Product Name: T7 RNA Polymerase
Catalog Number: M0251S
Concentration: 50,000 U/ml
Unit Definition: One unit is defined as the amount of enzyme that will incorporate 1 nmol ATP into acid-insoluble material in a total reaction volume of 50 µl in 1 hour at 37°C in 1X RNA Polymerase Reaction Buffer.

Packaging Lot Number: 10054654
Expiration Date: 10/2021
Storage Temperature: -20°C
Storage Conditions: 100 mM NaCl, 50 mM Tris-HCl (pH 7.9), 1 mM EDTA, 20 mM BME, 0.1% Triton X-100, 50% Glycerol

Speciation Version: PS-M0251S/L v3.0

### T7 RNA Polymerase Component List

<table>
<thead>
<tr>
<th>NEB Part Number</th>
<th>Component Description</th>
<th>Lot Number</th>
<th>Individual QC Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>M0251SVIAL</td>
<td>T7 RNA Polymerase</td>
<td>10054652</td>
<td>Pass</td>
</tr>
<tr>
<td>B9012SVIAL</td>
<td>RNAPol Reaction Buffer</td>
<td>10051065</td>
<td>Pass</td>
</tr>
</tbody>
</table>

### Assay Name/Specification

#### Endonuclease Activity (Nicking)

A 50 µl reaction in RNAPol Reaction Buffer containing 1 µg of supercoiled PhiX174 DNA and a minimum of 150 units of T7 RNA Polymerase incubated for 4 hours at 37°C results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.

Lot # 10054654: Pass

#### Exonuclease Activity (Radioactivity Release)

A 50 µl reaction in RNAPol Reaction Buffer containing 1 µg of a mixture of single and double-stranded [³H] E. coli DNA and a minimum of 150 units of T7 RNA Polymerase incubated for 4 hours at 37°C releases <0.1% of the total radioactivity.

Lot # 10054654: Pass

#### Non-Specific DNase Activity (16 Hour)

A 50 µl reaction in RNAPol Reaction Buffer containing 1 µg of Lambda DNA and a minimum of 250 units of T7 RNA Polymerase incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.

Lot # 10054654: Pass

#### Promoter Specificity

Lot # 10054654: Pass
### Assay Name/Specification

<table>
<thead>
<tr>
<th>Assay Name/Specification</th>
<th>Lot # 10054654</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 50 µl reaction in RNAPol Reaction Buffer in the presence of 2 mM NTPs containing 1 µg of Lambda DNA as a template and a minimum of 200 units of T7 RNA Polymerase incubated for 1 hour at 37°C results in &lt;1.5% of the amount of product incorporated as compared to a control reaction using T7 DNA as a template.</td>
<td></td>
</tr>
<tr>
<td><strong>Protein Purity Assay (SDS-PAGE)</strong></td>
<td>Pass</td>
</tr>
<tr>
<td>T7 RNA Polymerase is ≥ 95% pure as determined by SDS-PAGE analysis using Coomassie Blue detection.</td>
<td></td>
</tr>
<tr>
<td><strong>RNase Activity (Extended Digestion)</strong></td>
<td>Pass</td>
</tr>
<tr>
<td>A 10 µl reaction in RNAPol Reaction Buffer containing 40 ng of a 300 base single-stranded RNA and a minimum of 50 units of T7 RNA Polymerase 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>
<td></td>
</tr>
</tbody>
</table>

This product has been tested and shown to be in compliance with all specifications.

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Dongxian Yue  
Production Scientist  
13 Aug 2019

Jay Minichiello  
Packaging Quality Control Inspector  
02 Dec 2019