



Product Information

Nuclease S1 from *Aspergillus oryzae*

Product Number **N 5661**
Storage Temperature $-20\text{ }^{\circ}\text{C}$

EC 3.1.30.1
CAS# 37288-25-8

Product Description

Nuclease S1 isolated from *Aspergillus oryzae* exhibits endo- and exolytic hydrolytic activity for the phosphodiester bonds of single-stranded DNA and RNA yielding 5'-phosphomononucleotide and 5'-phosphooligonucleotide end-products.^{1,2} It is used to digest non-annealed polynucleotide tails and hairpin loops in RNA and DNA duplexes³ and can be used to convert superhelical DNA to the linear form.⁴

Nuclease S1 may exhibit some nickase activity at high concentrations. This nickase activity can be inhibited by including a high concentration of NaCl (approximately 200 mM) in the reaction buffer.⁵

Nuclease S1 has a molecular weight of approximately 34 kDa and exists as a monomer.⁵ The optimal pH range is 4.0 to 4.6 and it is activated by Zn^{2+} and/or Ca^{2+} ions. Nuclease S1 is inhibited by chelators, such as EDTA and citrate, and by high concentrations of SDS.⁵

This product is supplied as a solution in 30 mM sodium acetate, pH 4.6, 50 mM NaCl, 1 mM ZnCl_2 , and 50% glycerol.

Activity: minimum 100,000 units per ml

Unit Definition: One unit will cause 1.0 μg of single-stranded nucleic acid to become perchloric acid soluble per minute at pH 4.6 at $37\text{ }^{\circ}\text{C}$.

Precautions and Disclaimer

This product is for laboratory use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

The product ships on wet ice and storage at $-20\text{ }^{\circ}\text{C}$ is recommended.

Dilute solutions can be stabilized by adding 0.1% albumin and 10% glycerol

References

1. IUBMB Enzyme Nomenclature
2. Harada, F., and Dahlberg, J.E., *Nucleic Acids Res.*, **2**, 865-71 (1975).
3. Sambrook, J., et al., *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor, (Cold Spring Harbor, NY: 1989), p 8.15.
4. Beard, P., et al., *J. Virol.*, **12**, 1303-1313 (1973).
5. Vogt, V., *Meth. Enzymol.*, **65**, 248 (1980).

RBG/MAM 11/03

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.