



# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Irritating to skin, eyes, and the respiratory system.	

## Section I. Chemical Product and Company Identification

Chemical Name	<b>L-(-)-Tyrosine</b>		
Catalog Number	T0550	Supplier	TGI America 9211 N. Harbortgate St. Portland OR 1-800-423-8616
Synonym	(S)-alpha-Amino-4-hydroxybenzenepropanoic Acid		
Chemical Formula	HOC <sub>6</sub> H <sub>4</sub> CH <sub>2</sub> CH(NH <sub>2</sub> )COOH		
CAS Number	60-18-4	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
L-(-)-Tyrosine	60-18-4	Min. 98.5 (T)	Not available.	Mouse LD <sub>50</sub> (intraperitoneal) >1450mg/kg

## Section III. Hazards Identification

Acute Health Effects	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	<p><b>CARCINOGENIC EFFECTS</b> : Not available.</p> <p><b>MUTAGENIC EFFECTS</b> : Not available.</p> <p><b>TERATOGENIC EFFECTS</b> : Not available.</p> <p><b>DEVELOPMENTAL TOXICITY</b>: Reproductive Effects.</p> <p>Rat TDLo (oral) 5000mg/kg, female 15-21 days of pregnancy.</p> <p>Toxic effects:</p> <p>Specific Developmental Abnormalities - Central nervous system.</p> <p>Mouse TDLo (subcutaneous) 150 mg/kg, female 3 days prior to mating.</p> <p>Toxic effects:</p> <p>Maternal Effects - Ovaries, fallopian tubes.</p> <p>Rabbit TDLo (oral) 3000 mg/kg, female 29-31 days of pregnancy.</p> <p>Toxic effects:</p> <p>Effects on Newborn - Biochemical and metabolic.</p> <p>Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.</p>

## Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. SEEK IMMEDIATE MEDICAL ATTENTION in case of ingestion of a radioactive material.

## Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	Not available.	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO, NO <sub>2</sub> ).		
Fire Hazards	Not available.		

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Emergency phone number (800) 424-9300

Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.


### Section VI. Accidental Release Measures

Spill Cleanup Instructions	Irritating material. Use a shovel to put the material into a convenient waste disposal container. Finish cleaning the spill by rinsing any contaminated surfaces with copious amounts of water. Consult federal, state, and/or local authorities for assistance on disposal.
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### Section VII. Handling and Storage

Handling and Storage Information	IRRITANT. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. Do not breathe dust. Always store away from incompatible compounds such as oxidizing agents.
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### Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
	
Exposure Limits	Not available.

### Section IX. Physical and Chemical Properties

Physical state @ 20°C	Solid. (White crystals.)	Solubility	Solubility in water 0.453 g/L @ 25°C. Insoluble in absolute alcohol, ether, acetone. Soluble in alkaline solution. Slightly soluble in acetic acid.
Specific Gravity	1.456 (water=1)		
Molecular Weight	181.19	Partition Coefficient	Not available.
Boiling Point	Not available.	Vapor Pressure	Not applicable.
Melting Point	344 °C (651.2 °F)	Vapor Density	Not available.
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.

### Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with strong oxidizing agents.

### Section XI. Toxicological Information

RTECS Number	YP2275600
Routes of Exposure	Eye Contact. Ingestion. inhalation.
Toxicity Data	Mouse LD <sub>50</sub> (intraperitoneal) >1450mg/kg
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> : Reproductive Effects. Rat TDLo (oral) 5000mg/kg, female 15-21 days of pregnancy. Toxic effects: Specific Developmental Abnormalities - Central nervous system. Mouse TDLo (subcutaneous) 150 mg/kg, female 3 days prior to mating. Toxic effects: Maternal Effects - Ovaries, fallopian tubes. Rabbit TDLo (oral) 3000 mg/kg, female 29-31 days of pregnancy. Toxic effects: Effects on Newborn - Biochemical and metabolic.

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## Acute Toxic Effects

Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

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**Section XII. Ecological Information**

## Ecotoxicity

Not available.

## Environmental Fate

Tyrosine is a non-essential amino acid involved in microbial, plant and animal metabolism. It may be released to the environment via effluents at sites where it is produced and used in biochemical research or as a growth factor or dietary supplement in nutrition. Volatilization, and bioconcentration of tyrosine are not expected to be important environmental fate processes. Its adsorption to soil or sediment is difficult to predict. Soil grab sample data, using radiolabeled tyrosine, and several aqueous aerobic biological screening studies, which utilized settled waste water, sewage, or activated sludge for inocula, have demonstrated that tyrosine is readily biodegradable. The tyrosine molecule does not contain a chromophore that absorbs UV light in the environmentally significant range (>290 nm). Therefore, it should not be susceptible to direct photolysis in sunlit media. However, photo-oxidation with hydroxyl radicals may be important. A calculated half-life in full intensity sunlit water is 62 days. An estimated half-life for the vapor-phase reaction in air is 5 hrs. However if released to the atmosphere, tyrosine is expected to exist in the particulate phase. Dry deposition and precipitation may be important removal mechanisms. Occupational exposure, may occur through dermal contact or inhalation of dust at workplaces where tyrosine is produced or used. The most common non-occupational exposures are likely to result from the ingestion of tyrosine containing foods.

**Section XIII. Disposal Considerations**

## Waste Disposal

Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

**Section XIV. Transport Information**

## DOT Classification

Not a DOT controlled material (United States).

## PIN Number

Not applicable.

## Proper Shipping Name

Not applicable.

## Packing Group (PG)

Not applicable.

## DOT Pictograms

**Section XV. Other Regulatory Information and Pictograms**

## TSCA Chemical Inventory (EPA)

This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.

## WHMIS Classification (Canada)

Not available.

## EINECS Number (EEC)

200-460-4

## EEC Risk Statements

R36/37/38- Irritating to eyes, respiratory system and skin.

## Japanese Regulatory Data

Not available.

**Section XVI. Other Information****Version 1.0**

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**Notice to Reader**

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, household, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.