**Proteinase K**

**Applications:**
- Isolation of plasmid and genomic DNA
- Isolation of RNA
- Inactivation of RNases, DNases and enzymes in reactions

Supplied in: 20 mM Tris-HCl (pH 7.4), 1 mM CaCl$_2$ and 50% glycerol.

**Reaction Conditions:**
Proteinase K is active in a wide range of buffers (pH 4.0–12.5) temperatures (37–60°C) and salts such as GuHCl (3 M) and urea (4 M). It is also active in detergents such as Tween 20 (5%), Triton X-100 (1%) and SDS (1%).

**Unit Definition:**
One unit is defined as the amount of enzyme required to liberate folin-positive amino acids and peptides corresponding to 1 µmol of tyrosine in 1 minute at 37°C in a total reaction volume of 250 µl.

**Specific Activity:**
30 units/mg

**Molecular Weight:**
28.9 kDa

**Quality Control Assays**

**16-Hour Incubation:** A 50 µl reaction containing 1 µg of λ DNA/HindIII digest and 1.8 units of enzyme incubated for 16 hours resulted in the same pattern of DNA bands as a reaction incubated for one hour.

**Exonuclease Activity:**
Incubation of 6 units of enzyme with 1 µg sonicated $^3$H DNA (10$^5$ cpm/µg) for 4 hours at 37°C in 50 µl reaction buffer released < 0.2% radioactivity.

**Endonuclease Activity:**
Incubation of 1.8 units of enzyme with 1 µg φX174 RF I DNA for 4 hours at 37°C in a 50 µl reaction buffer resulted in < 5% conversion to RF II.

**RNase Activity:**
Incubation of 6 units of enzyme for 4 hours at 37°C in 50 µl assay buffer with 1 µg MS2 RNA resulted in no detectable degradation of the RNA as determined by gel electrophoresis.

**Reference:**

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