

EUROPE

LIEGE SCIENCE PARK • 4102 Seraing • Belgium • Tel.: +32 4 372 74 00
Fax: +32 4 372 75 00 • info@eurogentec.com • www.eurogentec.com

NORTH AMERICA

ANASPEC - 34801 Campus Drive • Fremont, CA 94555 • USA
Tel.: 510-791-9560 • Toll-free: 800-452-5530 • Fax: 510-791-9572
info.anaspec@eurogentec.com • www.eurogentec.com

Hot Diamond *Taq*[®] DNA Polymerase

Specification Sheet

Reference: TAQ-I033

Eurogentec products are sold for research or laboratory use only and are not to be administrated to humans or used for medical diagnostics.

For medical diagnostics, please use the TAQ-I032 references.

Source

Hot Diamond *Taq*[®] is a highly thermostable enzyme produced and purified from recombinant *Escherichia coli* bacterium containing the *Thermus aquaticus* DNA Polymerase gene.

Intended use

Hot Diamond *Taq*[®] is a DNA polymerase exhibiting **unique Hot Start characteristics**. A proprietary agent prevents non-specific polymerisation; thereby preventing primer-dimer formation and increasing the PCR yield of specific products.

Hot Diamond *Taq*[®] is particularly suited for PCR applications that require high sensitivity and ultra low levels of bacterial & fungal DNA. The GMP manufacturing & purification processes minimize the risk of false positive results due to residual DNA contamination (bacterial or fungal). The enzyme is QC-tested to verify that < 1fg of genomic *E. coli* DNA (or 0.2 copy) is present in a standard aliquot containing 1 unit of *Taq*. Bioburden is guaranteed ≤ 10 CFU/ml, but is typically = 0 CFU/ml.

Package contents

Reference	Units	Volume	Concentration	Volume Hot Diamond <i>Taq</i> [®] reaction buffer (10 X)*	Volume 25 mM MgCl ₂
TAQ-I033-100 (sample)	100	20 µl	5 U/µl	1 ml	1 ml
TAQ-I033-1000	1000	200 µl	5 U/µl	6 ml	6 ml
TAQ-I033-5000	5000	1 ml	5 U/µl	30 ml	30 ml
TAQ-I033-25000	5 x 5000	5 x 1 ml	5 U/µl	5 x 30 ml	5 x 30 ml

*750 mM Tris-HCl pH 8.8 (at 19 °C), 200 mM (NH₄)₂SO₄, 0.1% (v/v) Tween 20 and stabilizer.

4. Shipping conditions

Shipping at room temperature

5. Storage conditions

Storage at -20°C is recommended

Storage and dilution buffer

20 mM Tris-HCl, 1 mM DTT, 0.1 mM EDTA, 0.1 M KCl, 0.5% (v/v) Nonidet P40, 0.5% (v/v) Tween 20, 50% (v/v) glycerol, pH 8.0 (4°C) and stabilizer

Enzyme Specifications

Each lot of enzyme, buffer and MgCl₂ is functionally tested and quality controlled to ensure the following specifications of the IVD-GMP products.

Appearance	Colourless solution
Identity (SDS-PAGE)	MW approx. 95 kDa
Volume activity	≥ 5 U/µl
Purity (SDS-PAGE)	> 98%
Performance test: PCR on λ DNA	0.5 kb fragment positive down to 5 pg
Performance test: PCR on genomic DNA – 18S	0.1 kb fragment positive down to 10 pg
Performance test: PCR on genomic DNA – Numb	0.3 kb fragment positive down to 10 pg
Ribonucleases (up to 10 U, 1h, 37 °C)	Not detectable
Endonucleases (up to 30 U, 16h, 65 °C)	Not detectable
Exonucleases (up to 30 U, 16h, 65 °C)	Not detectable
Nicking activity (up to 30 U, 16h, 65 °C)	Not detectable
<i>E. coli</i> residual DNA	< 1 fg / Taq Unit
Bioburden	≤ 10 CFU/ml
Stability	24 months (at -20°C) from date of manufacture
Animal-derived additives	None

Unit definition

One unit is defined as the amount of enzyme that incorporates, after activation step, 10 nmoles of dNTPs into acid insoluble form in 30 minutes at 74 °C.

EUROPE

LIEGE SCIENCE PARK • 4102 Seraing • Belgium • Tel.: +32 4 372 74 00
Fax: +32 4 372 75 00 • info@eurogentec.com • www.eurogentec.com

NORTH AMERICA

ANASPEC - 34801 Campus Drive • Fremont, CA 94555 • USA
Tel.: 510-791-9560 • toll-free: 800-452-5530 • Fax: 510-791-9572
info.anaspec@eurogentec.com • www.eurogentec.com

Reaction Conditions

For a 100 µl Reaction

Hot Diamond Taq [®] Reaction Buffer (10x)	10 µl
MgCl ₂ solution	6 µl (1.5 mM)
Hot Diamond Taq [®]	0.8 to 2.5 units
dNTP	200 µM each dNTP
Primers	0.1 nmol each
H ₂ O	As required
DNA template	As required

Magnesium

This DNA polymerase is a magnesium-dependent enzyme. We recommend increasing the magnesium concentration for long DNA fragments. Excess Mg²⁺ stabilizes the DNA double strand and consequently prevents complete denaturation of DNA, which reduces the extension yield. It may also stabilize spurious primer/template annealing, thus decreasing specificity.

Recommendation

Homogenize Hot Diamond Taq[®] solution by flipping the tube 4 to 5 times.

Cycling conditions

The Hot Diamond Taq[®] PCR protocol is compatible with all existing Hot start protocols. Nevertheless, a first heat shock pulse of only 20 sec. at 95°C is sufficient to activate the enzyme

Classical PCR protocol used for 500 bp lambda DNA amplification*

25 cycles	{	95°C	3 min (including the 20 sec of enzyme activation)
		94°C	30 sec
		T _m -2°C	30 sec
		72°C	1 min/kb
		72°C	7 min
		4°C	end temperature

**Condition will vary from reaction to reaction and may need optimization for maximal performances. Duration and temperature for denaturation and annealing steps depend on the type of cyler and primers design. We advise you to check primer design by using primer design software*

Disclaimer

Hot Diamond Taq[®] Polymerase

Hot Diamond Taq[®] products are covered by international EUROGENTEC pending Patent application (PCT/EP2008/067435). Hot Diamond Taq[®] products are sold exclusively for Research use only by the purchaser and may not be used for clinical or diagnostic purposes, resold, distributed or re-packaged without the prior written consent of EUROGENTEC S.A. It may be necessary to obtain a separate license for certain patented applications in which the Hot Diamond Taq[®] products are used.

Roche Enzyme Products Conveying Polymerase Patent Rights

Use of this product is covered by the following US patent 6,127,155. The purchase of this product includes a limited, non-transferable immunity from suit under the foregoing patent claims for using only this amount of product for the purchaser's own internal research. No right under any other patent claim, no right to perform any patented method, and no right to perform commercial services of any kind, including without limitation reporting the results of purchaser's activities for a fee or other commercial consideration, is conveyed expressly, by implication, or by estoppel. This product is for research use only. Diagnostic uses under Roche patents require a separate license from Roche. Further information on purchasing licenses may be obtained by contacting the Director of Licensing, Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA.

Diamond Taq[®] is a registered trademark of Eurogentec S.A.

For further information please contact our Customer Help Desk:

For Europe:

e-mail: info@eurogentec.com
Tel.: +32 4 372 76 65

For USA:

e-mail: info.anaspec@eurogentec.com
Tel.: +1 510 791 9560