Description: BAL-31 exonuclease degrades both 3' and 5' termini of duplex DNA without generating internal scissions. The enzyme is also a highly specific single-stranded endonuclease which cleaves at nicks, gaps and single-stranded regions of duplex DNA and RNA ([1], [2]).

Source: Purified from the culture medium of Alteromonas espejiana BAL-31. Contains a mixture of ‘fast’ and ‘slow’ species of the enzyme ([3]).

Applications:
- Progressive shortening of double-stranded DNA fragments at both termini (4)
- Restriction site mapping (2).

Supplied in: 50 mM NaCl, 10 mM Tris-HCl (pH 8.0), 1.5 mM CaCl₂, 1.5 mM MgCl₂, 0.25 mM EDTA, 200 µg/ml BSA and 50% glycerol.

Reagents Supplied with Enzyme:
- 2X Nuclease BAL-31 Reaction Buffer.
- 50 units Lot: 0401402 Exp: 2/16

Reaction Conditions: 1X Nuclease BAL-31 Reaction Buffer. Incubate at 30°C.

1X Nuclease BAL-31 Reaction Buffer:
- 600 mM NaCl
- 12 mM CaCl₂
- 12 mM MgCl₂
- 20 mM Tris-HCl
- 1 mM EDTA
- pH 8.0 @ 25°C

Unit Definition: One unit is defined as the amount of enzyme required to remove 200 base pairs from each end of linearized double-stranded φX174 DNA (40 µg/ml) in 50 µl of 1X Nuclease BAL-31 Reaction Buffer in 10 minutes at 30°C.

Notes On Use: Duplex products of the exonuclease are a mixture of blunt and staggered ends. This mixture can be cloned directly, although maximal ligation efficiency requires repairing the staggered ends with a suitable DNA polymerase.

If necessary, the enzyme may be diluted in reaction buffer prior to use.

Activity is linear with enzyme concentration.

References: