Bst 2.0 WarmStart DNA Polymerase displays improved amplification speed, yield, salt tolerance, and thermostability compared to wild-type Bst DNA Polymerase, Large Fragment.

**Source:** Bst 2.0 WarmStart DNA Polymerase is prepared from an E. coli strain that expresses the Bst 2.0 DNA Polymerase protein from an inducible promoter.

**Applications:**
- Isothermal amplification (LAMP)
- Applications requiring strand-displacement DNA synthesis
- DNA sequencing through high GC regions
- Rapid sequencing from nanogram amounts of DNA template

**Reagents Supplied with Enzyme:**
- Isothermal Amplification Buffer (10X) 100 mM MgSO₄

5′→3′ exonuclease activity. Bst 2.0 WarmStart DNA Polymerase displays improved amplification speed, yield, salt tolerance, and thermostability compared to wild-type Bst DNA Polymerase, Large Fragment.

1. **Isothermal Amplification Buffer:**
   - 20 mM Tris-HCl
   - 10 mM (NH₄)₂SO₄
   - 50 mM KCl
   - 2 mM MgSO₄
   - 0.1% Tween® 20
   - pH 8.8 @ 25°C

**Unit Definition:**
One unit is defined as the amount of enzyme that will incorporate 25 nmol of dNTP into acid insoluble material in 30 minutes at 65°C.

**Unit Assay Conditions:**
- 50 mM KCl, 20 mM Tris-HCl (pH 8.8), 10 mM MgCl₂, 30 mM M13mp18 SS DNA, 70 mM M13 sequencing primer (47) 24 mer, 200 µM dATP, 200 µM dCTP, 200 µM dGTP, 100 µM dTTP including [³²P]-dTTP and 100 µg/ml BSA.

**Heat Inactivation:**
- 80°C for 20 minutes.

**General Guidelines:**
1. A LAMP Primer Mix can be prepared with all 4 or 6 (with Loop) primers. A 25X Primer Mix should contain: 40 µM FIP, 40 µM BIP, 5 µM F3, 5 µM B3, 10 µM LoopF, 10 µM LoopB in TE or water.
Physical Purity: Purified to > 99% homogeneity as determined by SDS-PAGE analysis using Coomassie Blue detection.

Phosphatase Assay: Incubation of a 200 µl reaction in 1 M Diethanolamine (pH 9.8) and 0.5 mM MgCl₂, containing 2.5 mM p-Nitrophenol Phosphate and a minimum of 100 units of Bst 2.0 DNA Polymerase incubated for 4 hours at 37°C yields no detectable phosphatase activity as determined by spectrophotometric analysis of released p-nitrophenylene anion at 405 nm.

RNase Activity: Incubation of a 10 µl reaction in 1X NEBuffer 4 containing a minimum of 1 µl of Bst 2.0 WarmStart DNA Polymerase and 40 ng of F-300 RNA transcript incubated for 16 hours at 37°C results in < 10% substrate degradation as determined by gel electrophoresis using fluorescent detection.

Enzyme Properties: Activity in NEBuffers
- ThermoPol Buffer 125%
- Unit Assay Conditions 100%
- NEBuffer 1 25%
- NEBuffer 2 100%
- NEBuffer 3 100%
- NEBuffer 4 100%
- NEBuffer EcoRI 100%

Notes on Use: Bst 2.0 WarmStart DNA Polymerase does not exhibit 3’ → 5’ exonuclease activity. Reaction temperatures above 70°C are not recommended. Bst 2.0 WarmStart DNA Polymerase cannot be used for thermal cycle sequencing or PCR.

Companion Products Sold Separately:
- Bst 2.0 DNA Polymerase
  - #M0537S 1,600 units
  - #M0537L 8,000 units
- Bst DNA Polymerase, Large Fragment
  - #M0275S 1,600 units
  - #M0275L 8,000 units
- Bst DNA Polymerase, Small Fragment
  - #M0275M 8,000 units
- Magnesium Sulfate (MgSO₄) Solution
  - #B1003S 6.0 ml
- Isothermal Amplification Buffer Pack
  - #B0537S 6.0 ml
- Deoxynucleotide Solution Set
  - #N0446S 25 µmol each
- Deoxynucleotide Solution Mix
  - #N0447S 8 µmol each
  - #N0447L 40 µmol each

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  - #B1003S 6.0 ml
- Isothermal Amplification Buffer Pack
  - #B0537S 6.0 ml
- Deoxynucleotide Solution Set
  - #N0446S 25 µmol each
- Deoxynucleotide Solution Mix
  - #N0447S 8 µmol each
  - #N0447L 40 µmol each

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