Version 3. Dec 23rd 2011

TECHNICAL DATASHEET

KERATINASE PURE100

Name of the enzyme: **KERATINASE**
Organism of origin: *Bacillus licheniformis PWD-1*
Recombinant production in: *Escherichia coli* Rosetta (DE3) pLysS (Novagen; Ref: 70956), the enzyme contains a 6-histidine tag in its C-terminus end.

CAS: 37341-53-0
ENZYME COMMISSION NUMBER: 3.4.99.11
SYNONYMS: KerA

PHYSICAL DESCRIPTION:
Appearance: white powder
Form: Lyophilized powder
Quality: Nickel Affinity Chromatography
Storage Temperature: Room temperature
Long Term Storage Temperature: -20ºC/-80ºC

SPECIFICITY: Keratinase is an endopeptidase non specific Serin-protease, which cleaves non-terminal peptide bonds inside polipeptide chains. It has a particular robustness allowing it to degrade insoluble and pure keratin as well as raw materials containing high amounts of keratin.

PROPERTIES:

Molecular weight	**38,9**
Optimum pH:	**7,5**
Isoelectric point:	**8,73**
Optimum Tª (ºC)	**37**

COMPOSITION:

Identifiers	Number	Name
CAS number	37341-53-0	KerA
CAS number	77-86-1	$(HOCH_2)_3CNH_2$
CAS number	7647-14-5	NaCl
CAS number	60-24-2	$HOCH_2CH_2SH$

PURE100 KERATINASE is an Affinity Chromatographically purified protein, highly pure (>95%). For this reason, ***PURE100 KERATINASE*** is suitable for application in research and biomedicine.

ACTIVATORS:
PURE100 KERATINASE is activated by 0.10% of SDS, 1% of CTAB and EDTA.

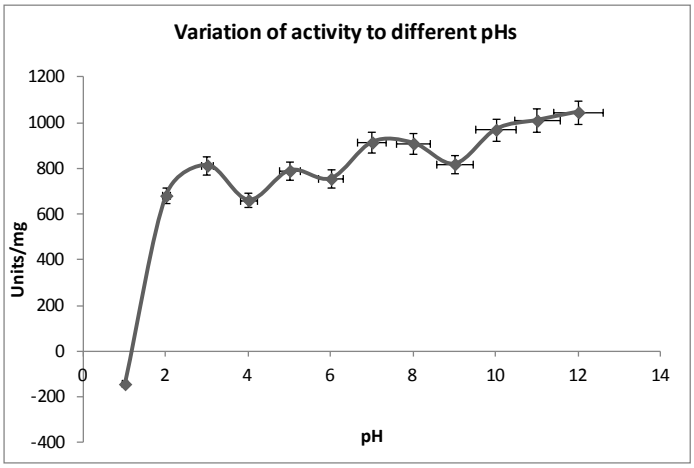
INHIBITORS:
PURE100 KERATINASE is partially inhibited by Tween 20, NaClO, methanol, ethanol, dimethyl sulfoxide, isopropyl alcohol.

SUBSTRATES:
PURE100 KERATINASE is a soluble protein in water or aqueous buffers.

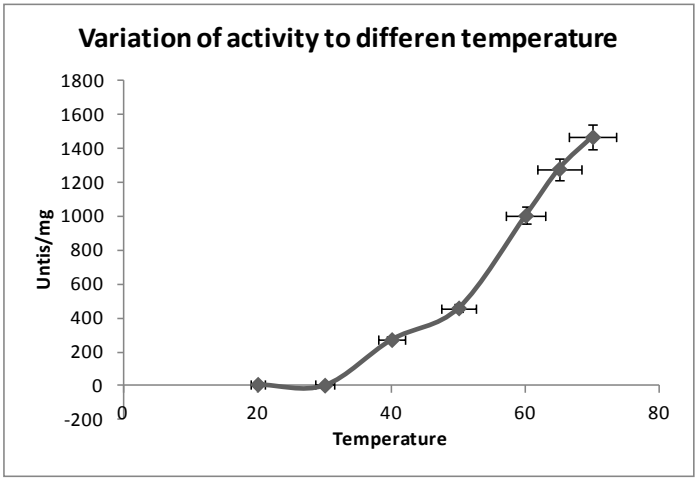
Pure100 Keratinase is a serin protease and mainly attacks on the disulfide (-S-S-) bond of the Insoluble and pure Keratin and playing a crucial role in hydrolyzing of feather, hair, wool, collagen and casein[1]. Our recombinant Keratinase bears a 6-His tag at the carboxyl end.

ENZYMATYC ACTIVITY AND CHARACTERIZATION

PURE100 KERATINASE has an activity of >1000 U/mg, with Tris-HCl buffer (using casein as substrate at 37 ºC) depending on the pH range.



The best enzymatic activity is observed at 70ºC where the enzyme shows good stability.



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KERATINASE PURE100

APPLICATIONS:

PURE100 KERATINASE is used for research, biomedical, pharmaceutical and cosmetic applications[2] [3]. In particular, this enzyme can be used for:

- Degradation of keratin (pure keratin or raw materials for research purposes)[4]
- Elimination of keratin in acne o psoriasis
- Elimination of human callus and degradation of keratinized skins,[5]
- Depilation,
- Preparation of vaccine for dermatophytosis therapy,
- Pharmaceutical enhancement of the nail treatment[6]
- Treatment of scars and epithelium regeneration

PURE100 KERATINASE is used for the degradation of prion and prion-like proteins[7] without chemical or physical treatments[8].

PURE100 KERATINASE might be employed in the decontamination of precision instruments that are susceptible to prion contamination[9], or in animal feed.

METHODS OF PREPARATION:

PURE100 KERATINASE is provided as a lyophilized powder and is stable at room temperature. For long term storage, we recommend storing the product at -20ºC/-80ºC for enzymatic activity preservation.
We recommend dissolving the enzyme immediately before using it or to store in aliquots at -20ºC for better preservation of the activity. We recommend avoiding multiple freeze-thaw cycles and exposure to frequent temperature changes.

PURE100 KERATINASE is provided in two formats, 500 U and 1.000 U. The enzyme is soluble in water and diluted salts solution; depending on the application of the enzyme, it can be dissolved in both.

The re-constitutive buffer of the enzyme is composed by 20 mM Tris-HCl buffer pH 7.0.
We recommend dissolving the enzyme in 1 ml of re-constitutive buffer in order to make an enzymatic stock solution (500 U/ml and 1.000 U/ml respectively) and aliquot for storing at -20ºC/-80ºC.

Stock solution must be diluted in the re-constitutive buffer or can be directly added into the solution where the enzyme is going to be working, in order to achieve the required enzymatic activity.

The working solution must be prepared just prior usage and remains stable if stored at 2-8ºC for 3-4 days or for long-term use if frozen at -20ºC for better preservation of the original activity.

STABILITY/STORAGE AS SUPPLIED

PURE100 KERATINASE is provided as a lyophilized powder and is stable at room temperature. For long term storage, we recommend storing the product at -20ºC/-80ºC for enzymatic activity preservation.
This product is stable for at least one year when stored at -20ºC/-80°C.

SOLUTION/SOLUTION STABILITY

Usually, solutions are prepared in Tris-HCl (20 mM, pH 7.0). If the application permits, we recommend adding 1 mM β-Mercaptoethanol at the working solution for improving the activity of the enzyme.

UNIT DEFINITIONS:

"One unit of enzyme is able to hydrolyze casein resulting in an absorbance value as the Folin-Ciocalteu reagent equivalent to 1 µmol (181g) of tyrosine per minute at pH = 7.5 at 37 º C"

REFERENCES

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