# New England Biolabs

## Product Specification

**Product Name:** OneTaq® GC Reaction Buffer Pack

**Catalog #:** B9023S

**Concentration:** 5X Concentrate

**Shelf Life:** 36 months

**Storage Temp:** -20°C

**Composition (1X):**

- 80 mM Tris-SO₄
- 20 mM (NH₄)₂SO₄
- 2 mM MgSO₄
- 5 % Glycerol
- 5 % DMSO
- 0.06 % IGEPAL® CA-630
- 0.05 % Tween® 20
- (pH 9.2 @ 25°C)

**Specification Version:** PS-B9023S v1.0

**Effective Date:** 10 Aug 2016

### Assay Name/Specification (minimum release criteria)

**Endonuclease Activity (Nicking, Buffer)** - A 50 µl reaction in 2X OneTaq® GC Reaction Buffer containing 1 µg of supercoiled PhiX174 DNA incubated for 4 hours at 37°C results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.

**Non-Specific DNase Activity (16 hour, Buffer)** - A 50 µl reaction in 2X OneTaq® GC Reaction Buffer containing 1 µg of T3 DNA in addition to a reaction containing Lambda-HindIII DNA incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.

**PCR Amplification (Buffer Dependent, >65% GC-rich, Buffer)** - A 25 µl reaction in OneTaq® GC Reaction Buffer in the presence of 200 µM dNTPs and 0.2 µM primers containing 10 ng Human Genomic DNA with 0.625 units of OneTaq® DNA Polymerase for 30 cycles of PCR amplification results in the buffer-dependent production of the expected 737 bp product.

**PCR Amplification (Enhancer Dependent, >70% GC-rich, Buffer)** - A 25 µl reaction in OneTaq® GC Reaction Buffer and 20% OneTaq® High GC Enhancer in the presence of 200 µM dNTPs and 0.2 µM primers containing 10 ng Human Genomic DNA with 0.625 units of OneTaq® DNA Polymerase for 30 cycles of PCR amplification results in the enhancer-dependent production of the expected 627 bp product.

**pH (buffers/solutions)** - The pH of 5X OneTaq® GC Reaction Buffer is between pH 9.1 and 9.3 at 25°C.

**Phosphatase Activity (pNPP, Buffer)** - A 200 µl reaction in 1M Diethanolamine @ pH 9.8 and 0.5 mM MgCl₂ containing 2.5 mM p-Nitrophenyl Phosphate (pNPP) and a minimum of 80 µl OneTaq® GC Reaction Buffer incubated for 4 hours at 37°C yields <0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.
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<tr>
<th>Assay Name/Specification (minimum release criteria)</th>
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<tr>
<td><strong>qPCR DNA Contamination (E. coli Genomic, Buffer)</strong> - A minimum of 1 µl of One Taq® GC Reaction Buffer is screened for the presence of <em>E. coli</em> genomic DNA using SYBR® Green qPCR with primers specific for the <em>E. coli</em> 16S rRNA locus. Results are quantified using a standard curve generated from purified <em>E. coli</em> genomic DNA. The measured level of <em>E. coli</em> genomic DNA contamination is ≤ 1 <em>E. coli</em> genome.</td>
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<td><strong>RNase Activity (Extended Digestion)</strong> - A 10 µl reaction in NEBuffer 4 containing 40 ng of a 300 base single-stranded RNA and a minimum of 1 µl of One Taq® GC Reaction Buffer is incubated at 37°C. After incubation for 4 hours, &gt;90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection.</td>
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Derek Robinson
Director of Quality Control

Date 10 Aug 2016