

# 2-Amino-1-methyl-6-phenylimidazo[4,5-b]pyridine

sc-208996



The Power to Question

## Material Safety Data Sheet

Hazard Alert Code  
Key:

EXTREME

HIGH

MODERATE

LOW

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

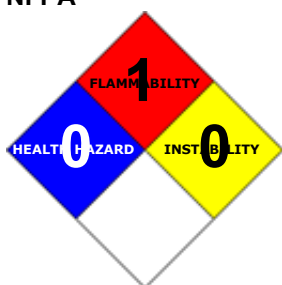
### PRODUCT NAME

2-Amino-1-methyl-6-phenylimidazo[4,5-b]pyridine

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### NFPA



### SUPPLIER

Company: Santa Cruz Biotechnology, Inc.

Address:

2145 Delaware Ave

Santa Cruz, CA 95060

Telephone: 800.457.3801 or 831.457.3800

Emergency Tel: CHEMWATCH: From within the US and

Canada: 877-715-9305

Emergency Tel: From outside the US and Canada: +800 2436

2255 (1-800-CHEMCALL) or call +613 9573 3112

### PRODUCT USE

Heterocyclic (aromatic) amine derived from pyrolysis of fish protein.

### SYNONYMS

C13-H12-N4, "1H-imidazo[4, 5-b]pyridin-1-amine, 1-methyl-6-phenyl-", "1H-imidazo[4, 5-b]pyridin-1-amine, 1-methyl-6-phenyl-", "heterocyclic amine"

## Section 2 - HAZARDS IDENTIFICATION

### CANADIAN WHMIS SYMBOLS



### EMERGENCY OVERVIEW

#### RISK

Limited evidence of a carcinogenic effect.

#### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

#### SWALLOWED

■ Although ingestion is not thought to produce harmful effects, the material may still be damaging to the health of the individual following ingestion, especially where pre-existing organ (e.g. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality (death) rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of

insignificant quantities is not thought to be cause for concern.

- Considered an unlikely route of entry in commercial/industrial environments.

#### EYE

- Although the material is not thought to be an irritant, direct contact with the eye may produce transient discomfort characterized by tearing or conjunctival redness (as with windburn).

#### SKIN

- The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
- Toxic effects may result from skin absorption.

#### INHALED

- The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
- 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

- There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.

- Principal routes of exposure are usually by skin contact/absorption and inhalation of generated dust.

Some heterocyclic amines have been suspected of causing liver cancer. These compounds may be formed from foods via cooking. Some people are more susceptible to the effects of these substances than others. Exposure in conjunction with visible light may cause mutations and birth defects.







Thirty day old female rats gavaged with 50 micromolar PhIP weekly for 8 weeks were killed 41 weeks after the last dose. PhIP administration significantly retarded body weight gain; palpable mammary tumours were detected 8 weeks after the commencement of dosing. At necropsy 83% of the animals had mammary tumours; most were malignant (mammary adenocarcinomas). Evidence that PhIP forms DNA adducts is available.

In monkeys fed PhIP for varying lengths of time, significant concentrations of DNA adducts were found in the liver, kidneys, heart and bladder or salivary glands. Tumours were not detected in monkeys 12 months after dosing.

Over 99% of the mutations produced by PhIP in bacterial test systems are frameshift mutations.

### Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

#### HAZARD RATINGS

		Min	Max	
Flammability:	1			
Toxicity:	2			
Body Contact:	2			
Reactivity:	0			
Chronic:	2			
			Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4	

NAME	CAS RN	%
2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine	105650-23-5	>98

### Section 4 - FIRST AID MEASURES

#### SWALLOWED

- If poisoning occurs, contact a doctor or Poisons Information Center.
- IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
- For advice, contact a Poisons Information Center or a doctor.

Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

- Induce vomiting with fingers down the back of the of the throat, ONLY IF CONSCIOUS.
- Lean patient forward or place on left side (head-down position if possible) to maintain open airway and prevent aspiration.

NOTE: Wear a protective glove when inducing vomiting by mechanical means.

- In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.
- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

#### 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.
- Continue flushing until advised to stop by the Poisons Information Center or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.

- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

## SKIN

- If skin or hair contact occurs:
  - Immediately flush body and clothes with large amounts of water, using safety shower if available.
  - Quickly remove all contaminated clothing, including footwear.
  - Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Center.
  - Transport to hospital, or doctor.

## INHALED

- - If fumes or combustion products are inhaled remove from contaminated area.
  - Lay patient down. Keep warm and rested.
  - Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
  - Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
  - Transport to hospital, or doctor.

## NOTES TO PHYSICIAN

- Treat symptomatically.

## Section 5 - FIRE FIGHTING MEASURES

Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	Not available
Lower Explosive Limit (%):	Not available
Relative Vapor Density (air=1):	Not applicable

## EXTINGUISHING MEDIA

- - Foam.
  - Dry chemical powder.
  - BCF (where regulations permit).
  - Carbon dioxide.
  - Water spray or fog - Large fires only.

## FIRE FIGHTING

- - Alert Emergency Responders and tell them location and nature of hazard.
  - Wear full body protective clothing with breathing apparatus.
  - Prevent, by any means available, spillage from entering drains or water course.
  - If safe, switch off electrical equipment until vapor fire hazard removed.
  - Use water delivered as a fine spray to control fire and cool adjacent area.
  - Avoid spraying water onto liquid pools.
  - DO NOT approach containers suspected to be hot.
  - Cool fire exposed containers with water spray from a protected location.
  - If safe to do so, remove containers from path of fire.

## GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- - Solid which exhibits difficult combustion or is difficult to ignite.
  - Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.
  - Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
  - Build-up of electrostatic charge may be prevented by bonding and grounding.
  - Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Combustion products include: carbon monoxide (CO) and nitrogen oxides (NOx).

## FIRE INCOMPATIBILITY

- Avoid contamination with strong oxidizing agents as ignition may result.

## PERSONAL PROTECTION

Glasses:  
Safety Glasses.  
Gloves:  
Respirator:  
Particulate

## Section 6 - ACCIDENTAL RELEASE MEASURES

### MINOR SPILLS

- - Clean up all spills immediately.
  - Avoid contact with skin and eyes.
  - Wear impervious gloves and safety glasses.
  - Use dry clean up procedures and avoid generating dust.

- Sweep up or vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place spilled material in clean, dry, sealable, labeled container.

#### MAJOR SPILLS

- 
- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labeled containers for recycling.
- Neutralize/decontaminate residue.
- Collect solid residues and seal in labeled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

#### ACUTE EXPOSURE GUIDELINE LEVELS (AEGL) (in ppm)

AEGL 1: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.

AEGL 2: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.

AEGL 3: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death.

## Section 7 - HANDLING AND STORAGE

#### PROCEDURE FOR HANDLING

- 
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with moisture.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

#### RECOMMENDED STORAGE METHODS

- 
- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer
- Check all containers are clearly labeled and free from leaks.

#### STORAGE REQUIREMENTS

- 
- Keep dry.
- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials.
- Protect containers against physical damage.
- Check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

#### SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



X: Must not be stored together

O: May be stored together with specific preventions  
 +: May be stored together

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

The following materials had no OELs on our records

- 2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine: CAS:105650-23-5

### MATERIAL DATA

2-AMINO-1-METHYL-6-PHENYLIMIDAZO[4,5-B]PYRIDINE:

- No exposure limits set by NOHSC or ACGIH.

### PERSONAL PROTECTION



Consult your EHS staff for recommendations

#### EYE

- 
- Safety glasses.
- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

#### HANDS/FEET

- Wear general protective gloves, e.g.. light weight rubber gloves.

#### OTHER

- Overalls.
- Impervious protective clothing
- Eyewash unit.

### RESPIRATOR

Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
10 x PEL	P1	-	PAPR-P1
	Air-line*	-	-
50 x PEL	Air-line**	P2	PAPR-P2
100 x PEL	-	P3	-
		Air-line*	-
100+ x PEL	-	Air-line**	PAPR-P3

\* - Negative pressure demand \*\* - Continuous flow

Explanation of Respirator Codes:

Class 1 low to medium absorption capacity filters.

Class 2 medium absorption capacity filters.

Class 3 high absorption capacity filters.

PAPR Powered Air Purifying Respirator (positive pressure) cartridge.

Type A for use against certain organic gases and vapors.

Type AX for use against low boiling point organic compounds (less than 65°C).

Type B for use against certain inorganic gases and other acid gases and vapors.

Type E for use against sulfur dioxide and other acid gases and vapors.

Type K for use against ammonia and organic ammonia derivatives

Class P1 intended for use against mechanically generated particulates of sizes most commonly encountered in industry, e.g. asbestos, silica.

Class P2 intended for use against both mechanically and thermally generated particulates, e.g. metal fume.

Class P3 intended for use against all particulates containing highly toxic materials, e.g. beryllium.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

Use appropriate NIOSH-certified respirator based on informed professional judgement. In conditions where no reasonable estimate of exposure can be made, assume the exposure is in a concentration IDLH and use NIOSH-certified full face pressure demand SCBA with a minimum service life of 30 minutes, or a combination full facepiece pressure demand SAR with auxiliary self-contained air supply. Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

### ENGINEERING CONTROLS

■ General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear an approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:

Air Speed:

solvent, vapors, degreasing etc., evaporating from tank (in still air).

0.25-0.5 m/s (50-100 f/min)

aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)
Within each range the appropriate value depends on:	
Lower end of the range	Upper end of the range
1: Room air currents minimal or favorable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only
Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.	

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Solid.

Does not mix with water.

State	Divided solid	Molecular Weight	224.29
Melting Range (°F)	Not available	Boiling Range (°F)	Not available
Solubility in water (g/L)	Partly miscible	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)	Negligible	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)	Negligible
Evaporation Rate	Not applicable		

### APPEARANCE

Solid; does not mix well with water.

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- 
- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerization will not occur.

### STORAGE INCOMPATIBILITY

- Avoid reaction with oxidizing agents.

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

## Section 11 - TOXICOLOGICAL INFORMATION

2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine

### TOXICITY AND IRRITATION

- No significant acute toxicological data identified in literature search.

Gastrointestinal tumours, skin tumours recorded

- NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.

WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

### CARCINOGEN

PhIP (2-Amino-1-methyl-6-phenylimidazo[4,5-b]pyridine)	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	2B
PHIP(2-AMINO-1-METHYL-6-	US Environmental Defense Scorecard Recognized	Reference(s)	DSF



PHENYLIMIDAZOL[4,5-B]PYRIDINE	Carcinogens	Reference(s) P65
PHIP(2-AMINO-1-METHYL-6-PHENYLIMIDAZOL[4,5-B]PYRIDINE	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s) P65

## Section 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows:

2-AMINO-1-METHYL-6-PHENYLIMIDAZO[4,5-B]PYRIDINE:

## Section 13 - DISPOSAL CONSIDERATIONS

### Disposal Instructions

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

1

- Consult manufacturer for recycling options and recycle where possible .
- Consult Waste Management Authority for disposal.
- Incinerate residue at an approved site.
- Recycle containers where possible, or dispose of in an authorized landfill.

## Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

## Section 15 - REGULATORY INFORMATION

**2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (CAS: 105650-23-5) is found on the following regulatory lists;**

"International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","US - California Proposition 65 - Carcinogens","US - California Proposition 65 - Priority List for the Development of NSRLs for Carcinogens","US - Maine Chemicals of High Concern List","US National Toxicology Program (NTP) 11th Report Part B. Reasonably Anticipated to be a Human Carcinogen"

## Section 16 - OTHER INFORMATION

### LIMITED EVIDENCE

- Skin contact may produce health damage\*.
- May produce genetic damage\*.
- Exposure may produce irreversible effects\*.

\* (limited evidence).

*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 mixture 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.

- 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: Jun-30-2007

Print Date:Apr-21-2010