

Thermo Scientific *Taq* DNA Polymerase with KCl Buffer

Description: An ultrapure recombinant thermostable *Taq* DNA polymerase obtained by high level expression of the *Taq* DNA polymerase gene in *E. coli*. It is licensed and optimized for use in the Polymerase Chain Reaction (PCR) process.

Enzyme Source: *Thermus aquaticus*

Concentration: 5 units/μl

Unit Definition: One unit of enzyme is defined as the amount that will incorporate 10nmoles of dNTPs into acid insoluble material in 30 minutes at 74°C under the analysis conditions below.

Associated Activities: *Taq* DNA polymerase has 5' to 3' polymerization and exonuclease activity but lacks 3' to 5' exonuclease activity (proofreading).

Kit Contents

Vial	Pack Size (cap color)	
	A	B
<i>Taq</i> DNA Polymerase	50 μl (clear)	10 x 50 μl (clear)
Reaction Buffer II	1.25 ml (clear)	10 x 1.25 ml (clear)
MgCl ₂	1.25 ml (clear)	10 x 1.25 ml (clear)

<u><i>Taq</i> DNA Polymerase:</u>	100 mM	KCl
	20 mM	Tris-HCl, pH 8.0 (at 25°C)
	0.1 mM	EDTA (ethylenediaminetetraacetic acid)
	1 mM	DTT (dithiothreitol)
	0.5%	Tween® 20
	0.5%	Nonidet® P40
	50% (v/v)	Glycerol

<u>Reaction Buffer II (10X):</u>	100 mM	Tris-HCl, pH 8.3 (at 25°C)
	500 mM	KCl

<u>MgCl₂</u>	25 mM	MgCl ₂
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Storage Conditions: Store *Taq* DNA polymerase at -20°C. Shipped on ice within the UK and on dry ice for international and within the US.

Example of Protocol: Mix and spin down the solutions prior to use

	Volume	Final Concentration 1X
<i>Taq</i> DNA Polymerase (5U/μl)	0.125 μl	0.625 U
10X Reaction Buffer II	2.5 μl	1X
dNTP Mix (20mM)	1 μl	0.2 mM of each nucleotide
MgCl ₂ (25mM)	1.5 μl*	1.5 mM*
Primer forward (10μM each)	1.25 μl*	0.5 μM*
Primer reverse (10μM each)	1.25 μl*	0.5 μM*
Water (PCR Grade)	Variable	
DNA Template	0.5 – 10 μl	0.5 – 125 ng
Total volume	25 μl	

*Scale up or down the volume and concentration as appropriate
MgCl₂ concentration is usually between 1.5 and 4.0mM

Example of Program:

	Temp.	Time	Number of cycle
Initial Denaturation	94°C	2 min	1 cycle
Denaturation	94°C	20 sec	30 to 40 cycles
Annealing	50-65°C	30 sec	
Extension**	72°C	60 sec	
Final Extension	72°C	5 min	1 cycle

**Increase length of time in proportion to size of amplicon, *Taq* DNA Polymerase extends at approximately 1000 bp/min.

Analysis Conditions:	25mM	TAPS, pH 9.3 (at 25°C)
	50mM	[tris-(hydroxymethyl)-methyl-amino-propane sulfonic acid, sodium salt]
	2mM	KCl
	1mM	MgCl ₂
	250µM	β-mercaptoethanol
	250µM	of each: dCTP, dGTP, dTTP
	1.25µg/µl	[³ H] dATP (0.05 Ci/mmol)
		activated salmon sperm DNA

Water added to a total volume of 50µl. Incubated at 74°C for 10 minutes.

Ordering Information:	AB-0192/KCl/A	<i>Taq</i> DNA Polymerase	250 units
	AB-0192/KCl/B	<i>Taq</i> DNA Polymerase	10 x 250 units

All sizes are supplied with 10X Reaction Buffer II and 25mM MgCl₂.

For technical information or troubleshooting contact Thermo Scientific Genomics Tech Support:

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