ionz

SAFETY DATA SHEET

Updated on 26/09/2024

1. Material Identification

Product Name : 4-Chloro-o-toluidine, hydrochloride
Catalog Number : io-1993
CAS Number : 3165-93-3
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

>> This chemical does not meet GHS hazard criteria for 96.6% (28 of 29) of all reports. Pictograms displayed are for 3.4% (1 of 29) of reports that indicate hazard statements.

GHS Hazard Statements

>> Not Classified

>> Reported as not meeting GHS hazard criteria by 28 of 29 companies (only 3.4% companies provided GHS information). For more detailed information, please visit ECHA C&L website.

Pictogram(s)

Precautionary Statement Codes

>> P203, P261, P262, P264, P270, P271, P273, P280, P301+P316, P302+P352, P304+P340, P316, P318, P321, P330, P361+P364, P391, P403+P233, P405, and P501

Health Hazards:

>> Excerpt from ERG Guide 153 [Substances - Toxic and/or Corrosive (Combustible)]:

>> TOXIC and/or CORROSIVE; inhalation, ingestion or skin contact with material may cause severe injury or death. Methyl bromoacetate (UN2643) is an eye irritant/lachrymator (causes flow of tears). Contact with molten substance may cause severe burns to skin and eyes. 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)

ERG 2024, Guide 153 (4-Chloro-o-toluidine hydrochloride, solid; 4-Chloro-o-toluidine hydrochloride, solution)

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>> Excerpt from ERG Guide 153 [Substances - Toxic and/or Corrosive (Combustible)]:

>> Combustible material: may burn but does not ignite readily. When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Corrosives in contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. Runoff may pollute waterways. Substance may be transported in a molten form. (ERG, 2024)

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>> Containers may explode when heated.

>> Runoff may pollute waterways.

>> Substance may be transported in a molten form.

3. Composition/Information On Ingredients

Chemical name : 4-Chloro-o-toluidine, hydrochloride
CAS Number : 3165-93-3
Molecular Formula : C7H9Cl2N
Molecular Weight : 178.0600 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)

ERG 2024, Guide 153 (4-Chloro-o-toluidine hydrochloride, solid; 4-Chloro-o-toluidine hydrochloride, solution)

>> General First Aid:

>> Call 911 or emergency medical service.

>> Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and avoid contamination.

>> Move victim to fresh air if it can be done safely.

>> Administer oxygen if breathing is difficult.

>> If victim is not breathing:

>> DO NOT perform mouth-to-mouth resuscitation; the victim may have ingestedor inhaled the substance.

>> If equipped and pulse detected, wash face and mouth, then give artificial respiration using a proper respiratory medical device (bag-valve mask, pocket mask equipped with a one-way valve or other device).

>> If no pulse detected or no respiratory medical device available, provide continuouscompressions. Conduct a pulse check every two minutes or monitor for any signs of spontaneous respirations.

>> Remove and isolate contaminated clothing and shoes.

>> For minor skin contact, avoid spreading material on unaffected skin.

>> In case of contact with substance, remove immediately by flushing skin or eyes with running water for at least 20 minutes.

>> For severe burns, immediate medical attention is required.

>> Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed.

>> Keep victim calm and warm.

>> Keep victim under observation.

>> For further assistance, contact your local Poison Control Center.

>> Note: Basic Life Support (BLS) and Advanced Life Support (ALS) should be done by trained professionals.

>> Specific First Aid:

>> For corrosives, in case of contact, immediately flush skin or eyes with running water for at least 30 minutes. Additional flushing may be required.

>> Removal of solidified molten material from skin requires medical assistance.

>> In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping paper and/or the "ERAP" section.

5. Fire Fighting Measures

>> Excerpt from ERG Guide 153 [Substances - Toxic and/or Corrosive (Combustible)]:

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

>> LARGE FIRE: Dry chemical, CO2, alcohol-resistant foam or water spray. If it can be done safely, move undamaged containers away from the area around the fire. Dike runoff from fire control for later disposal.

>> 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. (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 153 [Substances - Toxic and/or Corrosive (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)

Evacuation: ERG 2024, Guide 153 (4-Chloro-o-toluidine hydrochloride, solid; 4-Chloro-o-toluidine hydrochloride, solution)

>> 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

>> For non-highlighted materials: 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.

Accidental Release Measures

Public Safety: ERG 2024, Guide 153 (4-Chloro-o-toluidine hydrochloride, solid; 4-Chloro-o-toluidine hydrochloride, solution)

>> CALL 911. Then call emergency response telephone number on shipping paper. If shipping paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.

>> Keep unauthorized personnel away.

>> Stay upwind, uphill and/or upstream.

>> Ventilate closed spaces before entering, but only if properly trained and equipped.

Spill or Leak: ERG 2024, Guide 153 (4-Chloro-o-toluidine hydrochloride, solid; 4-Chloro-o-toluidine hydrochloride, solution)

>> ELIMINATE all ignition sources (no smoking, flares, sparks or flames) from immediate area.

>> Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

>> Stop leak if you can do it without risk.

>> Prevent entry into waterways, sewers, basements or confined areas.

>> Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

>> DO NOT GET WATER INSIDE CONTAINERS.

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7. Handling And Storage

Storage Conditions:

>> PRECAUTIONS FOR "CARCINOGENS": Storage site should be as close as practical to lab in which carcinogens are to be used, so that only small quantities required for ... expt need to be carried. Carcinogens should be kept in only one section of cupboard, an explosion-proof refrigerator or freezer (depending on chemicophysical properties ...) that bears

appropriate label. An inventory ... should be kept, showing quantity of carcinogen & date it was acquired ... Facilities for dispensing ... should be contiguous to storage area. /Chemical Carcinogens/

8. Exposure Control/ Personal Protection

Emergency Response: ERG 2024, Guide 153 (4-Chloro-o-toluidine hydrochloride, solid; 4-Chloro-o-toluidine hydrochloride, solution)

>> Small Fire

>> Dry chemical, CO2 or water spray.

>> Large Fire

>> Dry chemical, CO2, alcohol-resistant foam or water spray.

>> If it can be done safely, move undamaged containers away from the area around the fire.

>> Dike runoff from fire control for later disposal.

>> 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.

Exposure Control and Personal Protection

Protective Clothing: ERG 2024, Guide 153 (4-Chloro-o-toluidine hydrochloride, solid; 4-Chloro-o-toluidine hydrochloride, solution)

>> Wear positive pressure self-contained breathing apparatus (SCBA).

>> Wear chemical protective clothing that is specifically recommended by the manufacturer when there is NO RISK OF FIRE.

>> Structural firefighters' protective clothing provides thermal protection but only limited chemical protection.

Protective Clothing: ERG 2024, Guide 153 (4-Chloro-o-toluidine hydrochloride, solid; 4-Chloro-o-toluidine hydrochloride, solution)

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9. Physical And Chemical Properties

Molecular Weight:

>> 178.06

Exact Mass:

>> 177.0112047

Physical Description:

>> 4-chloro-o-toluidine hydrochloride appears as a white crystalline solid. Toxic by skin absorption and inhalation (dust).

Melting Point:

>> 198 to 201 °F (decomposes) (NTP, 1992)

Solubility:

>> greater than or equal to 100 mg/mL at 72 °F (NTP, 1992)

Vapor Pressure:

>> 0.04 [mmHg]

10. Stability And Reactivity

>> This chemical may be sensitive to prolonged exposure to air and light. Water soluble.

11. Toxicological Information

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).

>> The Human Health Assessment Group in EPA's Office of Health and Environmental Assessment has evaluated 4-chloro-o-toluidine hydrochloride for carcinogenicity. According to their analysis, the weight-of-evidence for 4-chloro-o-toluidine hydrochloride is group B2, which is based on no evidence in humans and sufficient evidence in animals. As a group B2 chemical, 4-chloro-o-toluidine hydrochloride is considered to be probably carcinogenic to humans.

Adverse Effects:

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

>> Methemoglobinemia - The presence of increased methemoglobin in the blood; the compound is classified as secondary toxic effect

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

Human Toxicity Excerpts:

>> PARA-CHLORO-ORTHO-TOLUIDINE INHIBITED RNA SYNTHESIS IN HELA CELLS. /PARA-CHLORO-ORTHO-TOLUIDINE/

Non-Human Toxicity Excerpts:

>> 4-CHLORO-O-TOLUIDINE HYDROCHLORIDE WAS TESTED ORALLY. RATS OF EACH SEX WERE ADMINISTERED 4-CHLORO-O-TOLUIDINE HYDROCHLORIDE AT EITHER 1250 OR 5000 PPM FOR 107 WEEKS. MICE WERE ADMINISTERED 4-CHLORO-O-TOLUIDINE HYDROCHLORIDE AT EITHER 3750 OR 15000 PPM FOR THE MALES AND EITHER 1250 OR 5000 PPM FOR THE FEMALES, FOR 99 WEEKS, EXCEPT FOR THE HIGH DOSE FEMALES (92 WEEKS). IN RATS, NO TUMORS OCCURRED AT INCIDENCES WHICH COULD CLEARLY BE RELATED TO THE ADMINISTRATION OF 4-CHLORO-O-TOLUIDINE HYDROCHLORIDE. IN BOTH MALE AND FEMALE MICE, HEMANGIOSARCOMAS OCCURRED AT INCIDENCES THAT WERE DOSE RELATED. THE COMBINED INCIDENCES OF HEMANGIOSARCOMAS AND HEMANGIOMAS ALSO WERE DOSE RELATED AND WERE SIGNIFICANTLY HIGHER IN THE DOSED GROUPS OF MALE AND FEMALE MICE THAN IN CORRESPONDING CONTROLS.

12. Ecological Information

Resident Soil (mg/kg)

>> 1.20e+00

Industrial Soil (mg/kg)

>> 5.00e+00

Tapwater (ug/L)

>> 1.70e-01

MCL (ug/L)

>> 1.00e+03

Risk-based SSL (mg/kg)

>> 1.50e-04

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

>> 4.60e-01

Volatile

>> Volatile

Mutagen

>> Mutagen

Fraction of Contaminant Absorbed in Gastrointestinal Tract

>> 1

Fraction of Contaminant Absorbed Dermally from Soil

>> 0.1

13. Disposal Considerations

Disposal Methods

>> Generators of waste (equal to or greater than 100 kg/mo) containing this contaminant, EPA hazardous waste number U049, must conform with USEPA regulations in storage, transportation, treatment and disposal of waste.

>> Controlled incineration (oxides of nitrogen are removed from the effluent gas by scrubbers and/or thermal devices). Recommendable methods: Incineration, & landfill.

>> A potential candidate for fluidized bed incineration at a temperature range of 450 to 980 °C and residence times of seconds for liquids and gases, and longer for solids. A potential candidate for rotary kiln incineration at a temperature range of 820 to 1,600 °C and residence times of seconds for liquids and gases, and hours for solids. A potential candidate for liquid injection incineration at a temperature range of 650 to 1,600 °C and a residence time of 0.1 to 2 seconds.

>> 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 4-CHLORO-O-TOLUIDINE HYDROCHLORIDE (8 total), please visit the HSDB record page.

14. Transport Information

DOT

4-Chloro-o-toluidine, hydrochloride

Reportable Quantity of 100 lb or 45

IATA

4-Chloro-o-toluidine, hydrochloride

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15. Regulatory Information

Regulatory Information

The Australian Inventory of Industrial Chemicals

>> Chemical: Benzenamine, 4-chloro-2-methyl-, hydrochloride

16. Other Information

Other Safety Information

Chemical Assessment

>> IMAP assessments - Benzenamine, 4-chloro-2-methyl- and its hydrochloride: 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."