SAFETY DATA SHEET

Updated on 26/09/2024

1. Material Identification

Product Name : Di(2-ethylhexyl) phthalate
Catalog Number : io-2214
CAS Number : 117-81-7
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 > 99.9% (1049 of 1050) of reports that indicate hazard statements. This chemical does not meet GHS hazard criteria for < 0.1% (1 of 1050) of reports.

Pictogram(s)

GHS Hazard Statements

>> H360 (94.4%): May damage fertility or the unborn child [Danger Reproductive toxicity]

Precautionary Statement Codes

>> P203, P280, P318, 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 can cause nausea and irritation of nose and throat. Contact of liquid with eyes or skin causes irritation. Ingestion can cause abdominal cramps, nausea and diarrhea. (USCG, 1999)

>> Special Hazards of Combustion Products: Irritating vapors and toxic gases, such as carbon dioxide and carbon monoxide, may be formed when involved in fire.

>> Behavior in Fire: Overheating of containers during fire can result in rupture. (USCG, 1999)

>> Combustible. Gives off irritating or toxic fumes (or gases) in a fire.

3. Composition/Information On Ingredients

Chemical name : Di(2-ethylhexyl) phthalate
CAS Number : 117-81-7
Molecular Formula : C24H38O4
Molecular Weight : 390.6000 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. IMMEDIATELY call a hospital or poison control center even if no symptoms (such as redness or irritation) develop. IMMEDIATELY transport the victim to a hospital for treatment after washing the affected areas.

>> INHALATION: IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. IMMEDIATELY call a physician and be prepared to transport the victim to a hospital even if no symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop. 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.

>> OTHER: Since this chemical is a known or suspected carcinogen you should contact a physician for advice regarding the possible long term health effects and potential recommendation for medical monitoring. Recommendations from the physician will depend upon the specific compound, its chemical, physical and toxicity properties, the exposure level, length of exposure, and the route of exposure. (NTP, 1992)

First Aid Measures

Inhalation First Aid

>> Fresh air, rest.

Skin First Aid

>> Remove contaminated clothes. Rinse skin with plenty of water or shower.

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. Give one or two glasses of water to drink.

5. Fire Fighting Measures

>> ... May give off irritating vapor @ high temperature.

>> Fire Extinguishing Agents Not to Be Used: Water.

>> Fire Extinguishing Agents: Carbon dioxide, dry chemical, alcohol foam, or water spray. (USCG, 1999)

>> Use water spray, foam, powder, carbon dioxide.

6. Accidental Release Measures

Spillage Disposal:

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

>> Personal protection: chemical protection suit. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

7. Handling And Storage

Safe Storage:

>> Separated from strong oxidants, acids, alkalis and nitrates. Cool. Dry. Well closed.

Storage Conditions:

>> Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. Exposure Control/ Personal Protection

REL-TWA (Time Weighted Average)

>> 5 mg/m³

REL-STEL (Short Term Exposure Limit)

>> 10 mg/m³

>> Ca TWA 5 mg/m3 ST 10 mg/m3 See Appendix A

>> 5.0 [mg/m3]

PEL-TWA (8-Hour Time Weighted Average)

>> 5 mg/m³

>> 0.1 [mg/m3]

>> 5 mg/m

TLV-TWA (Time Weighted Average)

>> 5 mg/m³ [1996]

MAK (Maximale Arbeitsplatz Konzentration)

>> (inhalable fraction): 2 mg/m

Inhalation Risk:

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

Effects of Short Term Exposure:

>> The substance is irritating to the eyes and respiratory tract.

Effects of Long Term Exposure:

>> The substance may have effects on the testes. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

Fire Prevention

>> NO open flames.

Exposure Prevention

>> PREVENT GENERATION OF MISTS! AVOID EXPOSURE OF ADOLESCENTS AND CHILDREN!

Inhalation Prevention

>> Use ventilation, local exhaust or breathing protection.

Skin Prevention

>> Protective gloves.

Eye Prevention

>> Wear safety goggles.

Ingestion Prevention

>> Do not eat, drink, or smoke during work. Wash hands before eating.

Exposure Control and Personal Protection

Exposure Summary

>> Biological Exposure Indices (BEI) [ACGIH] - There are 5 chemicals that can be used for BEIs, measured in the urine at the end of shift; [ACGIH TLVs and BEIs]

Maximum Allowable Concentration (MAK)

>> 2.0 [mg/m3], inhalable fraction[German Research Foundation (DFG)]

9. Physical And Chemical Properties

Molecular Weight:

>> 390.6

Exact Mass:

>> 390.27700969

Physical Description:

>> Di(2-ethylhexyl) phthalate is a colorless to pale yellow oily liquid. Nearly odorless. (USCG, 1999)

>> COLOURLESS-TO-LIGHT COLOURED VISCOUS LIQUID WITH CHARACTERISTIC ODOUR.

Color/Form:

>> Liquid

Odor:

>> Slight odor

Boiling Point:

>> 723 °F at 760 mmHg (NTP, 1992)

>> 385 °C

Melting Point:

>> -58 °F (NTP, 1992)

>> -50 °C

Flash Point:

>> 405 °F (NTP, 1992)

>> 215 °C o.c.

Solubility:

>> less than 0.1 mg/mL at 72 °F (NTP, 1992)

>> Solubility in water: none

Density:

>> 0.98 at 77 °F (USCG, 1999) - Less dense than water; will float

>> Relative density (water = 1): 0.986

Vapor Density:

>> 13.45 (NTP, 1992) - Heavier than air; will sink (Relative to Air)

>> Relative vapor density (air = 1): 13.45

Vapor Pressure:

>> 1.32 mmHg at 392 °F (NTP, 1992)

>> Vapor pressure, kPa at 20 °C: 0.001

LogP:

>> log Kow = 7.60

>> 5.03

Stability/Shelf Life:

>> Stable

Autoignition Temperature:

>> 735 °F (NTP, 1992)

>> 350 °C

Decomposition:

>> When heated to decomp it emits acrid smoke.

Viscosity:

>> 22 cSt at 20 °C; 386 cSt at 0 °C; 5 cSt at 100 °C

Heat of Combustion:

>> -15,130 BTU/LB= -8410 CAL/G= -352X10+5 JOULES/KG

Surface Tension:

>> LIQUID SURFACE TENSION: EST 15 DYNES/CM= 0.015 N/M @ 20 °C LIQUID-WATER INTERFACIAL TENSION: EST 30 DYNES/CM= 0.03 N/M @ 20 °C.

Refractive Index:

>> Index of refraction: 1.4853 at 20 °C/D

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.

>> 212.2 Å² [M+H]+ [CCS Type: DT; Method: single field calibrated with ESI Low Concentration Tuning Mix (Agilent)]

>> 215.9 Å² [M+Na]+ [CCS Type: DT; Method: single field calibrated with ESI Low Concentration Tuning Mix (Agilent)]

>> 203 Å² [M+H2O-H]- [CCS Type: DT; Method: single field calibrated with ESI Low Concentration Tuning Mix (Agilent)]

10. Stability And Reactivity

>> Insoluble in water.

11. Toxicological Information

Toxicity Summary:

>> IDENTIFICATION AND USE: Di(2-ethylhexyl)phthalate (DEHP) is a colorless, oily liquid. Plastics may contain from 1 to 40% DEHP by weight and are used in consumer products such as imitation leather, rainwear, footwear, upholstery, flooring, wire and cable, tablecloths, shower curtains, food packaging materials and children's toys. DEHP is also used as a hydraulic fluid and as a dielectric fluid (a non-conductor of electric current) in electrical capacitors, a detector for leaks in respirators. DEHP is not registered for current use in the U.S., but approved pesticide uses may change periodically and so federal, state and local authorities must be consulted for currently approved uses. HUMAN EXPOSURE AND TOXICITY: DEHP has been found in various types of food, such as fish, shellfish, eggs and cheese. Blood transfusions and other medical treatment using plastic devices may lead to involuntary human exposure to DEHP. Available data on oral administration indicate that DEHP is hydrolyzed in the gut by pancreatic lipase. The metabolites formed, i.e., mono(2-ethylhexyl)phthalate and 2-ethyl hexanol, are rapidly absorbed. Mono-2-ethylhexyl phthalate was detected in human teeth. When administered orally, DEHP is extensively hydrolyzed in the gut in certain animals, e.g., rats, and is mainly distributed as monoethylhexyl phthalate. However, hydrolysis occurs to a much lesser extent in primates and humans. Several further metabolites have been identified, omega- and omega-1-oxidation being the major metabolic pathways. DEHP metabolism shows considerable species differences, e.g., the omega-oxidation pathway is less extensive in humans than in rats. Bile and urine are the major excretory pathways. DEHP metabolites do not produce peroxisome proliferation in cultured human hepatocytes. Only very limited information is available on the effects of DEHP on humans. Mild gastric disturbances, but no other deleterious effects, were reported for two subjects. Adolescents exposed to significant quantities of DEHP as neonates showed no significant adverse effects on their physical growth and pubertal maturity. Thyroid, liver, renal, and male and female gonadal functions tested were within normal range for age and sex distribution. ANIMAL STUDIES: Hepatomegaly and increased relative kidney weights have been observed in treated animals in long term studies, also hypertrophic cells in the anterior pituitary. Several studies have shown testicular atrophy. Younger rats seem to be more susceptible than older ones, and rats and mice seem to be more sensitive than marmosets and hamsters. Reversibility of the atrophy has been observed. DEHP, as well as monoethylhexyl phthalate, shows teratogenic properties. Tests for mutagenicity and related end points have been negative in most studies. DEHP may induce cellular transformation, and it has been shown to be carcinogenic in rats and in mice. There was a dose-related increase in hepatocellular tumors in both sexes of both species. The induction of hepatic peroxisome proliferation and cell replication is strongly associated with the liver carcinogenic effects of certain non-genotoxic carcinogens including DEHP. However, marked differences have been observed among animal species with respect to DEHP-induced peroxisome proliferation. ECOTOXICITY STUDIES: Although few relevant studies have been reported, the acute toxicity of DEHP to algae, plants, and birds appears to be low.

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

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

Chemical

>> bis(2-Ethylhexyl) phthalate

MCL (Maximum Contaminant Levels)[µg/L]

>> 6

Benchmark Remarks

>> Listed as Di (2-ethylhexyl)phthalate (DEHP)

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).

>> Classification of carcinogenicity: There is inadequate evidence in humans for the carcinogenicity of di(2-ethylhexyl) phthalate. There is sufficient evidence in experimental animals for the carcinogenicity of di(2-ethylhexyl) phthalate. Overall evaluation: Di(2-ethylhexyl) phthalate is not classifiable as to its carcinogenicity to humans (Group 3).

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

>> Di(2-ethylhexyl)phthalate

IARC Carcinogenic Classes

>> Group 2B: Possibly carcinogenic 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 77: (2000) Some Industrial Chemicals

>> Volume 101: (2012) Some Chemicals Present in Industrial and Consumer Products, Food and Drinking-water

>> 2B, possibly carcinogenic to humans. (L135)

Health Effects:

>> Chronic and/or high levels of DEHP exposure may cause reproductive and developmental damage. This includes damaged sperm, delayed sexual maturity, and deficiencies in the development of male babies. DEHP may also cause liver and kidney damage, and is potentially carcinogenic. (L181, L182)

Exposure Routes:

>> The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

>> inhalation, ingestion, skin and/or eye contact

Inhalation Exposure

>> Cough. Sore throat.

Eye Exposure

>> Redness. Pain.

Ingestion Exposure

>> Abdominal cramps. Diarrhoea. Nausea.

>> irritation eyes, mucous membrane; In Animals: liver damage; teratogenic effects; [potential occupational carcinogen]

Target Organs:

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

>> Cancer, Developmental (effects while organs are developing), Hepatic (Liver), Immunological (Immune System), Renal (Urinary System or Kidneys), Reproductive (Producing Children)

>> Hepatic

Cancer Sites:

The site in which cancer develops due to exposure to this compound. Cancers are casually referred to based on their primary sites (e.g., skin, lung, breasts, prostate, colon and rectum).

>> Hepatic

>> [in animals: liver tumors]

Adverse Effects:

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

>> Reproductive Toxin - A chemical that is toxic to the reproductive system, including defects in the progeny and injury to male or female reproductive function. Reproductive toxicity includes developmental effects. See Guidelines for Reproductive Toxicity Risk Assessment.

>> Asthma - Reversible bronchoconstriction (narrowing of bronchioles) initiated by the inhalation of irritating or allergenic agents.

>> IARC Carcinogen - Class 3: Chemicals are not classifiable by the International Agency for Research on Cancer.

>> NTP Carcinogen - Reasonably anticipated to be a human carcinogen.

>> ACGIH Carcinogen - Confirmed Animal.

Toxicity Data:

>> LD50: 33.9 g/kg (Oral, Rabbit) (T33) LD50: 10 g/kg (Dermal, Guinea pig) (T33) LD50: 30.7 g/kg (Intraperitoneal, Rat) (T33)

Minimum Risk Level:

The minimal risk level (MRL) is an estimate of the amount of a chemical a person can eat, drink, or breathe each day without a detectable risk to health

>> Intermediate Oral: 0.1 mg/kg/day (L134) Chronic Oral: 0.06 mg/kg/day (L134)

Interactions:

>> In studies of the effects of DEHP ingestion on the metabolism of ethanol, there was a distinct difference between the action of single doses of 1,500-7,500 mg/kg DEHP and the same doses given over a 7-day period ... . The single dose appeared to decrease the metabolism of intraperitoneal ethanol, given 18 hours after DEHP, as reflected by an increase in the ethanol-induced sleeping time of the exposed rats and inhibition of hepatic alcohol dehydrogenase activity. On the other hand, when DEHP was given for 7 days before the ethanol, the ethanol-induced sleeping time was decreased and the activities of both alcohol and aldehyde dehydrogenase were increased. This indicates the changes in sleeping time were the result of more rapid metabolic removal of the alcohol from the system in the rats treated with repeated doses of DEHP and slower metabolism in the rats given one dose.

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 as 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. /Esters and related compounds/

Human Toxicity Excerpts:

>> /HUMAN EXPOSURE STUDIES/ /Dialysis patients were examined for liver changes/ ... These patients were receiving approx 150 mg of DEHP per wk intravenously during their treatment. At 1 month, no morphological liver changes were observed by liver biopsy. At 1 yr, peroxisomes were described as being "significantly higher in number". No other observations were made. ... livers in dialysis patients compared with those of healthy individuals would be exposed to a greater number of blood contaminants at higher levels because of their impaired clearance abilities. There were no other data describing the effects of DEHP in humans other than those proposed as possible effects in persons receiving intravenous solutions.

Non-Human Toxicity Excerpts:

>> /LABORATORY ANIMALS: Acute Exposure/ To investigate the effects of di(2-ethylhexyl) phthalate (DEHP) on gene expression in rat testis, 6-week-old male Sprague-Dawley rats were given a single oral dose of 20 or 2000 mg/kg and euthanized 3, 6, 24, or 72 hr thereafter. Terminal deoxynucleotidyl transferase-mediated dUTP nick-end labeling (TUNEL)-positive cells were significantly increased in the testis at 24 and 72 hr after the exposure to 2000 mg/kg of DEHP. On cDNA microarray analysis, in addition to apoptosis-related genes, genes associated with atrophy, APEX nuclease, MutS homologue (E. coli), testosterone-repressed-prostatic-message-2 (TRPM-2), connective tissue growth factor, collagen alpha 2 type V, and cell adhesion kinase were differentially expressed. To investigate the relationship between histopathological alteration and gene expression ... genes associated with apoptosis /were/ ... analyzed /for/ their expression by real-time quantitative reverse transcription-polymerase chain reaction (RT-PCR). With 20 mg/kg of DEHP treatment, bcl-2, key gene related to apoptosis, was increased. Up-regulation of bcl-2, inhibitor of Apaf-1/caspase-9/caspase-2 cascade of apoptosis, may be related to the fact that no morphological apoptotic change was induced after dosing of 20 mg/kg DEHP. With 2000 mg/kg of DEHP treatment, the apoptotic activator cascade, Fas/FasL, FADD/caspase-8/caspase-3 cascade, and Apaf-1/caspase-9/caspase-2 cascade were increased and bcl-2 was decreased. Thus, these gene regulations might lead the cells into apoptosis in the case of high exposure to DEHP. In contrast, FADD/caspase-10/caspase-6 cascade and caspase-11/caspase-3 cascade were not increased. These results indicate that the cascades of FADD/caspase-10/caspase-6 and caspase-11/caspase-3 are not related to apoptosis with DEHP treatment.

Non-Human Toxicity Values:

>> LD50 Rat oral >25 g/kg

National Toxicology Program Studies:

Reports from the National Toxicology Program, an interagency program supported by three government agencies (NIH, FDA, and CDC) within the Department of Health and Human Services. This program plays a critical role in generating, interpreting, and sharing toxicological information about chemicals of public health concerns.

>> A bioassay of di(2-ethylhexyl)phthalate ... for possible carcinogenicity was conduced by feeding diets containing 6,000 or 12,000 ppm of the test chemical to groups of 50 male and 50 female F344 rats and 3,000 or 6,000 ppm to groups of 50 male and 50 female B6C3F1 mice for 103 wk. Controls consisted of 50 untreated rats and 50 untreated mice of either sex. ... Under the conditions of this bioassay, di(2-ethylhexyl)phthalate was carcinogenic for F344 rats and B6C3F1 mice, causing incr incidences of female rats and male and female mice with hepatocellular carcinomas, and inducing an

incr incidence of male rats with either hepatocellular carcinomas or neoplastic nodules. Levels of Evidence of Carcinogenicity: Male Rats: Positive; Female Rats: Positive; Male Mice: Positive; Female Mice: Positive.

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.

>> Bis(2-ethyl hexyl)phthalate (DEHP) was examined for its effect on cell transformation using the BALB/3T3 transformation assay, at nominal concentrations of 21.0, 14.0, 7.0, 3.5 and 0.875 nL/mL (corresponding to relative survivals of approximately 10, 20, 35, 58 and 82%). DEHP did not induce a significant number of transformed foci over the concentration range of 21.0 to 0.875 nL/mL. This concentration range corresponded to approximately 10% to 90% survival in the preliminary cytotoxicity test and 6% to 109% survival in the concomitant cytotoxicity test.

Populations at Special Risk:

>> Time-averaged concn of DEHP, MEHP, and phthalic acid in the blood of patients undergoing maintenance hemodialysis were 1.9, 1.3, and 5.2 mg/L, respectively ... Such patients are considered to be at risk of potential DEHP toxicity through prolonged contact with medical plastic products that contain DEHP. The relatively high circulating level of phthalic acid may indicate an altered metabolism of DEHP in uremic patients ... .

12. Ecological Information

Resident Soil (mg/kg)

>> 3.90e+01

Industrial Soil (mg/kg)

>> 1.60e+02

Resident Air (ug/m3)

>> 1.20e+00

Industrial Air (ug/m3)

>> 5.10e+00

Tapwater (ug/L)

>> 5.60e+00

MCL (ug/L)

>> 6.00e+00

Risk-based SSL (mg/kg)

>> 1.30e+00

MCL-based SSL (mg/kg)

>> 1.40e+00

Oral Slope Factor (mg/kg-day)-1

>> 1.40e-02

Inhalation Unit Risk (ug/m3)-1

>> 2.4e-06

Chronic Oral Reference Dose (mg/kg-day)

>> 2.00e-02

Volatile

>> Volatile

Mutagen

>> Mutagen

Fraction of Contaminant Absorbed in Gastrointestinal Tract

>> 1

Fraction of Contaminant Absorbed Dermally from Soil

>> 0.1

ICSC Environmental Data:

>> Bioaccumulation of this chemical may occur in seafood.

Sediment/Soil Concentrations:

Concentrations of this compound in sediment/soil.

>> SEDIMENT: Bis(2-ethylhexyl) phthalate was detected in surface sediment samples from: the Mississippi River delta at a mean of 0.069 ppm, the Gulf of Mexico, nearshore (offshore), at a mean of 0.007 (0.002) ppm, and in Lake Superior sediments at 200 ppm(1). It was detected in sediments from Galveston Bay, TX at an avg of 0.022 ppm(2). Sediments from the Chesapeake Bay contained bis(2-ethylhexyl) phthalate at 0.022-0.18 ppm(3). Sediments collected from 8 coastal sites in Portland, ME, contained bis(2-ethylhexyl) phthalate at 60-7800 ng/g with an average of 1500 ng/g(4). Bis(2-ethylhexyl) phthalate was detected in 16% of 31 sediment samples collected from the Detroit River in 1982 at mean concentrations of 0.12-1.18 mg/kg(5). Bis(2-ethylhexyl) phthalate was detected in 30% of sediment samples from 536 sites sampled Aug 1992 to Sept 1995 in 20 major river basins across the US with a maximum concentration of 17,000 ug/kg dry weight(6). Bis(2-ethylhexyl) phthalate was found in 39.2% of 431 sites sampled from 19 major US river basins from Aug 1992 to March 1995 with a maximum concentration of 17,000 ug/kg(7). Bis(2-ethylhexyl) phthalate was found in Calcasieu River, LA estuary sediment at 0-2.8 mg/kg(8). Bis(2-ethylhexyl) phthalate was detected in 22 of 23 sediment samples collected from US streams in the Great Lakes basin from Apr to June 2006 at 30-29,700 ng/g dry weight(9).

Fish/Seafood Concentrations:

Concentrations of this compound in fish or seafood.

>> Bis(2-ethylhexyl) phthalate was found in fish available to Canadian consumers at 0-160 ug/kg. Bis(2-ethylhexyl) phthalate was found in hatchery-reared juvenile Atlantic salmon (Salmo salar) at 13,000-16,000 ug/kg (lipid). Bis(2-ethylhexyl) phthalate was found in channel catfish (Ictalurus punctatus) located in Mississippi and Arkansas at a concentration of 3,200 ug/kg. It was also found in channel catfish at Fairpoint National Fish Hatchery, Iowa, at 400 ug/kg.

Animal Concentrations:

Concentrations of this compound in animals.

>> Surf scoters (Melanitta perspicillata) collected June to Sept 1999 from False Harbor, Vancouver, British Columbia were analyzed for concentrations of bis(2-ethylhexyl) phthalate, which was present at a concentration of 2.35 ng/g g lipid(1).

Average Daily Intake:

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

>> The total average daily intake of bis(2-ethylhexyl) phthalate was 1458 ng/kg body weight/day based on food, water, and indoor and outdoor air concentrations reported for Paris, France; component daily intakes were 1.05, 1454 and 3.13 ng/kg body weight/day for water, food and air respectively(1).

13. Disposal Considerations

Spillage Disposal

>> Personal protection: chemical protection suit. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Disposal Methods

>> Generators of waste (equal to or greater than 100 kg/mo) containing this contaminant, EPA hazardous waste number U028, must conform with USEPA regulations in storage, transportation, treatment and disposal of waste.

>> /Contaminated packaging/ Dispose of as unused product.

>> /Product/ 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. Offer surplus and non-recyclable solutions to a licensed disposal company.

14. Transport Information

DOT

Di(2-ethylhexyl) phthalate

Reportable Quantity of 100 lb or 45

IATA

Di(2-ethylhexyl) phthalate

,

15. Regulatory Information

Federal Drinking Water Standards:

Federal drinking water standards (e.g. maximum containment level (MCL)) for this chemical. These standards are legally enforceable.

>> Maximum contaminant levels (MCL) for synthetic organic contaminants apply to community water systems and non-transient, non-community water systems: Di(2-ethylhexyl) phthalate, MCL 0.006 mg/L.

State Drinking Water Standards:

State drinking water standards (e.g. maximum containment level (MCL)) for this chemical. These standards are legally enforceable.

>> (CA) CALIFORNIA 4 ug/L

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. 1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester is included on this list. Effective date: 10/04/82; Sunset date: 10/04/92.

Regulatory Information

The Australian Inventory of Industrial Chemicals

>> Chemical: 1,2-Benzenedicarboxylic acid, 1,2-bis(2-ethylhexyl) ester

>> Specific Information Requirement: Obligations to provide information apply. You must tell us within 28 days if the circumstances of your importation or manufacture (introduction) are different to those in our assessment.

REACH Registered Substance

>> Status: Active Update: 19-01-2022 https://echa.europa.eu/registration-dossier/-/registered-dossier/15358

>> Status: Active Update: 12-11-2012 https://echa.europa.eu/registration-dossier/-/registered-dossier/8568

REACH Restricted Substance

>> Restricted substance: Bis (2-ethylhexyl) phthalate (DEHP)

>> EC: 204-211-0

REACH Substances of Very High Concern (SVHC)

>> Substance: Bis (2-ethylhexyl)phthalate (DEHP)

>> EC: 204-211-0

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

>> Reason for inclusion: Toxic for reproduction (Article 57c); Endocrine disrupting properties (Article 57(f) - environment); Endocrine disrupting properties (Article 57(f) - human health)

New Zealand EPA Inventory of Chemical Status

>> Di-s-octyl phthalate: 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 - Phthalate esters: Environment tier II assessment

>> PEC / SN / Other assessments - Diethylhexyl phthalate (DEHP): Health

>> IMAP assessments - 1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester: Human health tier II 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."