Understanding Safety Data Sheets & Chemical Labels

In March 2012, the United States Occupational Safety and Health Administration (OSHA) adopted the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). This international system standardized the way companies communicate chemical hazard information, ensuring consistency across industries and borders.

The GHS outlines how to classify chemicals based on their physical, environmental, and health hazards, and provides clear guidelines for communicating those risks. It helps manufacturers develop consistent labels and documentation that inform users about potential dangers and safe handling practices. This system applies to a wide range of industries, including pharmaceuticals, chemicals, pesticides, and cleaning products.

The primary audiences for GHS include production workers, laboratory personnel, emergency responders, and consumers—anyone who might interact with hazardous substances.

One of the key tools of the GHS is the Safety Data Sheet (SDS). These comprehensive documents provide detailed, standardized information about each product's hazards. Every SDS includes signal words, hazard pictograms, precautionary statements, and clear explanations of the chemical's properties and associated risks. By following the format and language of the GHS, SDSs help minimize confusion and promote safer chemical handling in workplaces and laboratories alike.

Here's what you need to know about Safety Data Sheets (SDS) and chemical labels to keep your lab safe and informed.

What's New (and Why It Matters)

Edvotek updated our chemical labels and Safety Data Sheets (SDS) to follow the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

This system:
- Makes safety info easier to read and teach
- Aligns with global safety standards
- Helps during production, transport, handling, and disposal
- Improves training and safety for educators and students

What's in a Safety Data Sheet (SDS)?

Each SDS is organized into 16 easy-to-navigate sections. Here's a quick overview on what they cover:

1. Identification – Product name, manufacturer, etc.
2. Hazard Identification – Health risks, warning labels, pictograms
3. Composition – Ingredients and trade secret claims
4. First Aid Measures – Symptoms and emergency response
5. Fire-Fighting Measures – How to extinguish safely
6. Accidental Release – Spill cleanup procedures
7. Handling & Storage – Safe use and storage rules
8. Exposure Controls & PPE – Limits and recommended protective gear
9. Physical & Chemical Properties – What it looks/smells/acts like
10. Stability & Reactivity – Reactions to avoid
11. Toxicology – How exposure may affect health
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other Info – Preparation/revision dates

Understanding New Product Labels

GHS labels now include:
- Signal Word – Tells you the severity of the hazard (e.g., Warning or Danger)
- Pictograms – Easy-to-recognize symbols in red diamonds. (A product may have multiple pictograms depending on the chemical's properties.)
- Hazard Statements – Describe the type of risk (e.g., Causes skin irritation)
- Precautionary Statements – Tell you how to stay safe

Why This Matters in Your Classroom

Understanding SDS and labels helps you:
- Identify chemical hazards at a glance
- Teach students how to read safety info
- Handle materials responsibly
- Reduce confusion during training or emergencies
- Build a culture of safety and awareness

When you use chemicals in your classroom, don't guess—read the label and check the SDS. It's the smartest, fastest way to protect yourself and your students.

SDS & Chemical Label Safety Checklist ✓

Before the Lab:
- ❑ Review the SDS for each chemical you'll be using
- ❑ Know the sections of an SDS and where to find key info
- ❑ Look for hazard identification (Section 2) and first aid (Section 4)
- ❑ Make sure students know how to locate SDS sheets
- ❑ Visit edvotek.com/safety-data-sheets to access up-to-date SDS

When Handling Chemicals:
- ❑ Read the product label before use
- ❑ Identify the signal word (Warning or Danger)
- ❑ Recognize pictograms (red diamond symbols) and what they mean
- ❑ Follow hazard and precautionary statements on the label
- ❑ Use all required PPE listed on the SDS or label

Safety Culture & Best Practices:
- ❑ Include SDS review in your lab prep and student training
- ❑ Keep printed SDS copies easily accessible in your classroom
- ❑ Update SDS sheets and labels if you change or add reagents
- ❑ Reinforce label-reading and SDS awareness throughout the year

GHS Pictograms

CLICK or SCAN the QR code to access Safety Data Sheets on our website.

CLICK or SCAN the QR code to read our full article about Safety Data Sheets on the EDVOTEK blog.

Reading Safety Data Sheets

Section 1 includes identifying information for the chemical and the manufacturer. This includes the chemical's name and product number, and the manufacturer's name, address, and phone number.

Section 2 highlights all hazards regarding the chemical. This includes signal words, pictograms, and hazard statements.

Section 3 includes information on chemical ingredients, including the chemical name, the common name, and the Chemical Abstract Service (or CAS) number. For mixtures, this section provides information for all chemicals, along with the relative percentages. Manufactures can protect chemical formulations that are trade secrets, but they must still declare hazards and concentrations.

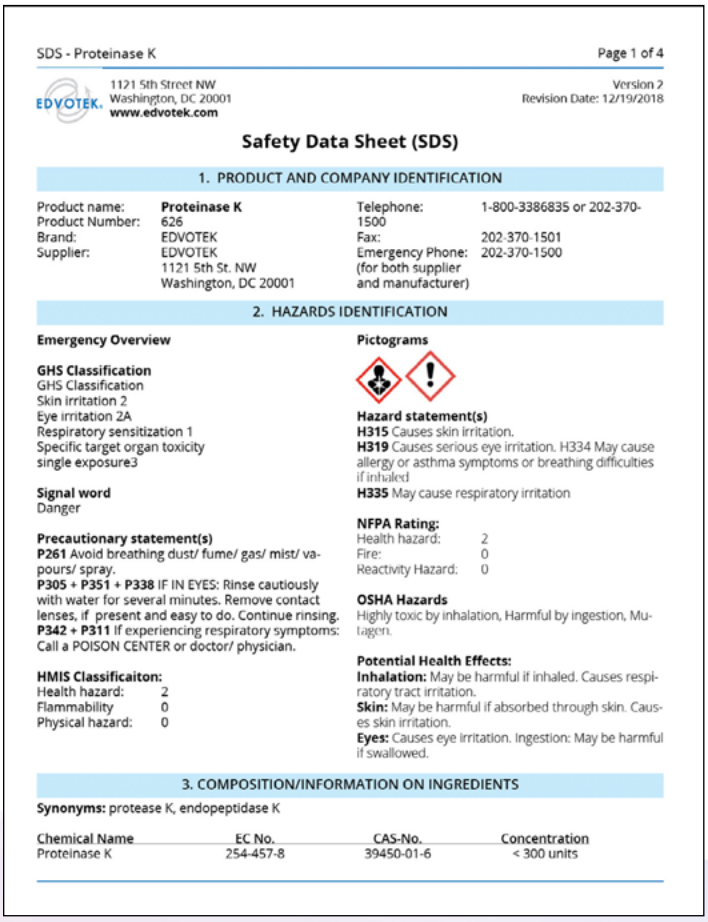
Section 4 covers first aid measures to take if there is an unexpected exposure to the chemical. This section covers important symptoms and effects (both acute and delayed) and required treatment.

Section 5 details any potential chemical hazards from fire and lists suitable fire extinguishing techniques and equipment.

Section 6 describes accidental release measures, including proper techniques for clean up after chemical spills. This includes emergency procedures, proper personal protective equipment, or PPE, and the necessary protocol for containment and clean up.

Section 7 describes safe handling and storage, including incompatibilities with other chemicals. After receiving your chemicals, you'll need to know how to store them.

Section 8 describes exposure limits, threshold limit values, and any other exposure limit used or recommended by the manufacturer preparing the SDS. This section also includes appropriate engineering controls and personal protective equipment (PPE).



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EDVOTEK. 1121 5th Street NW Washington, DC 20001 www.edvotek.com

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Safety Data Sheet (SDS)

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **Proteinase K**
Product Number: 626
Brand: EDVOTEK
Supplier: EDVOTEK 1121 5th St. NW Washington, DC 20001

Telephone: 1-800-3386835 or 202-370-1500
Fax: 202-370-1501
Emergency Phone: 202-370-1500 (for both supplier and manufacturer)

2. HAZARDS IDENTIFICATION

Emergency Overview

GHS Classification
GHS Classification
Skin irritation 2
Eye irritation 2A
Respiratory sensitization 1
Specific target organ toxicity single exposure3

Signal word
Danger

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.

HMIS Classificaiton:
Health hazard: 2
Flammability 0
Physical hazard: 0

Pictograms

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 May cause respiratory irritation

NFPA Rating:
Health hazard: 2
Fire: 0
Reactivity Hazard: 0

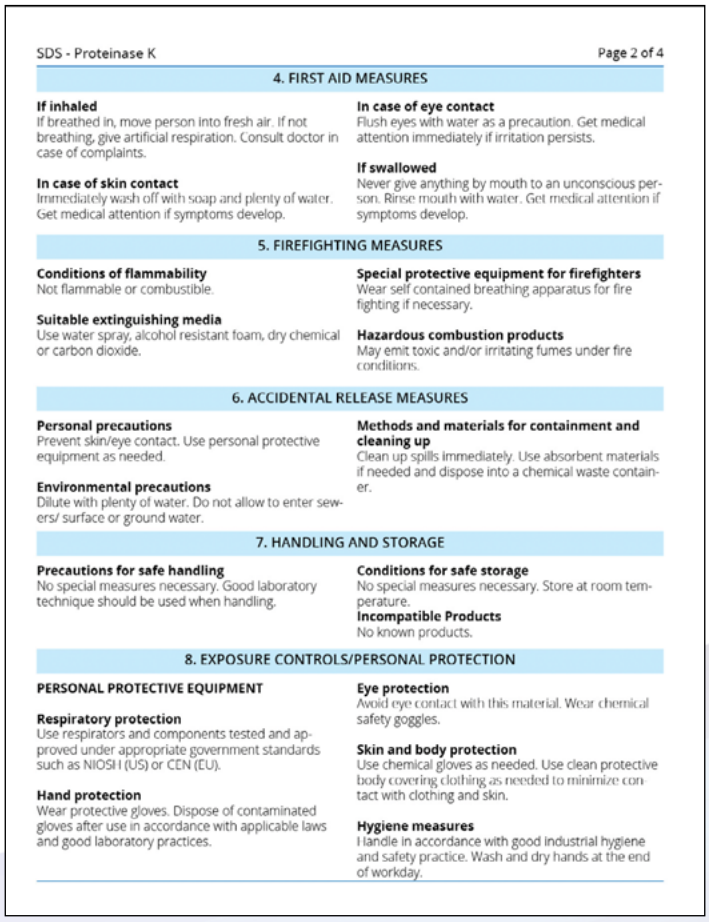
OSHA Hazards
Highly toxic by inhalation, Harmful by ingestion, Mutagen.

Potential Health Effects:
Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation. Ingestion: May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: protease K, endopeptidase K

Chemical Name	EC No.	CAS-No.	Concentration
Proteinase K	254-457-8	39450-01-6	< 300 units



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4. FIRST AID MEASURES

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult doctor in case of complaints.

In case of skin contact
Immediately wash off with soap and plenty of water. Get medical attention if symptoms develop.

In case of eye contact
Flush eyes with water as a precaution. Get medical attention immediately if irritation persists.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Get medical attention if symptoms develop.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use water spray, alcohol resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
May emit toxic and/or irritating fumes under fire conditions.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Prevent skin/eye contact. Use personal protective equipment as needed.

Environmental precautions
Dilute with plenty of water. Do not allow to enter sewers/ surface or ground water.

Methods and materials for containment and cleaning up
Clean up spills immediately. Use absorbent materials if needed and dispose into a chemical waste container.

7. HANDLING AND STORAGE

Precautions for safe handling
No special measures necessary. Good laboratory technique should be used when handling.

Conditions for safe storage
No special measures necessary. Store at room temperature.
Incompatible Products
No known products.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Wear protective gloves. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.

Eye protection
Avoid eye contact with this material. Wear chemical safety goggles.

Skin and body protection
Use chemical gloves as needed. Use clean protective body covering clothing as needed to minimize contact with clothing and skin.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash and dry hands at the end of workday.

Section 9 describes the physical and chemical properties associated with the product. This includes appearance, odor, pH, solubility, and more if available.

Section 10 describes a chemical's stability and possibility of hazardous reactions. This includes how chemicals react when stored, and when mixed with other chemicals.

Section 11 provides information about a chemical's toxicology, or the effects of the chemical on living creatures. This includes the routes of exposure, a description of symptoms (acute and chronic), and numerical measures of toxicity like LD50 and LC50.

Section 12 lists the chemical's effects on the environment if released. Most times, this refers to very large quantities, like a tank or a barrel.

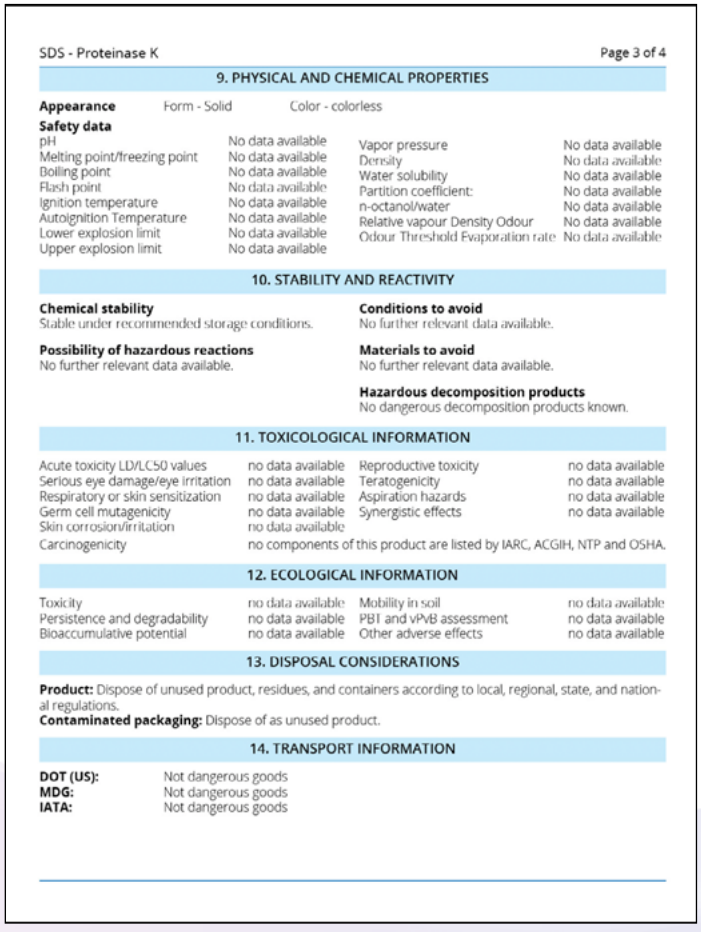
Section 13 outlines general considerations for proper disposal of your chemicals. However, it is important to discuss with this your chemical hygiene officer to make sure that you are following state, local, and institutional guidelines.

Section 14 provides transportation information for suppliers as they ship products by air, land, or sea.

Section 15, regulatory information, provides additional safety, health or environmental regulations for a product that is not mentioned in any other section.

Section 16 comprises any additional information, including the date of preparation or last revision, and disclaimers.

At Edvotek, we are proud to provide safe, quality experiments for your teaching laboratory. Through our improved materials, Edvotek is enhancing customer understanding of product hazards by providing improved access to safety information. We hope you enjoy teaching and learning with Edvotek!



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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Form - Solid Color - colorless

Safety data

pH	No data available	Vapor pressure	No data available
Melting point/freezing point	No data available	Density	No data available
Boiling point	No data available	Water solubility	No data available
Flash point	No data available	Partition coefficient:	No data available
Ignition temperature	No data available	n-octanol/water	No data available
Autoignition Temperature	No data available	Relative vapour Density Odour	No data available
Lower explosion limit	No data available	Odour Threshold Evaporation rate	No data available
Upper explosion limit	No data available		

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Conditions to avoid
No further relevant data available.

Possibility of hazardous reactions
No further relevant data available.

Materials to avoid
No further relevant data available.

Hazardous decomposition products
No dangerous decomposition products known.

11. TOXICOLOGICAL INFORMATION

Acute toxicity LD/LC50 values	no data available	Reproductive toxicity	no data available
Serious eye damage/eye irritation	no data available	Teratogenicity	no data available
Respiratory or skin sensitization	no data available	Aspiration hazards	no data available
Germ cell mutagenicity	no data available	Synergistic effects	no data available
Skin corrosion/irritation	no data available		
Carcinogenicity	no components of this product are listed by IARC, ACGIH, NTP and OSHA.		

12. ECOLOGICAL INFORMATION

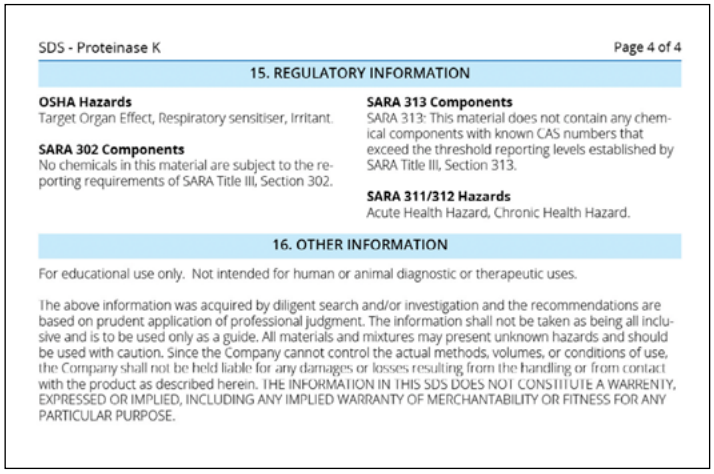
Toxicity	no data available	Mobility in soil	no data available
Persistence and degradability	no data available	PBT and vPvB assessment	no data available
Bioaccumulative potential	no data available	Other adverse effects	no data available

13. DISPOSAL CONSIDERATIONS

Product: Dispose of unused product, residues, and containers according to local, regional, state, and national regulations.
Contaminated packaging: Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US):	Not dangerous goods
MDG:	Not dangerous goods
IATA:	Not dangerous goods



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15. REGULATORY INFORMATION

OSHA Hazards
Target Organ Effect, Respiratory sensitiser, Irritant.

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard.

16. OTHER INFORMATION

For educational use only. Not intended for human or animal diagnostic or therapeutic uses.

The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since the Company cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein. THE INFORMATION IN THIS SDS DOES NOT CONSTITUTE A WARRENTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

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