SAFETY DATA SHEET

Updated on 26/09/2024

1. Material Identification

Product Name : Bromoxynil octanoate
Catalog Number : io-1858
CAS Number : 1689-99-2
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)

Pictogram(s)

GHS Hazard Statements

>> H301+H331 (20.1%): Toxic if swallowed or if inhaled [Danger Acute toxicity, oral; acute toxicity, inhalation]

>> H301 (30.9%): Toxic if swallowed [Danger Acute toxicity, oral]

>> H302+H312 (27.3%): Harmful if swallowed or in contact with skin [Warning Acute toxicity, oral; acute toxicity, dermal]

>> H302 (69.1%): Harmful if swallowed [Warning Acute toxicity, oral]

>> H312 (56.8%): Harmful in contact with skin [Warning Acute toxicity, dermal]

>> H317 (100%): May cause an allergic skin reaction [Warning Sensitization, Skin]

>> H331 (100%): Toxic if inhaled [Danger Acute toxicity, inhalation]

>> H361 (79.9%): Suspected of damaging fertility or the unborn child [Warning Reproductive toxicity]

>> H361d (21.6%): Suspected of damaging the unborn child [Warning Reproductive toxicity]

>> H400 (100%): Very toxic to aquatic life [Warning Hazardous to the aquatic environment, acute hazard]

>> H410 (100%): Very toxic to aquatic life with long lasting effects [Warning Hazardous to the aquatic environment, long-term hazard]

Precautionary Statement Codes

>> P203, P261, P264, P270, P271, P272, P273, P280, P301+P316, P301+P317, P302+P352, P304+P340, P316, P317, P318, P321, P330, P333+P317, P362+P364, P391, P403+P233, 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)

3. Composition/Information On Ingredients

Chemical name : Bromoxynil octanoate
CAS Number : 1689-99-2
Molecular Formula : C15H17Br2NO2
Molecular Weight : 403.1100 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)

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)

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)

7. Handling And Storage

Storage Conditions:

>> Handle carefully ... Do not use or store near heat or open flame. Store at temperature above 3 °F. If allowed to freeze, remix before using. Do not contaminate water, food or feed by storage or disposal of this chemical.

8. Exposure Control/ Personal Protection

>> 5.0 [mg/m3], as CN

Exposure Control and Personal Protection

Maximum Allowable Concentration (MAK)

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

9. Physical And Chemical Properties

Molecular Weight:

>> 403.11

Exact Mass:

>> 402.96055

Physical Description:

>> Bromoxynil octanoate, [solid] appears as a solid. Used as a selective contact herbicide.

Color/Form:

>> Cream, waxy solid

Odor:

>> Characteristic odor

Melting Point:

>> 45-46 °C

Flash Point:

>> 102 °F, 39 °C (TCC)

Solubility:

>> In water, 0.08 mg/L at 25 °C

Vapor Pressure:

>> 0.0000048 [mmHg]

LogP:

>> log Kow = 5.4

Stability/Shelf Life:

>> Susceptible to hydrolysis by acids and alkalis.

Decomposition:

>> When heated to decomposition it emits toxic fumes of /nitrogen oxide and hydrogen bromide/.

10. Stability And Reactivity

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

11. Toxicological Information

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.

>> Other Poison - Uncoupler

>> Skin Sensitizer - An agent that can induce an allergic reaction in the skin.

Toxicity Data:

>> LC50 (rat) = 720 mg/m3;

Antidote and Emergency Treatment:

>> Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if needed. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary ... . Monitor for shock and treat if necessary ... . Anticipate seizures and treat if necessary ... . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport ... . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool ... . Cover skin burns with dry sterile dressings after decontamination ... . /Poison A and B/

Human Toxicity Excerpts:

>> /SIGNS AND SYMPTOMS/ Four workers in a manufacturing plant making both bromoxynil and ionoxynil developed typical symptoms of uncoupler poisoning including excessive perspiration, thirst, fever, emesis, myalgia, and weight loss. ... The effects reversed rapidly after exposure ceased.

Non-Human Toxicity Excerpts:

>> /LABORATORY ANIMALS: Subchronic or Prechronic Exposure/ Bromoxynil octanoate technical grade powder (no purity stated); doses of 0, 20, 50, 125, 312, 781 or 1953 ppm fed in the diet to groups of 10/sex Sprague-Dawley rats per group with 30/sex in controls, for 13 weeks. Increased kidney and liver weights at 781 and 1953 ppm in males and females and changed blood profile at 1953 ppm. The absolute weight of the thyroid and pituitary were decreased in the males; the respective LOELs were 125 ppm and 312 ppm. Paradoxically, increased absolute thyroid weight was seen in the 20 ppm and 50 ppm female groups and increased absolute pituitary weight was seen in the 50 ppm female group. Since an increasing dose response was not seen, both of these increases may be spurious. However, the magnitude of the difference from the control values was impressive and may be indicative of a significant biological effect.

Non-Human Toxicity Values:

>> LD50 Mouse oral 245 mg/kg

12. Ecological Information

Resident Soil (mg/kg)

>> 6.70e+00

Industrial Soil (mg/kg)

>> 3.20e+01

Tapwater (ug/L)

>> 2.40e-01

MCL (ug/L)

>> 8.0E+01(G)

Risk-based SSL (mg/kg)

>> 2.10e-03

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

>> 1.00e-01

Chronic Oral Reference Dose (mg/kg-day)

>> 1.50e-02

Volatile

>> Volatile

Mutagen

>> Mutagen

Fraction of Contaminant Absorbed in Gastrointestinal Tract

>> 1

13. Disposal Considerations

Disposal Methods

>> SRP: The most favorable course of action is to use an alternative chemical product with less inherent propensity for occupational exposure or environmental contamination. 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 soil or water; effects on animal, aquatic, and plant life; and conformance with environmental and public health regulations.

14. Transport Information

DOT

Bromoxynil octanoate

IATA

Bromoxynil octanoate

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15. Regulatory Information

Regulatory Information

REACH Registered Substance

>> Status: Active Update: 13-01-2022 https://echa.europa.eu/registration-dossier/-/registered-dossier/33062

New Zealand EPA Inventory of Chemical Status

>> Bromoxynil octanoate: 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 - Octanoic acid, 2,6-dibromo-4-cyanophenyl ester: Environment tier I assessment

>> IMAP assessments - Octanoic acid, 2,6-dibromo-4-cyanophenyl ester: Human health tier I assessment

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