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*** alterations as compared to previous version; n.ap. = not applicable; n.av. = not available

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade Name: Proteinase K
Article – No.: 609-1010, -1050
Index number: 647-014-00-9
EG number: 254-457-8
CAS number: 39450-01-6
Registration number: n.ap.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Other non-specified industry: Research and Development

1.3 Details of the supplier of the safety data sheet

1.3.1 Address of the Company / Supplier:

Minerva Biolabs GmbH, Köpenicker Straße 325, D- 12555 Berlin
 Telephone: +49 30 - 2000 437-0, Telefax: +49 30-2000 437-9, E-Mail: info@minerva-biolabs.com

1.3.2 Responsible for the data sheet:

info@minerva-biolabs.com

1.4 Emergency telephone number

Emergency - Telephone of Company / Undertaking
 Telephone: +49 30-2000 437-0 (08:30 – 16:30)

Information Centre Specializing in Symptoms of
 Poisoning
 Telephone: +44 870 600 6266

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Substance

Classification and labelling according to directive 1272/2008/EC:

Skin Irrit. 2, H315
 Eye Irrit. 2, H319
 Resp. Sens. 1, H334
 STOT SE 3, H335

2.2 Label elements

Classification according to 1272/2008/EC: Yes.

Applicable Exemptions: No.

Signal word(s): Danger

Component(s): Proteinase K

Hazard pictogram(s):



Hazard statements (H-Phrases):

*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.

Precautionary statements (P-Phrases):

*P261: Avoid breathing dust.
 *P280: Wear eye or face protection. In case of inadequate ventilation wear respiratory protection.
 *P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
 *P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
 *P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or physician.

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The above mentioned labelling is valid for distribution to industrial user.

2.3 Other Hazards

This mixture contains no substances which are assessed to be PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Product/ingredient name			H-Phrases	m%-range
Cas – No.	EC – No.	REACH – No.		
39450-01-6	254-457-8	n.a.	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 STOT SE 3, H335	≤100%

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8. Text of H - phrases: see section 16.

3.2 Mixtures

n.ap.

Chemical Characterization:

n.ap.

SECTION 4: First aid measures

4.1 Description of first aid measures

4.1.1 Inhalation:

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.

4.1.2 Skin Contact:

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

4.1.3 Eye Contact:

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

4.1.4 Ingestion:

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects:

Eye Contact: Causes serious eye irritation.

Inhalation: May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

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Skin Contact: Causes skin irritation.

Ingestion: Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms:

Eye Contact:

Adverse symptoms may include the following:

pain or irritation

watering

redness

Inhalation:

Adverse symptoms may include the following:

respiratory tract irritation

coughing

wheezing and breathing difficulties

asthma

Skin Contact:

Adverse symptoms may include the following:

irritation

redness

Ingestion:

No specific data.

4.3 **Indication of any immediate medical attention and special treatment needed**

Notes to physician:

In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific Treatments:

No specific treatment.

SECTION 5: Firefighting measures

5.1 **Extinguishing media**

5.1.1 **Suitable Extinguishing Media:**

Use an extinguishing agent suitable for the surrounding fire.

5.1.2 **Extinguishing Media to Avoid:**

None known.

5.2 **Special hazards arising from the substance or mixture**

Decomposition products may include the following materials: nitrogen oxides

5.3 **Advice for firefighters**

5.3.1 **Special Protective Equipment:**

Wear positive pressure self-contained breathing apparatus. Wear full protective clothing.

5.3.2 **Additional Information:**

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SECTION 6: Accidental release measures

6.1 **Personal precautions, protective equipment and emergency procedures**

See chapter 8.2.2

6.2 **Environmental precautions**

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 **Methods and material for containment and cleaning up**

Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

6.4 **Reference to other sections**

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See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1.1 Precautions for Safe Handling:

When using, do not eat, drink or smoke. Do not ingest. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday. Avoid contact with skin and eyes. Put on appropriate personal protective equipment (see Section 8). Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Avoid breathing dust. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

7.1.2 Precautions in Case of Fire and Explosion:

Normal measures for preventive fire protection.

7.2 Conditions for safe storage, including any incompatibilities

7.2.1 Storage Instructions:

Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

7.2.2 Store away from:

Store away from incompatible materials (see section 10) and food and drink.

7.2.3 Further Information on Storage Conditions:

None.

7.3 Specific end use(s)

n.av.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Material	Limit Value
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8.2 Exposure controls

8.2.1 Appropriate engineering controls

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

8.2.2 Individual protection measures

8.2.2a Hygiene measures:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

8.2.2b Respiratory protection:

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

8.2.2c Hand protection:

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

8.2.2d Eye/face protection:

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Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If operating conditions cause high dust concentrations to be produced, use dust goggles.

8.2.2e **Body protection:**

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

8.2.2f **Other skin protection:**

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

8.2.2g **Further Information:**

Observe wearing time limits.

8.2.3 **Environmental exposure controls:**

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 **Information on basic physical and chemical properties**

9.1.1	Physical state: Solid [Powder]	Colour: White	Odour: n.av. Odour threshold: n.av.
9.1.2	pH-value, undiluted:	n.av.	
9.1.3	pH-value, 1% aqueous solution:	n.av.	
9.1.4	Melting point / freezing point (°C):	n.av.	
9.1.5	Boiling point / Boiling - range (°C):	n.av.	
9.1.6	Flash point (°C):	n.av.	
9.1.7	Evaporation rate:	n.av.	
9.1.8	Flammability (EEC A10/A13):	n.av.	
9.1.9	Ignition temperature (°C):	n.av.	
9.1.10	Autoflammability (EEC A16):	n.av.	
9.1.11	Explosion hazard:	n.av.	
9.1.12	Oxidising properties:	n.av.	
9.1.13	Explosion limits (Vol.%) lower/upper:	n.av. / n.av.	
9.1.14	Vapour pressure:	n.av.	
9.1.15	Vapour density (Air = 1):	n.av.	
9.1.16	Density (g/ml):	n.av.	
9.1.17	Solubility (in Water):	n.av.	
9.1.18	Partition coefficient, n-Octanol / Water:	n.av.	
9.1.19	Viscosity:	n.av.	
9.1.20	Solvent content (m %):	n.av.	
9.1.21	Thermal decomposition (°C):	n.av.	
9.1.22	Evaporation rate:	n.av.	
9.2	Other information		
	n.av.		

SECTION 10: Stability and reactivity

10.1 **Reactivity**

No specific test data related to reactivity available for this product or its ingredients.

10.2 **Chemical stability**

The product is stable.

10.3 **Possibility of hazardous reactions**

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 **Conditions to avoid**

Handle in accordance with good industrial hygiene and safety practice.

10.5 **Incompatible materials**

No specific data.

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10.6 Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute Health Effects:

- Inhalation: n.av.
- Ingestion: n.av.
- Skin Contact: n.av.
- Skin corrosion / irritation: n.av.
- Serious eye damage / irritation: n.av.
- Respiratory or skin sensitisation: n.av.
- Germ cell mutagenicity: n.av.
- Carcinogenicity: n.av.
- Reproductive toxicity: n.av.

Specific target organ toxicity
(single exposure):

Product/ingredient name	Category	Route of exposure	Target organs
Proteases	Category 3	Not determined	Respiratory tract irritation

Specific target organ toxicity

- (repeated exposure): n.av.
- Aspiration hazard: n.av.

11.1.1 – Practical Experience

11.1.11 n.av.

11.1.12 Practical Experience

Observations relevant for classification:

None.

Further Observations:

None.

Classification of the preparation has been done by calculation in accordance with EEC directives.

11.2 Information on the likely routes of exposure

Routes of entry anticipated: Dermal, Inhalation.

11.3 Potential acute health effects

Inhalation:

May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion:

Irritating to mouth, throat and stomach.

Skin contact:

Causes skin irritation.

Eye contact:

Causes serious eye irritation.

11.4 Symptoms related to the physical, chemical and toxicological characteristics

Inhalation:

Adverse symptoms may include the following:

- respiratory tract irritation
- coughing
- wheezing and breathing difficulties
- asthma

Ingestion:

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No specific data.

Skin contact:

Adverse symptoms may include the following:

irritation

redness

Eye contact:

Adverse symptoms may include the following:

pain or irritation

watering

redness

11.5 Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects: n.av.

Potential delayed effects: n.av.

Long term exposure

Potential immediate effects: n.av.

Potential delayed effects: n.av.

Potential chronic health effects: n.av.

11.6 Conclusion/Summary

General:

Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity:

No known significant effects or critical hazards.

Mutagenicity:

No known significant effects or critical hazards.

Teratogenicity:

No known significant effects or critical hazards.

Developmental effects:

No known significant effects or critical hazards.

Fertility effects:

No known significant effects or critical hazards.

Other information:

n.av.

SECTION 12: Ecological information

12.1 Toxicity

n.av.

12.2 Persistence and degradability

n.av.

12.3 Bioaccumulative potential

n.av.

12.4 Mobility in soil

n.av.

12.5 Results of PBT and vPvB assessment

This mixture contains no substances which are assessed to be PBT or vPvB.

12.6 Other adverse effects

12.6.1 COD-Value, mg/g: n.av.

12.6.2 BOD5-Value, mg/g: n.av.

12.6.3 AOX-Remarks: n.ap.

12.6.4 Significant Components: None.

12.6.5 Other adverse effects: n.ap.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

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13.1.1 Product methods of disposal

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

13.1.2 Packaging methods of disposal

The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

13.2 Contaminated Packaging

Recommendation: n.av.
Safe Handling: as described under 13.1.1

13.2.3 Waste - Code - No.

n.av.

13.3 Special precautions

This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR Not classified as dangerous in the meaning of transport regulations.	IMDG Not classified as dangerous in the meaning of transport regulations.	IATA Not classified as dangerous in the meaning of transport regulations.
14.1	UN number		
14.2	UN proper shipping name		
14.3	Transport hazard class(es)		
14.4	Packing group		
14.5	Environmental hazards		
14.6	Special precautions for user		Packing Instructions (Passenger) Packing Instructions (Cargo)
	Transport category: Classification Code: Hazard - No.: LQ:		
14.7	Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code		
	None.		

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

n.ap.

15.2 Chemical safety assessment:

None.

SECTION 16: Other information

16.1 Abbreviations and acronyms

ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No.1272/2008]
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement

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PNEC = Predicted No Effect Concentration

RRN = REACH Registration Number

16.2 **Full text of hazard and/or precautionary statements from section 2 to 15**

16.2.1 **Full text of abbreviated H statements**

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.

16.2.2 **Full text of classifications [CLP/GHS]**

Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2

Resp. Sens. 1, H334 RESPIRATORY SENSITIZATION - Category 1

Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2

STOT SE 3, H335 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Respiratory tract irritation] - Category 3

16.3 **Other**

This datasheet has been compiled in accordance with EU regulation 453/2010. The statements in this Material Safety Data Sheet were made to the best of our knowledge and are as accurate as possible. They are given for information only. They do not constitute a contractual guarantee of a product's properties. They must neither be altered nor transferred to other products.

16.4 **Notice to reader**

The statements contained herein are based upon technical data that Minerva Biolabs GmbH believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. Minerva Biolabs GmbH MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.