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Product Information Sheet

Product Name: Integrity PFU High Fidelity Polymerase™ with 10X Integrity PFU Reaction Buffer *

Concentration: Integrity PFU High Fidelity Polymerase™: 2 Units/µL, Integrity PFU Reaction Buffer: 10X, Magnesium Sulfate: 100mM
Storage and Handling: Upon arrival store at -20°C for provided expiration date.
Ordering Information:

Item Number	Units	Number of Tubes and Volumes
HF-RB-MG-500	500	Integrity PFU High Fidelity Polymerase™: 1 x 250µL, 10X Integrity PFU Reaction Buffer: 2 x 1250µL, 100mM Magnesium Sulfate: 1 x 1mL
HF-RB-MG-1000	1000	Integrity PFU High Fidelity Polymerase™: 2 x 250µL, 10X Integrity PFU Reaction Buffer: 4 x 1250µL, 100mM Magnesium Sulfate: 1 x 1mL

Product Description:

Integrity PFU High Fidelity Polymerase™:
Empirical's Integrity PFU High Fidelity Polymerase™ is a high-fidelity DNA polymerase isolated from *Pyrococcus GBD* and expressed in *E.coli*. The Integrity PFU enzyme contains an integral 3'→5' proofreading exonuclease activity that increases the fidelity of Integrity PFU about six-fold greater than Taq alone. Integrity PFU is extremely thermostable at temperatures of 95°C to 100°C and is free off contaminating endonucleases.

10X Integrity PFU Reaction Buffer:
Specially optimized reaction buffer specifically manufactured for Integrity PFU High Fidelity Polymerase™.
This Buffer is supplied in a 10X concentration and should be diluted for use.

100mM Magnesium Sulfate:
100mM $MgSO_4$

Protocol: Minimize Freeze thaw of master mix to avoid loss of performance. The following reaction set up and general cycling conditions are recommended but can vary depending on the template and primers being used.
Reaction set-up for a 50uL Reaction:

Component	Volume	Final Concentration
10X Integrity PFU Reaction Buffer	5 µl	1X
Upstream Primer, 10µM	1.0-5.0 µl	0.4-1.0µM
Downstream Primer, 10µM	1.0-5.0 µl	0.4-1.0µM
dNTP, 10mM	2-4 µl	400-800µM
DNA Template	X µl	>25ng DNA
Integrity PFU High Fidelity	0.25-0.5uL	0.5U-1U
Nuclease Free Water	to 50 µl	N.A.

Magnesium Concentration can be increased with provided solution.

Thermal cycling conditions: The following general cycling conditions are recommended but can vary depending on the template and primers being used.

Cycling Step	Temperature	Holding Time	Cycles
Initial Denaturation	94˚C-95˚C	2min	1
Denaturation	94-96˚C	15 - 30sec	30
Annealing#	55-65˚C	15 - 60sec	
Extension	70-72˚C	1min/kb	
Final Extension	70-72˚C	5-10min	1

#Annealing will depend on primer length and composition. Generally, begin 5˚C below primer T_m.