SAFETY DATA SHEET

Updated on 30/12/2024

1. Material Identification

Product Name : delta-BHC
Catalog Number : io-1824
CAS Number : 319-86-8
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 90% (9 of 10) of reports that indicate hazard statements. This chemical does not meet GHS hazard criteria for 10% (1 of 10) of reports.

Pictogram(s)

GHS Hazard Statements

>> H301 (90%): Toxic if swallowed [Danger Acute toxicity, oral]

>> H312 (70%): Harmful in contact with skin [Warning Acute toxicity, dermal]

>> H351 (70%): Suspected of causing cancer [Warning Carcinogenicity]

>> H400 (70%): Very toxic to aquatic life [Warning Hazardous to the aquatic environment, acute hazard]

>> H410 (70%): Very toxic to aquatic life with long lasting effects [Warning Hazardous to the aquatic environment, long-term hazard]

Precautionary Statement Codes

>> P203, P264, P270, P273, P280, P301+P316, P302+P352, P317, P318, P321, P330, P362+P364, P391, P405, and P501

Health Hazards:

>> Excerpt from ERG Guide 151 [Substances - Toxic (Non-Combustible)]:

>> Highly toxic, may be fatal if inhaled, ingested or absorbed through skin. Avoid any skin contact. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause environmental contamination. (ERG, 2024)

>> Excerpt from ERG Guide 151 [Substances - Toxic (Non-Combustible)]:

>> Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Containers may explode when heated. Runoff may pollute waterways. (ERG, 2024)

>> Not combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire. Risk of fire and explosion if formulations contain flammable/explosive solvents.

3. Composition/Information On Ingredients

Chemical name : delta-BHC
CAS Number : 319-86-8
Molecular Formula : C6H6Cl6
Molecular Weight : 290.8000 g/mol

4. First Aid Measures

First Aid:

>> Excerpt from ERG Guide 151 [Substances - Toxic (Non-Combustible)]:

>> Refer to the "General First Aid" section. (ERG, 2024)

First Aid Measures

Inhalation First Aid

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

Skin First Aid

>> Wear protective gloves when administering first aid. Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

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 a slurry of activated charcoal in water to drink, but NOT if convulsions occur. Refer immediately for medical attention.

5. Fire Fighting Measures

>> Excerpt from ERG Guide 151 [Substances - Toxic (Non-Combustible)]:

>> SMALL FIRE: Dry chemical, CO2 or water spray.

>> LARGE FIRE: Water spray, fog or regular foam. If it can be done safely, move undamaged containers away from the area around the fire. Dike runoff from fire control for later disposal. Avoid aiming straight or solid streams directly onto the product.

>> FIRE INVOLVING TANKS, RAIL TANK CARS OR HIGHWAY TANKS: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks in direct contact with flames. For massive fire, use unmanned master stream devices or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2024)

>> In case of fire in the surroundings, use appropriate extinguishing media. In case of fire: keep drums, etc., cool by spraying with water.

6. Accidental Release Measures

Isolation and Evacuation:

Isolation and evacuation measures to take when a large amount of this chemical is accidentally released in an emergency.

>> Excerpt from ERG Guide 151 [Substances - Toxic (Non-Combustible)]:

>> IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

>> SPILL: Increase the immediate precautionary measure distance, in the downwind direction, as necessary.

>> FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

Spillage Disposal:

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

>> Personal protection: filter respirator for organic gases and particulates adapted to the airborne concentration of the substance, chemical protection suit including self-contained breathing apparatus and protective gloves. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable non-metallic containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

7. Handling And Storage

Safe Storage:

>> Well closed. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing. Separated from bases, metals and food and feedstuffs.

Storage Conditions:

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

8. Exposure Control/ Personal Protection

MAK (Maximale Arbeitsplatz Konzentration)

>> (inhalable fraction): 0.1 mg/m

Inhalation Risk:

>> A harmful concentration of airborne particles can be reached quickly when dispersed.

Effects of Short Term Exposure:

>> The substance may cause effects on the central nervous system. The effects may be delayed.

Effects of Long Term Exposure:

>> Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the nervous system, bone marrow, kidneys and liver. This substance is possibly carcinogenic to humans. Animal tests show that this substance possibly causes toxic effects upon human reproduction.

Exposure Prevention

>> AVOID ALL CONTACT! AVOID EXPOSURE OF BREASTFEEDING WOMEN!

Inhalation Prevention

>> Avoid inhalation of dust.

Skin Prevention

>> Protective gloves. Protective clothing.

Eye Prevention

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

Ingestion Prevention

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

9. Physical And Chemical Properties

Molecular Weight:

>> 290.8

Exact Mass:

>> 289.857116

Physical Description:

>> Hexachlorocyclohexane (all isomers) appears as white to yellow powder or flakes. Musty odor. The gamma isomer is known as lindane, a systemic insecticide. Toxic by ingestion or inhalation.

>> WHITE TO BROWNISH FLAKES OR WHITE CRYSTALLINE POWDER, WITH CHARACTERISTIC ODOUR.

Color/Form:

>> White or yellowish powder or flakes

Odor:

>> Musty

Melting Point:

>> Varies with isomeric composition

Solubility:

>> Insoluble in water

>> Solubility in water: very poor

Density:

>> 1.675

>> 1.9 g/cm³

Vapor Pressure:

>> VP: 0.0317 mm Hg at 20 °C

Stability/Shelf Life:

>> Stable under recommended storage conditions.

Decomposition:

>> Hazardous decomposition products formed under fire conditions - Carbon oxides, hydrogen chloride gas.

10. Stability And Reactivity

>> No rapid reaction with air. No rapid reaction with water.

11. Toxicological Information

Toxicity Summary:

>> IDENTIFICATION AND USE: Technical-grade hexachlorocyclohexane (HCH) is produced as a mixture of isomers (primarily the alpha, beta, gamma, delta, and epsilon isomers). It is white or yellowish powder or flakes. HCH is used as a systemic insecticide. It is also found in special shampoos, lotions, and powders for the treatment of hair lice. HUMAN EXPOSURE AND TOXICITY: After HCH ingestion there is a latent period varying from about 0.5 hr to several hours. Signs of hyperirritability and CNS excitation: vomiting, faintness, tremor, restlessness, muscle spasms, ataxia, and clonic and tonic convulsions. Infants and children may experience hyperpyrexia. There have been reports of postictal coma of

variable duration, leading within 24 hr to respiratory failure and death. A second bout of convulsions may occur after consciousness is regained. Retrograde amnesia has been described. Pulmonary edema (with cyanosis and dyspnea) was observed in 2 fatally poisoned children. Dermatitis and urticaria has been found occasionally. Three cases of leukemia (paramyeloblastic and myelomonocytic) were reported in men exposed to lindane with or without co-exposure to other chemicals. Many cases of aplastic anemia have also been associated with exposure to hexachlorocyclohexane or lindane, and death from lung cancer was increased among agricultural workers who had used hexachlorocyclohexane and a variety of other pesticides and herbicides. All HCH isomers induced dose-dependent cytotoxic effects, lindane being the most toxic. This isomer was also able to induce significant increase in micronucleus frequency. The genotoxic test of beta-HCH showed a positive induction of micronucleus at 100 ug/L and a significant cytotoxicity at 50 ug/L. alpha-HCH was unable to induce any significant increase in micronucleus frequency confirming that alpha-HCH is a non-genotoxic agent. ANIMAL STUDIES: HCH is neurotoxic at acute doses and causes degenerative effects on chronic exposure. Marked induction and inhibition of the antioxidant enzymes, especially in the cortex and to varying degrees in other brain regions, was seen in HCH treated rats. Oral exposure to technical-grade HCH or individual isomers caused tumors in rodents at two different tissue sites. Dietary administration of technical-grade HCH (66.5% alpha isomer, 11.4% beta isomer, 15.2% lindane, 6.4% delta isomer, and 0.5% other isomers), lindane, alpha- or beta-hexachlorocyclohexane, or mixtures of various isomers caused liver tumors in both sexes of several strains of mice. In addition, dietary exposure to technical-grade HCH caused tumors of the lymphoreticular system in mice of both sexes. In animals, ingestion of technical-grade HCH was reported to induce dominant-lethal mutations in mice. It did not induce chromosome aberrations in bone marrow cells of Syrian hamsters. Dietary feeding of technical HCH at 125 and 250 ppm to rats have not shown any adverse effects on reproductive function and were comparable to control animals in a three-generation study. ECOTOXICITY STUDIES: Signs of intoxication in mallards or pheasants at LD50 level include polydipsia, regurgitation, hyperexcitability, ataxia, ptosis, fluffed feathers, hyporeactivity, imbalance, slowness, stumbling, phonation, tenseness, shakiness, jitteriness, sitting, ataraxia, withdrawal, tremors, masseter tenseness, spasms, aggressiveness, fear-threat displays, backing, circuling, asthenia, tongue protruding sideways from bill (mallards), and immobility.

RAIS Toxicity Values:

This section provides the Chemical toxicity information from the Risk Assessment Information System.

Inhalation Unit Risk (IUR) (ug/m^3)^-1

>> 0.0018

Inhalation Unit Risk Reference

>> IRIS Current

Oral Chronic Reference Dose (RfDoc) (mg/kg-day)

>> 0.0009

Oral Chronic Reference Dose Reference

>> ATSDR Final

Oral Subchronic Chronic Reference Dose (RfDos) (mg/kg-day)

>> 0.002

Oral Subchronic Chronic Reference Dose Reference

>> ATSDR Final

Short-term Oral Reference Dose (RfDot) (mg/kg-day)

>> 0.002

Short-term Oral Reference Dose Reference

>> ATSDR Final

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

>> 6.3

Oral Slope Factor Reference

>> IRIS Current

Oral Acute Reference Dose (RfDoa)(mg/kg-day)

>> 0.08

Oral Acute Reference Dose Reference

>> ATSDR Final

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: 1) evidence in humans: inadequate; Overall summary evaluation of carcinogenic risk to humans is Group 2B: The agent is possibly carcinogenic to humans. /From table/ /Hexachlorocyclohexanes/

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

>> Hexachlorocyclohexanes

IARC Carcinogenic Classes

>> Group 2B: Possibly carcinogenic to humans

IARC Monographs

>> Volume 20: (1979) Some Halogenated Hydrocarbons

>> 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)

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

Health Effects:

>> Exposure to large amounts of hexachlorocyclohexane can harm the nervous system, producing a range of symptoms from headache and dizziness to seizures, convulsions and more rarely death. Hexachlorocyclohexane is known to damage the liver, kidneys, and immune system, as well as cause blood disorders and reproductive and developmental defects. Hexachlorocyclohexane is also potentially carcinogenic. (L108, L109)

Effects During Pregnancy and Lactation:

Drug effects during pregnancy and lactation.

>> ◉ Summary of Use during Lactation

>> Topical application of lindane can increase lindane milk levels for at least several days. Because it is potentially toxic in infants, is a persistent environmental contaminant, and possibly has estrogenic effects that could decrease lactation as well as affect the nursing infant, another agent should be used rather than lindane.

>> ◉ Effects in Breastfed Infants

>> In a telephone follow-up study, 9 mothers used lindane topically for head lice during breastfeeding. One reported irritability in her breastfed infant.

>> ◉ Effects on Lactation and Breastmilk

>> Hexachlorocyclohexane appears to have some estrogenic activity which theoretically could suppress lactation.

Exposure Routes:

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

>> Oral (L108) ; inhalation (L108) ; dermal (L108) Lindane is absorbed significantly through the skin. A mean peak blood concentration of 28 nanograms per mL occurred in infants and children 6 hours after total body application of lindane lotion for scabies.

Inhalation Exposure

>> Cough. Sore throat. Further see Ingestion.

Skin Exposure

>> MAY BE ABSORBED!

Eye Exposure

>> Redness.

Ingestion Exposure

>> Headache. Nausea. Vomiting. Diarrhoea. Dizziness. Tremor. Convulsions.

>> Exposure to large amounts of hexachlorocyclohexane can harm the nervous system, producing a range of symptoms from headache and dizziness to seizures, convulsions and more rarely death. (L109)

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), Lymphoreticular (Lymphoid), Neurological (Nervous System), Reproductive (Producing Children)

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

Toxicity Data:

>> Lindane is a moderately toxic compound via oral exposure, with a reported oral LD₅₀ of 88 to 190 mg/kg in rats. It is moderately toxic via the dermal route as well, with reported dermal LD₅₀ values of 500 to 1000 mg/kg in rats, 300 mg/kg in mice, 400 mg/kg in guinea pigs, and 300 mg/kg in rabbits. LD50: 76 mg/kg (Oral, Rat) (T14) LD50: 50 mg/kg (Dermal, Rabbit) (T14) LD50: 125 mg/kg (Intraperitoneal, Mouse) (T14)

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

>> Acute Oral: 0.003 mg/kg/day (L134) Intermediate Oral: 0.00001 mg/kg/day (L134)

Treatment:

Treatment when exposed to toxin

>> Hexachlorocyclohexane poisoning is treated symptomatically. Gastric lavage, followed by the administration of activated charcoal, may be performed upon ingestion. (L148)

Interactions:

>> Pentylenetetrazol-antagonistic action was a property of 4 isomers tested orally for their ability to reduce the sensitivity of rats to the convulsant action of pentylenetetrazol. Minimally effective concn of HCH in rat brain was on order of beta-HCH greater than gamma-HCH greater than delta-HCH which was greater than alpha-HCH.

Antidote and Emergency Treatment:

>> Emergency and Supportive Measures: Maintain an open airway and assist ventilation if necessary. Administer supplemental oxygen. As most liquid products are formulated in organic solvents, observe for evidence of pulmonary aspiration. Treat seizures, coma, and respiratory depression if they occur. Ventricular arrhythmias may respond to beta-adrenergic blockers such as propranolol and esmolol. Attach an electrocardiographic monitor, and observe the patient for at least 6-8 hours. /Chlorinated Hydrocarbon Pesticides/

Human Toxicity Excerpts:

>> /HUMAN EXPOSURE STUDIES/ ... /Investigators/ found that patients tolerated highly purified lindane at rate of 40 mg/person/day for 14 days, although same dosage of technical HCH produced diarrhea, vertigo, and headache.

Non-Human Toxicity Excerpts:

>> /LABORATORY ANIMALS: Acute Exposure/ ... Wistar rats /were treated/ with technical BHC (15% gamma isomer) by intubation of single dose as 5% soln in olive oil. Ten rats/group were treated with 100, 200, 300, 400 and 500 mg/kg of body wt. ... /They/ were observed for 48 hr and then sacrificed. ... Results indicated significant increase in serum glutamic pyruvic transaminase (SGPT) at all treatment levels, which indicates liver damage. Prothrombin time and coagulation time had ... incr, even in animals that had received lowest dose.

Human Toxicity Values:

Quantitative human toxicity values (e.g., lethal dose) for this compound.

>> Mean lethal dose of technical BHC may be about 400 mg/kg when ingested by man.

Non-Human Toxicity Values:

>> LD50 Rat oral 100 mg/kg

12. Ecological Information

Resident Soil (mg/kg)

>> 8.60e-02

Industrial Soil (mg/kg)

>> 3.60e-01

Resident Air (ug/m3)

>> 1.60e-03

Industrial Air (ug/m3)

>> 6.80e-03

Tapwater (ug/L)

>> 7.20e-03

MCL (ug/L)

>> 1.00e+00

Risk-based SSL (mg/kg)

>> 4.2e-05

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

>> 6.30e+00

Inhalation Unit Risk (ug/m3)-1

>> 1.80e-03

Chronic Oral Reference Dose (mg/kg-day)

>> 9.00e-04

Volatile

>> Volatile

Mutagen

>> Mutagen

Fraction of Contaminant Absorbed in Gastrointestinal Tract

>> 1

Fraction of Contaminant Absorbed Dermally from Soil

>> 0.1

MCL-based SSL (mg/kg)

>> 1.20e-03

ICSC Environmental Data:

>> The substance is very toxic to aquatic organisms. Bioaccumulation of this chemical may occur along the food chain, for example in fish and seafood. The substance may cause long-term effects in the aquatic environment. This substance does enter the environment under normal use. Great care, however, should be taken to avoid any additional release, for example through inappropriate disposal.

Sediment/Soil Concentrations:

Concentrations of this compound in sediment/soil.

>> SEDIMENT: Hexachlorocyclohexane (HCH) was detected from May 14-June 1, 1992 in sediment samples from the Gulf of Alaska, the Bering Sea and the Chukchi Sea at 250, 43 and 75 pg/g dry weight, respectively(1). HCH was detected in sediment samples from 7 of 8 locations on the Nile Delta at concentrations of 0.424-980.252 ng/g(2). HCH was detected at 1.19-134.99 ng/g in 12 sediment samples collected from 12 locations in Lake Burullus, Egypt in 2006(3). HCH was detected in sediment samples collected in 1992 in rural India, from 13 ponds without fish and 9 ponds with fish at mean concentrations of 47.41 and 10.82 ug/kg, respectively(4). HCH was detected in surface sediments (2 cm) collected April 1989 from three sampling sites in Lake Garda, Italy at 3.19-5.02 ng/g dry weight(5). Sediment samples from the shore of the Gallego River, Spain, downstream from a lindane factory collected May 30, 1989 had HCH concentrations of 7.04-102.64 ppb(6).

Fish/Seafood Concentrations:

Concentrations of this compound in fish or seafood.

>> Hexachlorocyclohexane (HCH) was detected in 8 of 73 liver and 20 of 72 muscle samples of grayling (Thymallus arcticus) at mean concentrations of 0.64 and 0.57 ng/g wet weight and in 15 of 44 liver and 10 of 44 muscle samples of lake trout (Salvelinus namaycush) at 2.26 and 0.56 ng/g wet weight, respectively, samples were collected late winter 1991-1993, from four Alaskan Arctic lakes(1). HCH was detected in eight deep-sea fish species caught in May 1992 off the West Greenland coast at mean concentrations of 9.3-22 ng/g lipid weight(2). HCH was detected in 100% of fish collected from rivers in Catalonia, Spain between May 1990 and Oct 1992 at a mean concentration of 0.021 mg/kg wet weight, 2.239 mg/kg lipid weight(3). Fish (Catla catla, Colisa fasciata, Mastocembelus armatus, Channa punctatus, Labeo rolita, Puntius sarana, Gambusia affinis) collected Nov 1992 from 22 ponds in rural India contained HCH at 0.114-32.161 mg/kg with a mean of 6.300 mg/kg(4). HCH was detected in rohu (Labeo rohita), common carp (Cyprinus carpio), grass carp (Ctenopharyngodon idella) catla (Catla catla) and silver carp (Hypophthalmichthys molitrix) at 0.005, 0.007, 0.006, 0.005 and 0.006 mg/kg, respectively, fish were collected from nine sites in Punjab, India(5). HCHs were detected in krill (Euphausia superba) collected from Admiralty Bay, Antarctica in the austral summers of 2004-2005 and 2005-2006 at 0.14-0.35 ng/g wet weight(6). HCH was detected in muscle tissue of adult and juvenile farmed tilapia (Oreochromis niloticus) collected from four fish farms located in three different states in Brazil at average concentrations of 0.075 and 0.065 ug/kg wet weight, respectively(7). Fish collected from locations in Lake Burullus, Egypt in 2006 contained HCH at 0.42-4.2 and 2.82-16.68 ng/g in Oresochromus niloticus and Clarries sp, respectively(8). In fish samples collected March 2011 from the Napoleon Gulf, Uganda, HCH was detected at 22-73 ng/g lipid weight in Nile perch (Lates niloticus) and at a maximum of 24 ug/g lipid weight in Nile tilapia (Oreochromis niloticus)(9).

Animal Concentrations:

Concentrations of this compound in animals.

>> Hexachlorocyclohexane (HCH) was detected in little brown bats (Myotis lucifugus) that had signs of white nose syndrome, collected from caves in eastern New York State from Feb to March 2008 at 0.7-6.9 ng/g lipid weight(1). HCH was detected in adult frogs, juvenile frogs, tadpoles and eggs (Rana clamitans) collected June 5 to Aug 26, 1998 from seven locations in southwestern Michigan at average concentrations of 0.12, 0.04, 0.33 and 0.34 ng/g, respectively(2). HCHs were not detected (detection limit not reported) in the tissue of seven adult green frogs (Rana clamitans) sampled from Fraser River valley, British Columbia, Canada(3). Nile monitor lizards (Varanus niloticus) collected from Flabougou and Niono, Mali and Niamey and Diffa, Niger from 2008 to 2009 did not contain HCHs(4). Earthworms (Lumbricus terrestris L) taken from the shore of the Gallego River, Spain, downstream from a lindane factory had HCH concentrations of 177.55-6809.7 ppb(5). HCH was detected in zooplankton collected in the Rangsit agricultural area, Thailand, over a one-year-period (June 2006-May 2007) at an average concentration of 1.80 ng/g wet weight(6).

Average Daily Intake:

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

>> Based on USA market basket surveys, adult average daily hexachlorocyclohexane intakes were(1-5):[Table#3322]

13. Disposal Considerations

Spillage Disposal

>> Personal protection: filter respirator for organic gases and particulates adapted to the airborne concentration of the substance, chemical protection suit including self-contained breathing apparatus and protective gloves. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable non-metallic containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

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.

>> PRECAUTIONS FOR "CARCINOGENS": There is no universal method of disposal that has been proved satisfactory for all carcinogenic compounds & specific methods of chem destruction ... published have not been tested on all kinds of carcinogen-containing waste. ... summary of avail methods & recommendations ... /given/ must be treated as guide only. /Chemical Carcinogens/

>> For more Disposal Methods (Complete) data for Hexachlorocyclohexanes (8 total), please visit the HSDB record page.

14. Transport Information

DOT

delta-BHC
6.1
UN Pack Group: III

IATA

delta-BHC
6.1,
UN Pack Group: III

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. /Hexachlorocyclohexane/

Regulatory Information

California Safe Cosmetics Program (CSCP) Reportable Ingredient

>> Hazard Traits - Carcinogenicity; Environmental Persistence; Hematotoxicity; Hepatotoxicity and Digestive System Toxicity; Nephrotoxicity and Other Toxicity to the Urinary System; Neurotoxicity

>> Authoritative List - ATSDR Neurotoxicants; CA TACs; CWA 303(c); CWA 303(d); IRIS Carcinogens - B2; OSPAR Priority Action Part A; Prop 65

>> Report - regardless of intended function of ingredient in the product

California Safe Cosmetics Program (CSCP) Reportable Ingredient

>> Hazard Traits - Carcinogenicity

>> Authoritative List - IARC Carcinogens - 2B; IRIS Carcinogens - B2; Prop 65

>> Report - regardless of intended function of ingredient in the product

REACH List of substances subject to POPs Regulation (POPs)

>> Substance: (1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-hexachlorocyclohexane

>> EC: 206-270-8

>> Date of inclusion in the POPs Regulation: 29-Apr-2004

>> POPs Regulation Annex: Annex I, part A; Annex IV

REACH List of substances subject to POPs Regulation (POPs)

>> Substance: BHC or HCH

>> EC: 210-168-9

>> Date of inclusion in the POPs Regulation: 29-Apr-2004

>> POPs Regulation Annex: Annex I, part A; Annex IV

REACH List of substances subject to POPs Regulation (POPs)

>> Substance: (1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-hexachlorocyclohexane

>> EC: 206-271-3

>> Date of inclusion in the POPs Regulation: 29-Apr-2004

>> POPs Regulation Annex: Annex I, part A; Annex IV

New Zealand EPA Inventory of Chemical Status

>> Cyclohexane, 1,2,3,4,5,6-hexachloro-: 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 - Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1.alpha.,2.beta.,3.alpha.,4.beta.,5.alpha.,6.beta.)-: Human health tier I assessment

>> IMAP assessments - Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1.alpha.,2.beta.,3.alpha.,4.beta.,5.alpha.,6.beta.)-: Environment tier I assessment

Chemical Assessment

>> IMAP assessments - Cyclohexane, 1,2,3,4,5,6-hexachloro-: Environment tier I assessment

>> IMAP assessments - Cyclohexane, 1,2,3,4,5,6-hexachloro-: Human health tier I assessment

Chemical Assessment

>> IMAP assessments - Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1.alpha.,2.alpha.,3.beta.,4.alpha.,5.beta.,6.beta.)-: Environment tier I assessment

>> IMAP assessments - Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1.alpha.,2.alpha.,3.beta.,4.alpha.,5.beta.,6.beta.)-: Human health tier I assessment

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