

Glycerol-free dsDNases

ArcticZymes presents glycerol-free versions of both dsDNase and HL-dsDNase suitable for lyophilization and automation.

The double-strand specific DNases (dsDNases) are unique endonucleases with strong preference for double stranded DNA. These nucleases can be used to specifically remove dsDNA in the presence of ssDNA or RNA molecules. The yielding product is oligonucleotides with 5'-phosphates and 3'-hydroxyl termini. Both dsDNases have a high specific activity and can easily be inactivated by moderate heat treatment.

Activity and inactivation

The dsDNases are highly active in a temperature range of 20-40°C, with optimum being at 37°C. A minimum of 2.5 mM Mg²⁺ is required for activity and the enzymes have an optimal pH at 7.5. Irreversible inactivation is achieved following 5 minutes at 58°C for the Glycerol-free HL-dsDNase and 15 minutes at 65°C for the Glycerol-free dsDNase. A final concentration of 1 mM DTT and pH ≥ 8 is required for complete inactivation. It is also possible to inactivate the enzymes by addition of EDTA

Specificity

The dsDNases have a high specificity towards dsDNA, leaving other nucleic acids intact, as shown in table to the right. The specificity of the dsDNases have been measured using a 15-mer oligonucleotide labeled with 5'- FAM and 3'-DarkQuencher®.

Substrate	Relative activity
dsDNA	100%
ssDNA	< 0.03%
dsRNA	< 0.01%
ssRNA	< 0.01%

Unit definition

One unit is defined as an increase in absorbance at 260 nm of 0.001 per minute, using 50 mg/ml of high MW DNA in 50mM Na-acetate pH 5.0 and 5 mM MgCl₂.

Storage buffer

The enzymes are supplied in 20 mM Tris-HCl pH 7.5, 10 mM NaCl, 2 mM MgCl₂, 0.01% Triton X-100 (v/v).

Stability

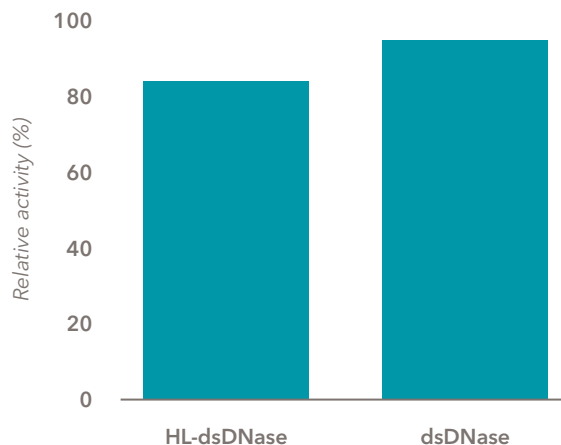
The enzymes are stable at -20°C for > 2 year in the supplied Storage buffer.

Specific activity

The specific activity is > 400 000 Units/mg for the Glycerol-free dsDNase and > 200 000 Units/mg for the Glycerol-free HL-dsDNase.

Lyophilization-ready format

Glycerol-free dsDNase and Glycerol-free HL-dsDNase were lyophilized and reconstituted to a final concentration of 0.5 U/ μ l. Activity measurements showed that both nucleases retained excellent activity throughout the process, as shown in the figure to the right.



Activity of lyophilized and reconstituted Glycerol-free dsDNases. The image shows the relative activity of Glycerol-free dsDNases following lyophilization and reconstitution as compared to a reference sample. Activity was measured using a Kunitz assay.

Purity

The enzymes are purified to apparent homogeneity.

ArcticZymes is dedicated to the quality of our products.

We manufacture all our products at our ISO:9001 certified facility in Norway.

Ordering information

Product name	Catalogue #	Concentration	Size	Units
Glycerol-free dsDNase	70610-50	80-140 U/ μ l	50 μ l	≈ 5 kU
Glycerol-free HL-dsDNase	70810-50	80-140 U/ μ l	50 μ l	≈ 5 kU

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