

# 4-Azidoaniline hydrochloride

sc-252122



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

4-Azidoaniline hydrochloride

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### NFPA



### SUPPLIER

Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, California 95060  
800.457.3801 or 831.457.3800

### EMERGENCY

ChemWatch  
Within the US & Canada: 877-715-9305  
Outside the US & Canada: +800 2436 2255  
(1-800-CHEMCALL) or call +613 9573 3112

### SYNONYMS

C6-H6-N4.HCl, N3C6H4NH2.HCl, "4-aminobiphenyl azide hydrochloride"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	3	
Toxicity:	3	
Body Contact:	3	
Reactivity:	3	
Chronic:	2	

Min/Nil=0  
Low=1  
Moderate=2  
High=3  
Extreme=4



### CANADIAN WHMIS SYMBOLS



### EMERGENCY OVERVIEW

## RISK

Toxic by inhalation, in contact with skin and if swallowed.  
Irritating to eyes and respiratory system.  
Highly flammable.

## POTENTIAL HEALTH EFFECTS

### ACUTE HEALTH EFFECTS

#### SWALLOWED

■ Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.

#### EYE

■ This material can cause eye irritation and damage in some persons.

#### SKIN

■ Skin contact with the material may produce toxic effects; systemic effects may result following absorption.

■ The material is not thought to be a skin irritant (as classified using animal models).

Abrasive damage however, may result from prolonged exposures.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

#### INHALED

■ Inhalation of dusts, generated by the material, during the course of normal handling, may produce toxic effects.

■ The material can cause respiratory irritation in some persons.

The body's response to such irritation can cause further lung damage.

■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

## CHRONIC HEALTH EFFECTS

■ Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
4-azidoaniline hydrochloride	91159-79-4	>98

## Section 4 - FIRST AID MEASURES

#### SWALLOWED

· Give a slurry of activated charcoal in water to drink. NEVER GIVE AN UNCONSCIOUS PATIENT WATER TO DRINK. · At least 3 tablespoons in a glass of water should be given.

#### EYE

■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

#### SKIN

■ If skin or hair contact occurs: · Quickly but gently, wipe material off skin with a dry, clean cloth. · Immediately remove all contaminated clothing, including footwear.

#### INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

## NOTES TO PHYSICIAN

■ Treat symptomatically.

for poisons (where specific treatment regime is absent):

-----BASIC TREATMENT

· Establish a patent airway with suction where necessary.

· Watch for signs of respiratory insufficiency and assist ventilation as necessary.

## Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG): Not available.

Upper Explosive Limit (%): Not available.

Specific Gravity (water=1): Not available

Lower Explosive Limit (%): Not available.

## EXTINGUISHING MEDIA

### ■ For SMALL FIRES:

Dry chemical, CO<sub>2</sub>, water spray or foam.

For LARGE FIRES:

Water-spray, fog or foam.

## FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.

· Wear full body protective clothing with breathing apparatus.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

## GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Flammable solid which burns and propagates flame easily, even when partly wetted with water.

· Any source of ignition, i.e. friction, heat, sparks or flame, may cause fire or explosion.

Combustion products include: carbon dioxide (CO<sub>2</sub>), hydrogen chloride, phosgene, nitrogen oxides (NO<sub>x</sub>), other pyrolysis products typical of burning organic material.

## FIRE INCOMPATIBILITY

■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

## PERSONAL PROTECTION

Glasses:

Chemical goggles.

Gloves:

Respirator:

Particulate dust filter.

## Section 6 - ACCIDENTAL RELEASE MEASURES

### MINOR SPILLS

· Remove all ignition sources.

· DO NOT touch or walk through spilled material.

### MAJOR SPILLS

· Clear area of personnel and move upwind.

· Alert Emergency Responders and tell them location and nature of hazard.

## Section 7 - HANDLING AND STORAGE

### PROCEDURE FOR HANDLING

· Avoid all personal contact, including inhalation.

· Wear protective clothing when risk of overexposure occurs.

Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.

· Do NOT cut, drill, grind or weld such containers.

· In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

### RECOMMENDED STORAGE METHODS

■ For low viscosity materials and solids: Drums and jerricans must be of the non-removable head type. Where a can is to be used as an inner package, the can must have a screwed enclosure.

### STORAGE REQUIREMENTS

■ FOR MINOR QUANTITIES:

· Store in an indoor fireproof cabinet or in a room of noncombustible construction

· Provide adequate portable fire-extinguishers in or near the storage area.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m <sup>3</sup>	STEL ppm	STEL mg/m <sup>3</sup>	Peak ppm	Peak mg/m <sup>3</sup>	TWA F/CC	Notes
Canada - British Columbia Occupational Exposure Limits	4-azidoaniline hydrochloride (Turpentine and selected monoterpenes Revised 2003)	20							S

Canada - Alberta Occupational Exposure Limits	4-azidoaniline hydrochloride (Turpentine and selected monoterpenes)	20	111	
US - Oregon Permissible Exposure Limits (Z-3)	4-azidoaniline hydrochloride (Inert or Nuisance Dust: (d) Total dust)		10	Oregon Permissible Exposure Limits (PELs) are different than the federal limits.
US OSHA Permissible Exposure Levels (PELs) - Table Z3	4-azidoaniline hydrochloride (Inert or Nuisance Dust: (d) Respirable fraction)		5	
US OSHA Permissible Exposure Levels (PELs) - Table Z3	4-azidoaniline hydrochloride (Inert or Nuisance Dust: (d) Total dust)		15	
US - Hawaii Air Contaminant Limits	4-azidoaniline hydrochloride (Particulates not other wise regulated - Total dust)		10	
US - Hawaii Air Contaminant Limits	4-azidoaniline hydrochloride (Particulates not other wise regulated - Respirable fraction)		5	
US - Oregon Permissible Exposure Limits (Z-3)	4-azidoaniline hydrochloride (Inert or Nuisance Dust:(d) Respirable fraction)		5	Oregon Permissible Exposure Limits (PELs) are different than the federal limits.
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	4-azidoaniline hydrochloride (Particulates Not Otherwise Classified (PNOC))		10	
US ACGIH Threshold Limit Values (TLV)	4-azidoaniline hydrochloride (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)		10	See Appendix B current TLV/BEI Book
US ACGIH Threshold Limit Values (TLV)	4-azidoaniline hydrochloride (Particles (Insoluble or Poorly Soluble) [NOS] Respirable particles)		3	See Appendix B current TLV/BEI Book
Canada - Nova Scotia Occupational Exposure Limits	4-azidoaniline hydrochloride (Particles (Insoluble or Poorly Soluble))		3	See Appendix B current TLV/BEI Book

	[NOS] Respirable particles)			
US - Washington Permissible exposure limits of air contaminants	4-azidoaniline hydrochloride (Particulates not otherwise regulated - Total particulate)	10	20	
US - Washington Permissible exposure limits of air contaminants	4-azidoaniline hydrochloride (Particulates not otherwise regulated - Respirable fraction)	5	10	
Canada - Nova Scotia Occupational Exposure Limits	4-azidoaniline hydrochloride (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)	10		See Appendix B current TLV/BEI Book

ENDOELTABLE

## PERSONAL PROTECTION



### RESPIRATOR

- Particulate dust filter. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)
- Consult your EHS staff for recommendations

### EYE

- Safety glasses with side shields.
- Chemical goggles.

### HANDS/FEET

- Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
  - frequency and duration of contact,
  - chemical resistance of glove material,
  - glove thickness and
  - dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

Wear physical protective gloves, eg. leather.

### OTHER

- Overalls.
- Eyewash unit.
- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

### ENGINEERING CONTROLS

- For large scale or continuous use:
  - Spark-free, earthed ventilation system, venting directly to the outside and separate from usual ventilation systems
  - Provide dust collectors with explosion vents.
  - Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
  - Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Does not mix with water.

Toxic or noxious vapours/gas.

State	DIVIDED SOLID	Molecular Weight	170.60
Melting Range (°F)	329 (decomposes)	Viscosity	Not Applicable
Boiling Range (°F)	Not applicable	Solubility in water (g/L)	Immiscible
Flash Point (°F)	Not available	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available.	Vapour Pressure (mmHG)	Not available.
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available.	Relative Vapor Density (air=1)	Not Applicable
Volatile Component (%vol)	Not available.	Evaporation Rate	Not Applicable

### APPEARANCE

Tan crystalline flakes; does not mix with water.

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

### STORAGE INCOMPATIBILITY

· Toxic gases are formed by mixing azo and azido compounds with acids, aldehydes, amides, carbamates, cyanides, inorganic fluorides, halogenated organics, isocyanates, ketones, metals, nitrides, peroxides, phenols, epoxides, acyl halides, and strong oxidizing or reducing agents.

· Flammable gases are formed by mixing azo and azido compounds with alkali metals.

Organic azides are often heat-, or shock-sensitive compounds of varying degrees of stability; they are frequently sensitive to traces of strong acids and metallic salts which may catalyze explosive decomposition. The presence of more than one azido group greatly reduces the stability of the compound.

Avoid reaction with oxidizing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

## Section 11 - TOXICOLOGICAL INFORMATION

4-azidoaniline hydrochloride

### TOXICITY AND IRRITATION

#### 4-AZIDOANILINE HYDROCHLORIDE:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

No significant acute toxicological data identified in literature search.

### CARCINOGEN

Alpha particles (see Radionuclides)	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	
Radionuclides, alpha-particle-emitting, internally deposited (NB: Specific radionuclides for which there is sufficient evidence in humans are also listed individually as Group 1 agents)	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	1

RADIONUCLIDES	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
RADIONUCLIDES	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65
Polychlorinated biphenyls (PCBs) (high risk)(P)	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors	IARC Class	2A
Polychlorinated biphenyls (PCBs) (low risk)(P)	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors	IARC Class	
PBIT_(PERS~	US - Maine Chemicals of High Concern List	Carcinogen	
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	IARC
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	EU Carcinogen

## Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
4-azidoaniline hydrochloride	No Data Available	No Data Available	LOW	

### GESAMP/EHS COMPOSITE LIST - GESAMP Hazard Profiles

Name / EHS TRN A1a A1b A1 A2 B1 B2 C1 C2 C3 D1 D2 D3 E1 E2 E3 Cas No / RTECS No \_\_\_\_\_  
 \_\_\_\_\_ Poly(2+)c 224 574 4 4 NR (4) NI (1) (1) (2) (1) (1) (1) CM S 3 ylcic 6 aromatics / CAS:91159 - 79- 4 /

Legend: EHS=EHS Number (EHS=GESAMP Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships)  
 NRT=Net Register Tonnage, A1a=Bioaccumulation log Pow, A1b=Bioaccumulation BCF, A1=Bioaccumulation, A2=Biodegradation,  
 B1=Acute aquatic toxicity LC/EC10 (mg/l), B2=Chronic aquatic toxicity NOEC (mg/l), C1=Acute mammalian oral toxicity LD50 (mg/kg),  
 C2=Acute mammalian dermal toxicity LD50 (mg/kg), C3=Acute mammalian inhalation toxicity LC50 (mg/kg), D1=Skin irritation & corrosion,  
 D2=Eye irritation & corrosion, D3=Long-term health effects, E1=Tainting, E2=Physical effects on wildlife & benthic habitats, E3=Interference  
 with coastal amenities, For column A2: R=Readily biodegradable, NR=Not readily biodegradable. For column D3: C=Carcinogen,  
 M=Mutagenic, R=Reprotoxic, S=Sensitising, A=Aspiration hazard, T=Target organ systemic toxicity, L=Lung injury, N=Neurotoxic,  
 I=Immunotoxic. For column E1: NT=Not tainting (tested), T=Tainting test positive. For column E2: Fp=Persistent floater, F=Floater, S=Sinking  
 substances. The numerical scales start from 0 (no hazard), while higher numbers reflect increasing hazard. (GESAMP/EHS Composite List  
 of Hazard Profiles - Hazard evaluation of substances transported by ships)

## Section 13 - DISPOSAL CONSIDERATIONS

### US EPA Waste Number & Descriptions

A. General Product Information

Ignitability characteristic: use EPA hazardous waste number D001 (waste code I)

### Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

! Puncture containers to prevent re-use and bury at an authorized landfill.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

## Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols: G Hazard class or Division: 4.1  
Identification Numbers: UN2926 PG: II  
Label Codes: 4.1, 6.1 Special provisions: A1, IB6,  
IP2, T3,  
TP33  
Packaging: Exceptions: 151 Packaging: Non- bulk: 212  
Packaging: Exceptions: 151 Quantity limitations: 15 kg  
Passenger aircraft/rail:  
Quantity Limitations: Cargo 50 kg Vessel stowage: Location: B  
aircraft only:  
Vessel stowage: Other: 40  
Hazardous materials descriptions and proper shipping names:  
Flammable solids, toxic, organic, n.o.s.

#### **Air Transport IATA:**

UN/ID Number: 2926 Packing Group: II  
Special provisions: A3  
Cargo Only  
Packing Instructions: 448 Maximum Qty/Pack: 50 kg  
Passenger and Cargo Passenger and Cargo  
Packing Instructions: Y440 Maximum Qty/Pack: 15 kg  
Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity  
Packing Instructions: 445 Maximum Qty/Pack: 1 kg  
Shipping Name: FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S.  
\*(CONTAINS 4-AZIDOANILINE HYDROCHLORIDE)

#### **Maritime Transport IMDG:**

IMDG Class: 4.1 IMDG Subrisk: 6.1  
UN Number: 2926 Packing Group: II  
EMS Number: F-A,S-G Special provisions: 274 915  
Limited Quantities: 1 kg  
Shipping Name: FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S.(contains 4-azidoaniline hydrochloride)

## Section 15 - REGULATORY INFORMATION

## Section 16 - OTHER INFORMATION

### **LIMITED EVIDENCE**

- Cumulative effects may result following exposure\*.  
\* (limited evidence).

### **Ingredients with multiple CAS Nos**

Ingredient Name CAS 4-azidoaniline hydrochloride 91159-79-4, 14860-64-1

*Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.*

- Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:  
[www.chemwatch.net/references](http://www.chemwatch.net/references).

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

*This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.*

Issue Date: Nov-25-2009

Print Date: Jul-8-2011