



MATERIAL SAFETY DATA SHEET

According to EC directive 1907/2006 REACH Regulations
As amended through EC Directive 1272/2008 CLP Regulation
Version 02 Revision Date: 01/05/10

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Product Details:

Trade Name: Proteinase K

Catalogue Number: BIO-37037, 100mg
 BIO-37039, 1000mg

1.2 Use of the substance/preparation

Proteinase K is a broad-spectrum serine proteinase, an enzyme which digests proteins.

Common uses of Proteinase K are as follows:

Inactivation of RNases/DNases during nucleic acid extraction

Protein modification

General protein digestion

Determination of enzyme localisation

1.3 Company Details:

Manufacturer/ Supplier: Bioline
 16 The Edge Business Centre
 Humber Road
 London
 NW2 6EW
 Tel: +44 (0)20 8830 5300
 Fax: +44 (0)20 8452 2822
 Email: tech@bioline.com

Further Information Obtainable from:

Technical Services

Details as above

1.4 Emergency Details:

24-Hour Contact in case of emergency:

Vergiftungs-Informationen-Zentrale

Mathilden Strasse 1

79106 Freiburg

GERMANY

Tel: +49 (0) 761 19240.

2. HAZARDS IDENTIFICATION

2.1 Hazard present to man and the environment

Irritating to eyes, skin and respiratory system.
May cause sensitization by inhalation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Specific target organ toxicity – Lungs
Do not breathe dust or allow dusts to form.
Do not allow to enter ground water or drainage system.
Immediately wash any area of skin which may have come into contact with this product.
Immediately remove and wash any clothing which may have come into contact with this product.
Use only in well ventilated area.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Chemical Characterisation:

PROTEINASE K

CAS #	EC #	Annex I Index #	Concentration
39450-01-6	254-457-8	647-014-00-9	NA

3.2 Chemical Classification

Symbols and R Phrases (in accordance with DPD regulations)
Xn–Harmful R36/37/38- R42

Symbols and precautionary statements (in accordance with CLP regulations)

GHS07 - Warning		H315/H319/H334/H335
GHS08 - Danger		

4. FIRST AID MEASURES IN ACCORDANCE WITH DPD REGULATIONS

4.1 General advice

Upon exposure consult a physician, showing the Materials Safety Data Sheet to the doctor in attendance.

4.2 After Inhalation:

Remove to fresh air and keep affected individual at rest in a position comfortable to breathing.
Consult a physician.

4.3 After ingestion:

Wash mouth out with water provided the person is conscious (never give anything by mouth to an unconscious person). Consult a physician immediately.

4.4 After Contact with Eyes:

Rinse cautiously with water for at least 15 minutes and consult a physician.

4.5 After Contact with Skin:

Immediately wash with soap and copious amounts of water. Remove any contaminated clothing and wash before reuse. If irritation occurs seek medical advice/attention.

5. FIRE FIGHTING MEASURES

7.1 Suitable Extinguishing Media:

Water spray, CO₂, dry chemical or alcohol resistant foam. Large fires should be confronted with water spray or alcohol resistant foam. Use extinguishing measures that are appropriate to the local circumstances and the surrounding environment.

7.2 Unusual Fire Hazard:

No specific fire or explosion hazards. Decomposition products may include nitrogen oxide.

7.3 Fire Fighting Protective Measures:

Wear protective clothing to prevent contact with the skin and eyes.

Wear self-contained breathing equipment to prevent inhalation of explosive or combustion gasses.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions:

Evacuate immediate area. Use personal protective equipment. Ensure ventilation is adequate. Wear also suitable eye protection and a dust mask. Avoid dust formation.

6.2 Environmental Precautions:

Do not allow to enter the surface or ground water. Do not allow to enter sewers.

6.3 Methods for cleaning up:

Cover with dry lime or soda ash, pick up, keep in a closed container and hold for waste disposal. Ventilate area and wash spill site after material pick up is complete.

7. HANDLING AND STORAGE

7.1 Handling:

Avoid contact with eyes and skin. Avoid inhalation of dust. Wear suitable protective clothing. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation where dust is formed.

7.2 Storage:

The product should be stored in tightly closed containers, which should be kept in a cool, dry place.

The product may deteriorate if exposed to light and/or humidity for prolonged periods.

7.3 Specific use(s)

Product should be dissolved in the buffer for use (see product insert for further details) in an appropriate extraction hood or well ventilated area. Personal protection should be worn and unprotected individuals kept well away from the preparation area. Contact you site manager for specific institution / local rules for handling of dangerous substances.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Exposure limit values

Contains no substances with occupational exposure limits

8.2 Exposure controls

In accordance with DPD regulations

S 22: Do not breathe dust

S 24: Avoid contact with skin.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37: Wear suitable protective clothing and gloves.

In accordance with CLP regulations

H315 : Causes skin irritation

P264 Wash hands, arms and anywhere that may have come into contact with product thoroughly after handling

P302 + P352 If on skin: Wash with plenty of soap and water

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P332 + P313 If skin irritation occurs: Seek medical advice/attention.

P362 Take off contaminated clothing and wash before reuse

H319 : Causes serious eye irritation

P264 Wash hands, arms and anywhere that may have come into contact with product thoroughly after handling

P305 + P351 + P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P280 Wear protective gloves/protective clothing/eye protection/face protection

P337 + P313 If eye irritation persists: seek medical attention

H319: May cause allergy or asthma symptoms or breathing difficulties if inhaled

P261 Avoid breathing dust

P304 + P341 if inhaled: remove victim to fresh air and keep at rest in a position comfortable to breathing

P285 In case of inadequate ventilation wear respiratory protection

P342 + P311 if experiencing respiratory symptoms: Call a Poison Centre or doctor/physician

P501 Dispose of contents/container in accordance to local rules or mix with a combustible solvent and burn in an approved chemical incinerator

H335: May cause respiratory irritation

P312 Call a poison centre or doctor/physician if you feel unwell

P403 + P233 Store in a well ventilated place. Keep container tightly closed

P405 Store locked up

P501 Dispose of contents/container in accordance to local rules or mix with a combustible solvent and burn in an approved chemical incinerator

8.2.1 Occupational exposure controls

Engineering Measures: Use in a fume cupboard or under Local Exhaust Ventilation.

Personal Protection:

- (a) **Respiratory Protection:** Wear a suitable dust-mask, type N95 (US) or type P1 (EN143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
- (b) **Hand Protection:** Handle with gloves. The selected protective gloves must satisfy the specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it. Nitrile gloves are recommended for use, the breakdown time on exposure is <480 minutes. Use of Latex gloves is not recommended since the breakdown time on exposure is >60 minutes.
- (c) **Eye Protection:** Wearing safety goggles is advised, as is the availability of eye-wash stations.
- (d) **Skin Protection:** Lab coats should be worn during handling. Extra body protection should be chosen based on the amount and concentration of the dangerous substance at the work place. Safety deluge showers should be available.
- (e) **Hygiene Practices:** Handle in accordance with good industrial hygiene practice. Wash hands before breaks and at the end of workday. Any exposed clothing should be washed prior to re-use.

8.2.2 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.

Do not allow product to enter drains or ground water, dispose as per recommendations on section 13.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 General Information

Appearance: Solid, White powder.

Odour: Data not available

9.2 Important health, safety and environmental information

pH:	Data not available
Boiling point/range	Data not available
Flash point	Not applicable
Flammability (Solid, gas)	Data not available
Explosive properties	Data not available
Oxidising properties	Data not available
Vapour pressure	Data not available
Relative density	Data not available
Solubility	Data not available
Water solubility	Data not available
Partition coefficient: n-octanol/water	Data not available
Viscosity	Data not available
Evaporation rate	Data not available

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Vapour density Data not available

9.3 Other information

Miscibility	Data not available
Fat solubility	Data not available
Conductivity	Data not available
Melting point range	Data not available
Gas group	Data not available

10. STABILITY AND REACTIVITY

Product is stable under normal handling and storage conditions.
Thermal decomposition: None if used under ordinary conditions.

10.1 Conditions to avoid

Avoid excess heat, flame and pressure.
Avoid strong oxidising agents
Product may deteriorate if in direct sunlight or humidity.

10.2 Materials to avoid

Dangerous Reactions: Avoid contact with strong oxidising agents, acids and alkali.

10.3 Hazardous Decomposition Products

Hazardous caused by stabilizers that maybe present	None that are known
Hazardous exothermic reactions	None that are known
Safety significance of any changes in physical appearance	None that are known
Hazardous decomposition products formed upon contact contact with water.	None that are known, Contact with Water will dissolve Proteinase K forming active protease solution. This solution may be irritating to skin and eyes.
Possibility of degradation to unstable products	None that are known.

11. TOXICOLOGICAL INFORMATION

11.1 Primary Irritant Effect:

R36/37/38 or H315/H319/HH335 : Irritating to eyes, respiratory system and skin.
Adverse health effects may occur from vapours in poorly ventilated areas, including irritation of the mucous membranes of the nose, throat, respiratory tract and symptoms of headache and vomiting. If inhaled as dust may cause severe irritation and burns to nasal passages and throat. If ingested may cause severe irritation and burns to the gastro-intestinal tract.

11.2 Sensitisation Effects:

Via prolonged exposure, a sensitising effect through inhalation is possible.
Via prolonged exposure, a sensitising effect on the skin is possible.

11.3 Accute toxicity

Specific target organ toxicity – Lungs
Oral: No data available

11.4 Corrosion

Skin: No data available

11.5 Chronic Exposure

No data available

11.6 Carcinogenicity

No known significant effects or critical hazards

11.7 Mutagenicity

No known significant effects or critical hazards

11.8 Teratogenicity

No known significant effects or critical hazards

11.9 Toxicokinetic effects, metabolism and distribution

No data available

11.10 Signs and symptoms of exposure

Prolonged or repeated exposure can cause: Irritation to skin and eyes, asthma or allergic symptoms

11.11 Potential Health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation
Skin	Maybe harmful if absorbed through skin. Causes skin irritation
Eyes	Causes eye irritation
Ingestion	May be harmful if swallowed
Target organs	Lungs

11.10 Further Toxicological Information

Full toxicity data is not yet available, and all due care should be exercised.

12. ECOLOGICAL INFORMATION

12.1 Environmental Effects

Environmental Fate/Stability: Unknown
Effects on Plants or Animals: Unknown

12.2 Ecotoxicity

This product is slightly hazardous for water.
Do not allow product to come into contact with surface or ground water, and do not allow it to reach the sewage system.
Do not allow product to enter aquatic systems as it could cause a pH shift towards pH1.

12.3 Persistence and degradability

No data available

12.4 Further information on ecology

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Product Disposal:

Contact a licensed professional disposal service to dispose of this material or mix with a combustible solvent and burn in an approved chemical incinerator. 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, local, regional and national laws and regulations.

13.2 Packaging Disposal:

Unclean packaging should be disposed of as unused product.

14. TRANSPORT INFORMATION

14.1 European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Not dangerous goods

14.2 International rule for transport of Dangerous substances by Railway (RID)

Not dangerous goods

14.2 International Maritime Dangerous Goods Code IMDG

Not dangerous goods

14.3 International Air Transport Association (IATA)

Not dangerous goods

15. REGULATORY INFORMATION

15.1 Labelling According to DPD Regulations

PROTEINASE K

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GHS07 - Warning



H315/H319/H334/H335

GHS08 - Danger



H&P statements in accordance with CLP regulations

H315 : Causes skin irritation

P264 Wash hands, arms and anywhere that may have come into contact with product thoroughly after handling

P302 + P352 If on skin: Wash with plenty of soap and water

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P332 + P313 If skin irritation occurs: Seek medical advice/attention.

P362 Take off contaminated clothing and wash before reuse

H319 : Causes serious eye irritation

P264 Wash hands, arms and anywhere that may have come into contact with product thoroughly after handling

P305 + P351 + P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P280 Wear protective gloves/protective clothing/eye protection/face protection

P337 + P313 If eye irritation persists: seek medical attention

H319 : May cause allergy or asthma symptoms or breathing difficulties if inhaled

P261 Avoid breathing dust

P304 + P341 if inhaled: remove victim to fresh air and keep at rest in a position comfortable to breathing

P285 In case of inadequate ventilation wear respiratory protection

P342 + P311 if experiencing respiratory symptoms: Call a Poison Centre or doctor/physician

P501 Dispose of contents/container in accordance to local rules or mix with a combustible solvent and burn in an approved chemical incinerator

H335: May cause respiratory irritation

P312 Call a poison centre or doctor/physician if you feel unwell

P403 + P233 Store in a well ventilated place. Keep container tightly closed

P405 Store locked up

P501 Dispose of contents/container in accordance to local rules or mix with a combustible solvent and burn in an approved chemical incinerator

15.2 Labelling as it would have been under DPD regulations

ANNEX I INDEX NUMBER: 647-014-00-9

INDICATION OF DANGER: Xn - Harmful..

R&S phrases in accordance with DPD regulations

Risk-Phrases:

R 36/37/38: Irritating to eyes, respiratory system and skin.

R 42: May cause sensitisation by inhalation

Safety-Phrases:

S 22: Do not breathe dust

S 24: Avoid contact with skin.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37: Wear suitable protective clothing and gloves

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 1 Self-Classification

General safety regulations should always be observed when handling chemicals.

16. Other Information

The information provided in this Material Safety Data Sheet (MSDS) is based upon technical data that Bioline Ltd believes to be reliable. However this document is intended for information purposes only, does not purport to be all inclusive, and should be used only 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 the provided data only as a supplement to other information gathered by them and must make an independent determination of the suitability and completeness of the information from all sources to assure proper use, storage and disposal of these materials and the health and safety of employees and customers and protection to the environment. This document shall not constitute a guarantee for any specific product features. All substances and preparations may present unknown hazards and should be used with caution. Bioline Ltd 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. Bioline shall not be held liable for any damage resulting from the handling of or from contact with the above product. The information supplied in this MSDS shall not establish a legally valid contractual relationship.