Safety Data Sheet

According to 29 CFR 1910.1200 (OSHA Hazard Communication Standard, 2024)

Version 1 · Date of preparation 2026-10-07

Section 1. Identification

Product identifier used on the label	H-D-Pen-OH (product number 47193)
Other means of identification	Product number: 47193 Abbreviation: H-D-Pen-OH
Recommended use of the chemical and restrictions on use	Recommended use: laboratory reagent; amino acid (D-penicillamine) for peptide synthesis and research. For research and development use only. Restrictions on use: not for food, drug, household, pesticide or biocidal use. This product is not a pharmaceutical preparation.
Name, U.S. address, and U.S. telephone number of the chemical manufacturer, importer, or other responsible party	P3 BioSystems 270 Haven Hill Rd, Shelbyville, KY 40065 Telephone: +1 888-737-5598 Email: info@p3bio.com
Emergency phone number	+1 888-737-5598 (P3 BioSystems office line, business hours)

Section 2. Hazard identification

Classification of the chemical in accordance with paragraph (d)(1) of § 1910.1200, except for classification under paragraph (d)(1)(ii)	• Skin corrosion/irritation, category 2 • Eye damage/irritation, category 2A • Sensitization - respiratory, category 1 (including both sub-categories 1A and 1B) • Reproductive toxicity, category 1A and 1B (sub-category 1B)

Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of § 1910.1200	**Signal word: Danger** Hazard pictograms: Health Hazard Hazard statements: • H315 Causes skin irritation. • H319 Causes serious eye irritation. • H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. • H360 May damage fertility or the unborn child (developmental toxicity). Precautionary statements: • P201 Obtain special instructions before use. • P202 Do not handle until all safety precautions have been read and understood. • P261 Avoid breathing dust. • P264 Wash face, hands and any exposed skin thoroughly after handling. • P280 Wear protective gloves/protective clothing/eye protection/face protection. • P284 In case of inadequate ventilation wear respiratory protection. • P302+P352 If on skin: Wash with plenty of soap and water. • P304+P340 If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. • P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. • P308+P313 If exposed or concerned: Get medical advice/attention. • P321 Specific treatment (see Section 4 of this SDS). • P332+P313 If skin irritation occurs: Get medical advice/attention. • P337+P313 If eye irritation persists: Get medical advice/attention. • P342+P311 If experiencing respiratory symptoms: Call a poison center or doctor. • P362+P364 Take off contaminated clothing and wash it before reuse. • P405 Store locked up. • P501 Dispose of contents/container in accordance with local, state and federal regulations.
Hazards classified under paragraph (d)(1)(ii) of § 1910.1200	None identified.
Hazards not otherwise classified that have been identified during the classification process	None identified.
Where an ingredient with unknown acute toxicity is used in a mixture at a concentration ≥ 1% and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity	Not applicable: the product is a substance, not a mixture.

Section 3. Composition/information on ingredients

Chemical name	(2S)-2-amino-3-methyl-3-sulfanylbutanoic acid
Common name and synonyms	D-Penicillamine; D-(−)-penicillamine; 3,3-dimethyl-D-cysteine; D-2-amino-3-mercapto-3-methylbutanoic acid; D-Pen-OH; H-D-Pen-OH; (2S)-2-amino-3-methyl-3-sulfanylbutanoic acid.
CAS number and other unique identifiers	• CAS number: 52-67-5 • InChIKey: VVNCNSJFMMFHPL-VKHMYHEASA-N • PubChem CID: 5852
Impurities and stabilizing additives (constituents) which are themselves classified and which contribute to the classification of the substance	None known. The product is a single substance. No impurity or additive is known to contribute to the classification.

Section 4. First-aid measures

Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion	General advice: Show this safety data sheet to the doctor in attendance. If exposed or concerned, get medical advice/attention. Inhalation: Move the person to fresh air and keep comfortable for breathing. If breathing is difficult or respiratory symptoms such as wheezing, coughing or chest tightness develop, call a poison center or doctor. If not breathing, give artificial respiration. Skin: Take off contaminated clothing. Wash with plenty of soap and water for at least 15 minutes. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing before reuse. Eyes: Rinse cautiously with plenty of water for at least 15 minutes, also under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention. Ingestion: Rinse mouth with water. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Causes skin irritation and serious eye irritation. Inhalation: in sensitized persons, may cause allergy or asthma symptoms or breathing difficulties. Symptoms of an allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing. Once a person is sensitized, very small exposures can trigger a reaction. Delayed effects: may damage the unborn child (see Section 11).
Indication of immediate medical attention and special treatment needed, if necessary	Treat symptomatically. Persons with allergic or asthma-like symptoms need prompt medical evaluation. A person who has developed respiratory sensitization to this product should avoid any further exposure to it. The product may damage the unborn child: a pregnant person who has been exposed should get medical advice. Show this safety data sheet to the attending physician.

Section 5. Fire-fighting measures

Suitable (and unsuitable) extinguishing media	Suitable: water spray, carbon dioxide, dry chemical, alcohol-resistant foam. Unsuitable: do not use a solid water jet.
Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products)	Keep product and empty containers away from heat and sources of ignition. Thermal decomposition can release irritating gases and vapors. Hazardous combustion products: carbon monoxide, carbon dioxide, nitrogen oxides and sulfur oxides.
Special protective equipment and precautions for fire-fighters	Wear a NIOSH/MSHA-approved, pressure-demand self-contained breathing apparatus and full protective gear. Thermal decomposition can release irritating gases and vapors.

Section 6. Accidental release measures

Personal precautions, protective equipment, and emergency procedures	Keep unprotected people away from the spill. Use personal protective equipment (see Section 8), including gloves and eye protection, and respiratory protection where dust is present; avoid contact with skin and eyes. Avoid dust formation and do not breathe dust. Ensure adequate ventilation.
Methods and materials for containment and cleaning up	Sweep up and shovel the material, without creating dust, into suitable closed containers for disposal (see Section 13). Do not let the product enter drains.

Section 7. Handling and storage

Precautions for safe handling	Obtain special instructions before use; do not handle until all safety precautions have been read and understood. Use only in a chemical fume hood or with local exhaust ventilation. Avoid contact with skin, eyes and clothing. Avoid formation of dust and do not breathe dust. Keep away from heat and sources of ignition; minimize dust generation and accumulation. Do not eat, drink or smoke when using this product. Wash face, hands and any exposed skin thoroughly after handling. Take off contaminated clothing and wash it before reuse.
Conditions for safe storage, including any incompatibilities	Keep the container tightly closed in a dry, cool, well-ventilated place. Store as stated on the product label (suppliers recommend refrigeration: 0–8 °C or 2–8 °C, or not above 5 °C). Allow the container to warm to room temperature before opening. Store locked up, or in an area accessible only to qualified or authorized persons. Incompatible materials: strong oxidizing agents, metals.

Section 8. Exposure controls/personal protection

OSHA permissible exposure limit (PEL), ACGIH Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available	No OSHA PEL or ACGIH TLV has been established.
Appropriate engineering controls	Use only in a chemical fume hood or with local exhaust ventilation that keeps airborne dust as low as possible. Eyewash stations and safety showers must be close to the workstation.
Individual protection measures, such as personal protective equipment	Eyes/face: Safety glasses with side shields or chemical safety goggles (29 CFR 1910.133); a face shield where dust or splashes are likely. Skin: Chemical-resistant gloves (e.g. nitrile rubber, minimum thickness 0.11 mm); inspect before use and remove without touching the outer surface. Wear a lab coat or other protective clothing to prevent skin exposure. Respiratory: This product is a respiratory sensitizer. Where dust may be generated outside a fume hood or ventilation is inadequate, use a NIOSH-approved particulate respirator (N95/P95 or better) under a respiratory protection program meeting 29 CFR 1910.134. Hygiene: Wash hands and face before breaks and at the end of the workday. Do not eat, drink or smoke in work areas.

Section 9. Physical and chemical properties

Physical state	Solid (crystalline powder).
Color	White to off-white (supplier data; no P3 specification on file).
Odor (includes odor threshold)	Characteristic (one supplier). Odor threshold: no applicable information available.
Melting point/freezing point	Melting point: 212 °C (supplier data; no P3 specification on file).
Boiling point (or initial boiling point or boiling range)	No applicable information available.
Flammability	No applicable information available.
Lower and upper explosion limit/flammability limit	No applicable information available.
Flash point	No applicable information available.
Auto-ignition temperature	Auto-ignition temperature: > 360 °C (one supplier).
Decomposition temperature	No applicable information available.
pH	pH 4.5–5.5 (1% aqueous solution).
Kinematic viscosity	Not applicable (solid).

Solubility	Water: 11.1% at 20 °C (supplier data).
Partition coefficient n-octanol/water (log value)	log Pow: −1.78.
Vapor pressure (includes evaporation rate)	Vapor pressure: no applicable information available. Evaporation rate: not applicable (solid).
Density and/or relative density	No applicable information available.
Relative vapor density	Not applicable (solid).
Particle characteristics	Crystalline powder. No particle size data available.

Section 10. Stability and reactivity

Reactivity	None known, based on information available.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions, including those associated with foreseeable emergencies	No hazardous reactions known under normal processing. Hazardous polymerization does not occur.
Conditions to avoid (e.g., static discharge, shock, or vibration)	Heat, flames, sparks and other ignition sources; dust formation; contact with incompatible materials.
Incompatible materials	Strong oxidizing agents, metals.
Hazardous decomposition products	Carbon monoxide, carbon dioxide, nitrogen oxides and sulfur oxides.

Section 11. Toxicological information

Information on the likely routes of exposure (inhalation, ingestion, skin, and eye contact)	Inhalation of dust, skin contact, eye contact and ingestion.
Symptoms related to the physical, chemical, and toxicological characteristics	Skin: irritation. Eyes: serious eye irritation. Inhalation: in sensitized persons, allergy or asthma symptoms or breathing difficulties; symptoms of an allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing. Ingestion: no specific data.
Delayed and immediate effects and also chronic effects from short- and long-term exposure	Immediate: skin and eye irritation. Delayed: respiratory sensitization; after sensitization, later inhalation of small amounts may cause allergy or asthma symptoms or breathing difficulties. Reproductive toxicity: may damage the unborn child (category 1B). Chronic: no other data available. The toxicological properties have not been fully investigated.
Numerical measures of toxicity (such as acute toxicity estimates)	Oral LD50 (rat): 6,170 mg/kg. Dermal LD50: no data available. Inhalation LC50: no data available.

Interactive effects; information on interactions should be included if relevant and readily available	No interactive effects are known.
Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA	Not listed by NTP, IARC or OSHA as a carcinogen.
When specific chemical data or information is not available, whether alternative information is used and the method used to derive the information (e.g., information from a class of chemicals rather than the exact chemical, using SAR)	No analog, class or SAR information was used to derive the classification. It follows a US and Canadian supplier's safety data sheet for this substance, which cites no test data for the irritation, sensitization or reproductive toxicity classes. D-Penicillamine is also used as a prescription medicine and is listed under California Proposition 65 as a developmental toxicant; this is cited as supporting information only.

Section 12. Ecological information

Ecotoxicity (aquatic and terrestrial, where available)	No data available.
Persistence and degradability	Persistence is unlikely (supplier statement; no test data).
Bioaccumulative potential	No data available.
Mobility in soil	Likely to be mobile in the environment because of its water solubility.
Other adverse effects (such as hazardous to the ozone layer)	Do not let the product enter drains.

Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging	Dispose of contents and container as hazardous chemical waste through a licensed waste disposal company, in accordance with local, state and federal regulations. Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste (40 CFR Part 261). Dispose of contaminated packaging as unused product. Do not let the product enter drains.

Section 14. Transport information

US DOT: not regulated.

IMDG: not offered — P3 does not ship by sea.

IATA: not regulated.

UN number	See above: not regulated by any mode P3 ships by.

UN proper shipping name	See above: not regulated by any mode P3 ships by.
Transport hazard class(es)	See above: not regulated by any mode P3 ships by.
Packing group, if applicable	See above: not regulated by any mode P3 ships by.
Environmental hazards (e.g., Marine pollutant (Yes/No))	See above: not regulated by any mode P3 ships by.
Transport in bulk (according to IMO instruments)	Not applicable. P3 BioSystems does not ship this product in bulk or by sea.
Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises	None known.

Section 15. Regulatory information

Safety, health and environmental regulations specific for the product in question	TSCA: The chemicals shipped by P3 BioSystems are not subject to TSCA. SARA 302: no extremely hazardous substances. SARA 313: no components subject to reporting. SARA 311/312 hazard categories: Skin corrosion or irritation; Serious eye damage or eye irritation; Respiratory or skin sensitization; Reproductive toxicity. CERCLA: contains no substances regulated as hazardous substances (40 CFR 302). California Proposition 65: WARNING: This product can expose you to D-penicillamine, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. State right-to-know: D-penicillamine is on the Massachusetts right-to-know substance list.

Section 16. Other information, including date of preparation or last revision

The date of preparation of the SDS or the last change to it	Date of preparation: 2026-10-07.

The information above is believed to be accurate and represents the best information available to P3 BioSystems on the date of preparation. It is provided for the safe handling of the product by trained persons in a laboratory and is not a warranty of any kind.