **Toxicity Summary:**

>> IDENTIFICATION AND USE: Pyrene is a solid. It can be used as an additive in electro-insulating oils as well as in epoxy resins for electrical insulation. Optical brighteners can be synthesized by reaction of pyrene with a complex of cyanuric chloride and aluminum chloride. Pyrene itself can serve as an electron donor to enhance the blackness in pencil leads. It is also used in biochemical research. HUMAN EXPOSURE AND TOXICITY: Exposure to the sun may provoke an irritating effect of pyrene on skin and lead to chronic skin discoloration. Pyrene, but not related polyaromatic hydrocarbons, enhanced basal transcription of the human and mouse IL-4 promoter. ANIMAL STUDIES: Dermal exposure to 10 g/kg was not lethal in mice. Inhalation caused pathological changes in hepatic, pulmonary, and intragastric tissue and a decrease in the number of neutrophils, leukocytes, and erythrocytes. No blastomogenic or carcinogenic effects were noted, except for an occasional papilloma. Some teratogenic effects were noted. Pyrene induced mutations and unscheduled DNA synthesis in some in vitro assays in mammalian cells. There is limited evidence that pyrene is active in short-term assays. ECOTOXICITY STUDIES: There was an interaction between pyrene and the thyroid system in fish. In rockfish, pyrene exposure impaired skeleton development via disrupting the proliferation of the chondrocytes. Embryonic exposure of zebrafish to low-level environmental pyrene disrupted normal cardiac development and altered expression of defective cardiac differentiation related genes. Pyrene might be a contributor to the behavioral and neuro-developmental toxicity in pufferfish. in the earthworm Lumbricus rubellus pyrene was found to cause a dose dependant decrease in lactate and the concentrations of the saturated fatty acids tetradecanoic, hexadecanoic and octadecanoic acid and an increase in production of the amino acids alanine, leucine, valine, isoleucine, lysine, tyrosine and methionine. It is proposed that this indicates impaired glucose metabolism, with an associated increase in fatty acid metabolism and changes in TCA cycle intermediates.

#### 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

#### >> Pyrene

#### Reference Dose (RfD), Subchronic

#### $>> 3 \times 10^{-1} \text{ mg/kg-day}$

#### **PPRTV** Assessment

>> PDF Document

#### Weight-Of-Evidence (WOE)

>> See the IRIS entry for Pyrene

### Last Revision

>> 2007

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

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

#### Chemical

#### >> Pyrene

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

>> 200

#### 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

>> Pyrene

#### **IARC Carcinogenic Classes**

>> Group 3: Not classifiable as to its carcinogenicity to humans

#### IARC Monographs

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

>> 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, through the skin and by ingestion.

>> Oral (L10) ; inhalation (L10)

#### **Skin Exposure**

>> Redness.

- Eye Exposure
- >> Redness.

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

#### **Target Organs:**

Organs that are affected by exposure to this chemical. Information in this section reflects human data unless otherwise noted.

>> Urinary

#### **Adverse Effects:**

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

>> Dermatotoxin - PICD (photoirritant contact dermatitis).

#### **Toxicity Data:**

>> LC50 (rat) = 170 mg/m3

## Treatment:

Treatment when exposed to toxin

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

#### Interactions:

>> Benzo(a)pyrene (B(a)P) is able to inhibit the mutagenicity of I-nitropyrene (I-NP) through the reduction of nitroreductase activity and formation of adducts with DNA. The relationships between the chemical structure of 9 polycyclic aromatic hydrocarbons (PAHs) and antagonistic effects on the I-nitropyrene-induced mutation were evaluated by the binary mixtures of I-nitropyrene and PAHs with Salmonella typhimurium TA98 in the absence of S9 mix. Remarkably different antagonistic effects of 9 polycyclic aromatic hydrocarbons on the mutagenicity of I-nitropyrene were observed. Among the tested polycyclic aromatic hydrocarbons, coronene demonstrates the most antagonistic potential followed by benzo(g,h,i)perylene (B(g,h,i)P), benzo(e)pyrene (B(e)P), dibenzo(a,h)pyrene (DB(a,h)P), benzo(a)pyrene benzo(a)pyrene and pyrene. Naphthalene, anthracene, and chrysene had only minor inhibitory activity on the I-nitropyrene mutagenicity. The modifying effects of polycyclic aromatic hydrocarbons on the nitroreductase activity of TA98 strains in the presence of I-nitropyrene were further examined from the production of I-AP. The statistical analytical data showed that the inhibitory effect of polycyclic aromatic hydrocarbons on the mutagenicity of I-nitropyrene significantly correlated with their effects on the nitroreductase activity (r = - 0.69, p < 0.05). In addition, the formation of I-nitropyrene-DNA adducts of the binary mixtures of I-nitropyrene and polycyclic aromatic hydrocarbon was determined by the 32P-postlabeling method. The results indicated that the modulatory effects of polycyclic aromatic hydrocarbons on the formation of I-nitropyrene-DNA adducts were correlated well with their antagonistic activity (r= -0.91, P < 0.011. From the above results, the relationships between the chemical structure of polycyclic aromatic hydrocarbons and the antagonistic effects on the I-nitropyrene mutagenicity were revealed by the surface area and electronic parameters of PAHs. The planar molecular area of PAHs was more convicingly correlated with the antagonistic effect on the mutagenicity of I-nitropyrene (r= - 0.81, p < 0.01) than that with the difference in energy, DELTAE, between EHOMO and ELUMO (r = 0.69, p < 0.05). According to the above, two possible mechanisms are involved in the interactive effect of the binary mixtures: (1) a higher binding affinity with nitroreductase for PAHs having a large planar surface area; and (2) a high energy of interaction between I-nitropyrene and polycyclic aromatic hydrocarbons with a low DELTAE might decrease the nitroreductive capability.

#### 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:

>> /SIGNS AND SYMPTOMS/ Exposure to sun may provoke an irritating effect of pyrene on skin and lead to chronic skin discoloration.

## Non-Human Toxicity Excerpts:

>> /LABORATORY ANIMALS: Acute Exposure/ Rats that ingested lethal doses /of pyrene/ die in 2 to 5 days, and rats exposed to lethal concentrations /in air/ die in 1 to 2 days. Dermal exposure to 10 g/kg was not lethal in mice. Inhalation also caused pathological changes in hepatic, pulmonary, and intragastric tissue and a decrease in the number of neutrophils, leukocytes, and erythocytes.

#### Non-Human Toxicity Values:

>> LD50 Rat oral 2700 mg/kg

## 12. Ecological Information

esident Soil (mg/kg)
>> 1.80e+03
dustrial Soil (mg/kg)
>> 2.30e+04
apwater (ug/L)
>> 1.20e+02
CL (ug/L)
>> 2.00e-01
sk-based SSL (mg/kg)
>> 1.30e+01
hronic Oral Reference Dose (mg/kg-day)
>> 3.00e-02
olatile
>> Volatile
utagen
> Mutagen
action of Contaminant Absorbed in Gastrointestinal Tract
> 1
action of Contaminant Absorbed Dermally from Soil
> 0.13
CSC Environmental Data:

# N Piesesumulation of this chemical may occur in crustopoo fish r

>> Bioaccumulation of this chemical may occur in crustacea, fish, milk, algae and molluscs. It is strongly advised not to let the chemical enter into the environment.

## Sediment/Soil Concentrations:

Concentrations of this compound in sediment/soil.

>> SEDIMENT: Pyrene was detected in the sediment of Lake Superior at concentrations of 1.76 ug/g(1) and 13–266 ng/g(2) and Lake Ontario at concentrations of 1.2–72.7 ug/g(3). Pyrene was detected in sediment from the Gulf of Lion at concentrations of 0.0–84.6 ng/g(4). Pyrene was detected in sediment from the Chesapeake Bay at concentrations of 0.0–57.6 ug/g(5). Sediment collected at 5 locations in Lake Michigan contained pyrene at concentrations of 399.87, 296.93, 346.72, 343.98 and 103.40 ng/g(6). Sediment from the Passaic River, NJ contained pyrene at concentrations between 0 and 100,000 ug/kg(7). Sediment obtained from the St. Lawrence River had pyrene concentrations of 775 ug/g near the Reynolds aluminum manufacturing plant and 0.25 ug/g near the General Motors automobile manufacturing facility(8). Pyrene was detected in 4 of 7 sediment samples collected from Lake Erie in 2006 at concentrations of 0.20–3.86 mg/kg(9). Pyrene levels of 16–570 ng/g dry wt were detected in sediments from 19 depositional areas along the lower Missouri River in 2002(10). Sediment samples collected from southern Lake Michigan in August 2011 contained a mean pyrene concentration of 110.3 ng/g dry wt(11).

## Fish/Seafood Concentrations:

Concentrations of this compound in fish or seafood.

>> Samples of winter flounder, windowpane, red hake, rock crab, lobster, and sea scallops were collected from 25 sites in New York bight and Long Island Sound region and analyzed for presence of 15 polycyclic aromatic hydrocarbons, pyrene was detected at 0–50 ppb in most samples(1). Pyrene was detected in Arctic grayling, burbot, longnose sucker, lake whitefish, lake trout, mountain whitefish, northern pike, round whitefish and walleye at concentrations of 0.02–0.07, 0.05–0.06, <0.01–0.06, 0.01–0.33, 0.02–0.09, 0.25–1.38, <0.01–0.12, 0.03–0.14 and <0.01–1.94 ng/g wet weight, respectively, in fish sampled in the Northwest Territories, Canada from 1990 to 1994(2). Four farm raised salmon from the US and Canada contained pyrene at 0.11 ng/g, four wild salmon from the US and Canada contained pyrene at 0.37 ng/g(3). Pyrene was detected in whitefish (0.5 ppb), kippered cod (0.6 ppb), smoked herring (2.2 ppb), smoked salmon (2 ppb), smoked sturgeon (4.4 ppb), non-smoked herring (1 ppb) and non-smoked salmon (1.4 ppb)(4).

## **Animal Concentrations:**

Concentrations of this compound in animals.

>> Pyrene was detected in sea lions off the coast of Argentina at average concentrations of 156.6 and 23.06 ng/g (skin), 82.93 and 107.98 ng/g (blood samples) and 14.2 and 11.33 ng/g (liver)(1). Pyrene was detected in blubber from seven sperm whales at 1.5–2.0 ng/g dry weight(2). Pyrene was measured in the eggs of birds in the Selenga river estuary of Lake Baikal region, Russia; (species, concentration ug/kg dry weight) mallard (Anas platyrhynchos), 3218; pintail (Anas acuta), 90.0; shoveler (Anas clypeata), 89.4; tufted duck (Aythya fuligula), 985; pochard (Aythya ferina), 51.0; goose (Anser anser), 106.8; domestic fowl (Gallus gallus), 81.7 and 21.3; heron (Ardea cinerea), 55.0; herring gull (Larus argentatus), 19.0; common gull (Larus canus), 170.8; common tern(Sterna hirundo), 446.6; black headed gull (Larus ridibundus), 233.8; liapwing (Vanellus vanellus) 51.3; Slavonian grebe (Podiceps auritus), 836.6; marsh sandpiper (Tringa stagnatilis), 810.1(3). Blood samples collected from two live sea turtle species (Chelonia mydas and Eretmochelys imbricata) in the coastal waters of the Boa Vista island (Capre Verde archipelago) between 2009–2011 contained mean pyrene concentrations of 0.67 and 0.08 ng/mL respectively(4).

## Average Daily Intake:

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

>> The average daily intake of pyrene for women in Japan has been estimated as 0.98 ug/day(1). Estimates of PAH intake (including pyrene) from food vary widely, ranging from a few nanograms to a few micrograms per person per day(2).

## 13. Disposal Considerations

#### Spillage Disposal

>> Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder.

#### **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; Contaminated packaging: Dispose of as unused product.
- >> Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
- >> For more Disposal Methods (Complete) data for Pyrene (14 total), please visit the HSDB record page.

## 14. Transport Information

ООТ	
Pyrene	
Reportable Quantity of 5000 lb or 2270 kg	
ΙΑΤΑ	
Pyrene	

## 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. Pyrene is included on this list. Effective date 6/1/87; Sunset date: 6/1/97.

#### **Regulatory Information**

The Australian Inventory of Industrial Chemicals

>> Chemical: Pyrene

#### **REACH Registered Substance**

>> Status: Active Update: 17-11-2010 https://echa.europa.eu/registration-dossier/-/registered-dossier/12145

REACH Substances of Very High Concern (SVHC)

### >> Substance: Pyrene

- >> EC: 204-927-3
- >> Date of inclusion: >15-Jan-2019
- >> Reason for inclusion: PBT (Article 57d); vPvB (Article 57e)

## New Zealand EPA Inventory of Chemical Status

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

## 16. Other Information

## **Other Safety Information**

**Chemical Assessment** 

>> IMAP assessments - Pyrene: 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."