Data sheet

JENA BIOSCIENCE

Taq Pol / high yield buffer

Thermostable DNA polymerase

Thermus aquaticus, recombinant, *E. coli*

Cat.-No.	Size	Conc.
PCR-201S	200 units	5 units/µl
PCR-201L	1000 units	5 units/µl

For *in vitro* use only
Quality guaranteed for 12 months
Store at -20°C, avoid frequent thawing and freezing

Taq Pol (red cap)
5 units/µl Taq DNA Polymerase in 20 mM Tris-HCl, 100 mM KCl, 0.1 EDTA, 1 mM DTT, 0.5% Tween-20, 0.5% Nonidet P-40, 50% (v/v) Glycerol, pH 8.0 (25°C)

10x High yield buffer complete (green cap)
670 mM Tris-HCl, 166 mM $(NH_4)_2SO_4$, 15 mM $MgCl_2$, 4.5% Triton X-100, 2 mg/ml Gelatin, pH 8.8 (25°C)

10x High yield buffer without $MgCl_2$ (blue cap)
670 mM Tris-HCl, 166 mM $(NH_4)_2SO_4$, 4.5% Triton X-100, 2 mg/ml Gelatin, pH 8.8 (25°C)

$MgCl_2$ stock solution (yellow cap)
25 mM $MgCl_2$

Description
Taq Pol / high yield buffer is recommended for use in routine PCR reactions. The buffer system is optimized for high efficiency and gives superior amplification results in a broad range of reaction conditions with most primer-template pairs. The buffer system facilitates the incorporation of labeled or modified nucleotides into DNA. Note that the ammonium based buffer system contains detergent and is not recommended for plate based PCR and automated pipetting.
The enzyme replicates DNA at 72°C. It catalyzes the polymerization of nucleotides into duplex DNA in 5'→3' direction in the presence of magnesium. It also possesses a 5'→3' polymerization-dependent exo-nuclease replacement activity but lacks a 3'→5' exonuclease activity.

Unit definition
One unit is defined as the amount of the enzyme required to catalyze the incorporation of 10 nmoles of dNTP's into an acid-insoluble form in 30 minutes at 70°C using hering sperm DNA as substrate.

Recommended PCR assay

50 µl PCR assay		
5 µl	10x High yield buffer complete	green cap
200 µM	each dNTP	
0.2-1 µM	each Primer	
2-50 ng	Template DNA	
0.2-0.5 µl (1-2.5 u)	Taq Pol	red cap
Fill up to 50 µl	PCR grade H_2O	

Optimization of $MgCl_2$ concentration
A concentration of 1.5 mM Mg^{2+} is recommended for most applications. For an individual optimization use the reaction buffer without $MgCl_2$ and add $MgCl_2$ stock solution as shown in the table below.

50 µl PCR assay				
$MgCl_2$ stock.	2 µl	3 µl	4 µl	6 µl
Final $MgCl_2$ conc.	1 mM	1.5 mM	2 mM	3 mM