PRODUCT CATALOGUE

PCR ENZYMES

Polymerases
Buffers
Nucleotides
Accessories

AMPLIQON
PCR ENZYMES & REAGENTS

ABOUT THIS CATALOGUE

Dear reader,

The purpose of this Ampliqon PCR enzyme catalogue is to offer you a convenient overview of our PCR product lines.

Ampliqon enzymes include a wide range of highly pure enzyme kits suitable for all DNA amplification purposes. They are characterised by robust performance, high stability and no contaminating activities.

In the catalogue you find selection charts, stability guidelines, practical information on our proprietary buffer systems and a section on available PCR accessories. Included you will also find our general terms of sale and delivery.

We hope that you will find our catalogue useful and welcoming and that the publication will be a handy purchasing guide and support in your daily laboratory work.

Price list

The catalogue is supplemented by a separate price list. If you wish to receive our current price list please send an e-mail to:

enzyme@ampliqon.com

Kind regards,

Helle N. Thestrup,

Managing Director,
Ampliqon A/S

Ampliqon A/S

Ampliqon A/S is a Danish manufacturer of PCR enzymes and laboratory reagents. Ampliqon was founded in 2002 in Copenhagen by some of Denmark's most skilled PCR specialists. In 2009 we took over a well-established and market leading Danish production line of more than 10 000 custom-made laboratory reagents.

Today, we offer a full product range of standard and custom-made polymerases and laboratory reagents for end-user customers at universities, hospitals, research institutions and biotechnological companies in Denmark and abroad. Ampliqon also cooperates with major life science distributors in many countries around the world.

We specialise in tailored solutions, including agreements on OEM basis, and our aim is to meet the particular needs and requirements of our distributors and end-user customers.

Ampliqon offers many years of experience within standard products for PCR as well as product innovation and strict quality control. We are always delighted to participate in sales support seminars and training sessions that benefit the activities of our end-user customers, the scientific communities and distributors.

Sister company

In 2011 Ampliqon expanded into our present modern production facilities in Odense. Odense is also the location of Ampliqon's sister company, DB Lab A/S.

DB Lab A/S is a contract laboratory that offers chemical and microbiological GMP analyses primarily to the pharmaceutical and biotechnological industries. Development, validation and transfer of methods for test of raw material, active pharmaceutical ingredients and final products are some of the expertise areas of DB Lab A/S as well as release analyses and stability studies. DB Lab is GMP approved by the Danish Health and Medicines Agency and has an ISO17025 accreditation.

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Taq DNA Polymerase

Introduction

Ampliqon Taq DNA Polymerase is an excellent thermostable Taq DNA polymerase because of its high performance. Ampliqon Taq DNA Polymerase is stable and reliable, shows no contaminating nuclease activities, and each batch production offers same robust performance. Taq DNA Polymerase is the perfect match for routine PCR applications that require high yield and reliable DNA amplification.

Ampliqon Taq DNA Polymerase has a molecular weight of approximately 95 kDa and exhibits 5'→3' DNA polymerase activity and 5'→3' exonuclease activity. The 5'→3' exonuclease activity leaves 3'dA overhangs on the PCR products, which are convenient for direct T-A cloning. Taq DNA polymerase lacks 3'→5' exonuclease activity and has no proofreading ability.

Ampliqon Taq DNA Polymerase is available with separate buffers and as master mixes.

Ampliqon Taq DNA Polymerase is available in different formulations and concentrations:

- Taq DNA Polymerase, 5 U/µl
- Taq DNA Polymerase, 1 U/µl
- Taq DNA Polymerase RED, 5 U/µl
- Taq DNA Polymerase Glycerol Free, 5 U/µl

Ampliqon Taq DNA Polymerase kits include one of the Taq DNA polymerase formulations and are available either without buffers, with one buffer of choice and extra $MgCl_2$ or with two buffers of choice and extra $MgCl_2$. Additional $MgCl_2$ is included for easy optimisation.

For more information on available buffers and their application, please see the buffer section on page 26-27.

THE ORIGIN OF AMPLIQON TAQ DNA POLYMERASE

Ampliqon Taq DNA Polymerase originates from the thermophilic bacterium *Thermus aquaticus*, which was first discovered in hot springs in Yellowstone National Park, USA, in the 1960s. Taq DNA polymerase was the first heat-stable enzyme ever isolated, and it formed the basis for the future Nobel Prize-winning PCR technology. Later, a variety of other heat-stable enzymes were isolated and some also became commercially available.

Fortunately, Taq was among the first enzymes to be discovered and is commonly agreed to be one of the best polymerases available. Taq DNA polymerase offers a perfect combination of heat resistance, robustness, specificity, sensitivity and yield. Today, Taq DNA polymerase is still one of the most popular and inexpensive DNA polymerases.

Taq DNA Polymerase

Ampliqon Taq DNA Polymerase is popular because of its robust and consistent performance. Ampliqon Taq DNA Polymerase is suitable for routine PCR applications that require high yield and reliable DNA amplification.

Features

- High product yield
- Processes up to 5 kb
- dUTP incorporation possible
- Leaves a 3'dA overhang

Suitable for

- Standard testing
- Routine PCR
- Screening
- High throughput testing

Taq DNA Polymerase 5 U/µl

Without buffer	
Product number	
A110003	500 units
A110004	1000 units
A110006	2 500 units
A110007	5 000 units

With 10x Ammonium Buffer and $MgCl_2$	
Product number	
A111103	500 units
A111104	1 000 units
A111106	2 500 units
A111107	5 000 units

With 10x Standard Buffer and $MgCl_2$	
Product number	
A112103	500 units
A112104	1 000 units
A112106	2 500 units
A112107	5 000 units

With 10x Ammonium Buffer, 10x Standard Buffer and $MgCl_2$	
Product number	
A114103	500 units
A114104	1 000 units
A114106	2 500 units
A114107	5 000 units

TIP
Choose the right buffer

Ammonium Buffer is the best buffer to choose for most applications. It promotes robust amplification, high yield and high specificity.

Taq DNA Polymerase RED

Ampliqon Taq DNA Polymerase RED provides convenient identification of enzyme addition to the tube and confirmation of complete mixing. The product includes an inert red dye that does not interfere with the PCR reaction but adds visibility to the enzyme. This makes it especially useful for high throughput testing.

Features

- Easy identification of enzyme addition
- Confirmation of complete mixing
- High product yield
- Processes up to 5 kb
- dUTP incorporation possible
- Leaves a 3'dA overhang

Suitable for

- Standard testing
- Routine PCR
- Screening
- High throughput testing

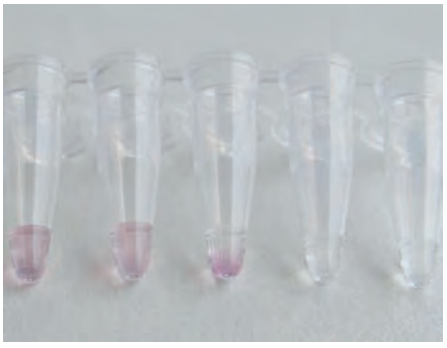
Taq DNA Polymerase RED 5 U/µl

Without buffer	
Product number	
A200003	500 units
A200004	1000 units
A200006	2 500 units
A200007	5 000 units

With 10x Ammonium Buffer and $MgCl_2$	
Product number	
A201103	500 units
A201104	1 000 units
A201106	2 500 units
A201107	5 000 units

With 10x Standard Buffer and $MgCl_2$	
Product number	
A202103	500 units
A202104	1 000 units
A202106	2 500 units
A202107	5 000 units

With 10x Ammonium Buffer, 10x Standard Buffer and $MgCl_2$	
Product number	
A204103	500 units
A204104	1 000 units
A204106	2 500 units
A204107	5 000 units



Visualisation of complete mixing using Taq RED
In the first two tubes, Taq RED is homogenuosly mixed, in the middle tube Taq RED is added but not mixed and in the last 2 tubes, no enzyme is added yet.

Taq DNA Polymerase Glycerol Free

Ampliqon Taq DNA Polymerase Glycerol Free is developed for automation and freeze-drying. It is a glycerol free formulation of standard Ampliqon Taq DNA Polymerase and is well suited for automated routine PCR applications that require high yield and reliable DNA amplification, or where accurate pipetting of small amounts is crucial.

Features

- Glycerol free storage buffer
- High product yield
- Processes up to 5 kb
- dUTP incorporation possible
- Leaves a 3'dA overhang

Suitable for

- Standard testing and routine PCR
- Freeze-drying
- Robot-aided pipetting
- Automated high throughput testing

Taq DNA Polymerase Glycerol Free 5 U/µl

Without buffer	
Product number	
A100003	500 units
A100004	1000 units
A100006	2 500 units
A100007	5 000 units

With 10x Ammonium Buffer and $MgCl_2$	
Product number	
A101103	500 units
A101104	1 000 units
A101106	2 500 units
A101107	5 000 units

With 10x Standard Buffer and $MgCl_2$	
Product number	
A102103	500 units
A102104	1 000 units
A102106	2 500 units
A102107	5 000 units

With 10x Ammonium Buffer, 10x Standard Buffer and $MgCl_2$	
Product number	
A104103	500 units
A104104	1 000 units
A104106	2 500 units
A104107	5 000 units

TIP
Choose the right buffer

Ammonium Buffer is the best buffer to choose for most applications. It promotes robust amplification, high yield and high specificity.

WHAT GLYCEROL DOES

Glycerol is normally a major part of the storage buffer of enzymes and acts as a cryoprotectant, protecting the polymerase at freezing conditions. Glycerol disrupts the water structure and makes the buffer more cell like, thus stabilising the polymerase.

Glycerol is a highly viscous liquid and is therefore difficult and time-consuming to pipet accurately, especially in smaller volumes. As a consequence, pipetting glycerol in fast, robot-aided automation processes is a nearly unsolvable challenge, and the presence of glycerol in the enzyme buffer makes freeze-drying impossible.

Taq DNA Polymerase master mixes

Introduction

Ampliqon Taq DNA Polymerase master mixes are time-saving alternatives to Taq DNA polymerase kits. Fewer reagent handling steps significantly reduce set-up time and eliminate the risk of contamination of stock solutions. Furthermore, fewer handling steps lead to increased reproducibility, which makes Taq DNA Polymerase master mixes suitable for standard tests.

Taq DNA Polymerase master mixes are ready-to-use master mixes. Just add your template and primers to successfully carry out PCR. Taq DNA Polymerase master mixes are available as standard Taq Master Mix or as Master Mix RED for direct loading on DNA gels.

Taq DNA Polymerase master mixes are composed of Ampliqon Taq DNA Polymerase, our ammonium buffer system, dNTPs and $MgCl_2$. Taq DNA Polymerase Master Mix RED is perfect for direct loading and contains an additional inert red dye and stabiliser.

Taq DNA Polymerase master mixes are available in the following ready-to-use formulations:

2x master mix: 1.5 mM $MgCl_2$ final concentration
2x master mix: 2 mM $MgCl_2$ final concentration
2x master mix RED: 1.5 mM $MgCl_2$ final concentration
2x master mix RED: 2 mM $MgCl_2$ final concentration

TIP
Choose the right master mix

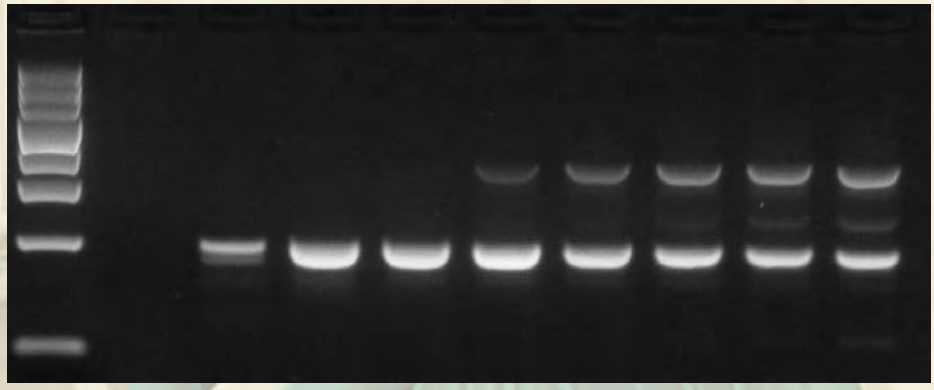
For most standard applications 2x master mix with 1.5 mM $MgCl_2$ works best. In some cases, e.g. when getting too low yields, 2x master mix with 2 mM $MgCl_2$ gives better results.

If you need to visualise on agarose gels, we suggest that you choose master mix RED.

THE EFFECT OF MAGNESIUM

Mg^{2+} is required for polymerase activity. The right Mg^{2+} concentration increases the fidelity and specificity of the polymerase (see lanes 1.5 and 2 in figure below). On the other hand, too low Mg^{2+} concentrations make the polymerase inactive (lane 0.5) and too high Mg^{2+} concentrations increase the amount of unspecific bands (lanes 2.5 to 4.5).

The Mg^{2+} concentration in a reaction depends on several factors: the DNA quality, the presence of chelators and the dNTP concentration. Therefore, you often need to optimise the Mg^{2+} concentration.



Mg^{2+}: fine-tuning the PCR
PCR products of a Mg^{2+} dilution series from 0.5 to 4.5 mM with 0.5 mM increments are visualised on an agarose gel (lanes 0.5 to 4.5) M: Marker.

Taq DNA Polymerase Master Mix

Taq DNA Polymerase Master Mix is a time-saving alternative to Taq DNA Polymerase. Taq DNA Polymerase Master Mix is excellent for robust and reliable PCR as it offers the same eminent performance as Taq DNA Polymerase.

Features

- Time-saving premixed solution
- Increased reproducibility
- Minimal optimisation
- High product yield
- dUTP incorporation possible
- Processes up to 5 kb
- Leaves a 3'dA overhang

Suitable for

- Standard testing and routine PCR
- Screening
- High throughput testing

Taq DNA Polymerase Master Mix

2x master mix, 1.5 mM $MgCl_2$ final	
Product number	
A140301	100 reactions
A140303	500 reactions
A140306	2 500 reactions
A140307	5 000 reactions

2x master mix, 2 mM $MgCl_2$ final	
Product number	
A150301	100 reactions
A150303	500 reactions
A150306	2 500 reactions
A150307	5 000 reactions

TIP
Choose the right master mix

For most standard applications 2x master mix with 1.5 mM $MgCl_2$ works best. In some cases, e.g. when getting too low yields, 2x master mix with 2 mM $MgCl_2$ gives better results.

If you need to visualise on agarose gels, we suggest that you choose master mix RED.

Taq DNA Polymerase Master Mix RED

For direct loading

Taq DNA Polymerase Master Mix RED

2x master mix, 1.5 mM $MgCl_2$ final

Product number	
A180301	100 reactions
A180303	500 reactions
A180306	2 500 reactions
A180307	5 000 reactions

2x master mix, 2 mM $MgCl_2$ final

Product number	
A190301	100 reactions
A190303	500 reactions
A190306	2 500 reactions
A190307	5 000 reactions

Taq DNA Polymerase Master Mix RED allows you to load your PCR products directly onto the agarose or SDS DNA gel after DNA amplification. There is no need for a separate loading buffer and no time-consuming sample preparation before electrophoresis. This makes Taq DNA Polymerase Master Mix RED especially suitable for high throughput standard tests.

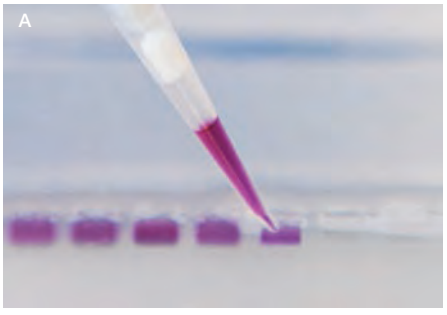
Taq DNA Polymerase Master Mix RED includes a red dye and stabiliser. These do not interfere with the PCR. Taq DNA Polymerase Master Mix RED is suitable for standard tests that do not need fluorescence-based downstream processing. If you wish, you can remove the red dye by spin column purification or other methods.

Additional features

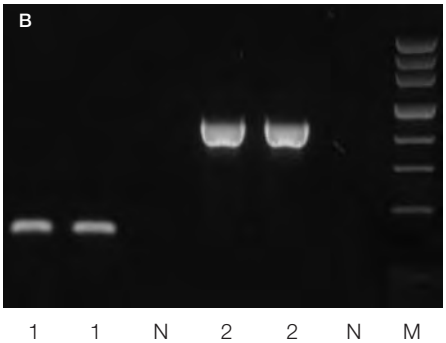
- Direct loading onto agarose and SDS DNA gels
- Easy visualisation of pipetting
- Dye front runs at 300-1000 bp on a 0.5-1.5 % agarose gel

Suitable for

- Standard testing and routine PCR
- Screening
- High throughput testing



Direct gel loading
The red loading dye in the master mix enables direct gel loading (A) and eliminates the necessity for a separate loading buffer.



Two different targets were amplified in duplicates using Taq Master Mix RED and visualised on an agarose gel (B). Lanes 1: PAH, lanes 2: BAIP3, N: no template control, M: Marker.

THE ADVANTAGE OF CHEMICAL INACTIVATION

Chemical inactivation of our TEMPase hot start enzyme has proven highly effective compared to other inactivation methods such as antibody inactivation. The chemically modified enzyme withstands longer periods of time at room temperature without non-specific PCR amplification. This feature is useful if you need pre-incubation steps at elevated temperatures, for example in case of UNG treatment at 50°C prior to PCR.

TEMPase Hot Start DNA Polymerase

Introduction

Ampliqon TEMPase Hot Start DNA Polymerase is a modified form of Ampliqon Taq DNA Polymerase and is activated by heat treatment. A chemical moiety is attached to the enzyme, which makes the enzyme inactive at room temperature. During set-up and the first ramp of thermal cycling the enzyme is not active and misprimed primers are not extended. This results in higher specificity, increased sensitivity and greater yield compared to standard DNA polymerases.

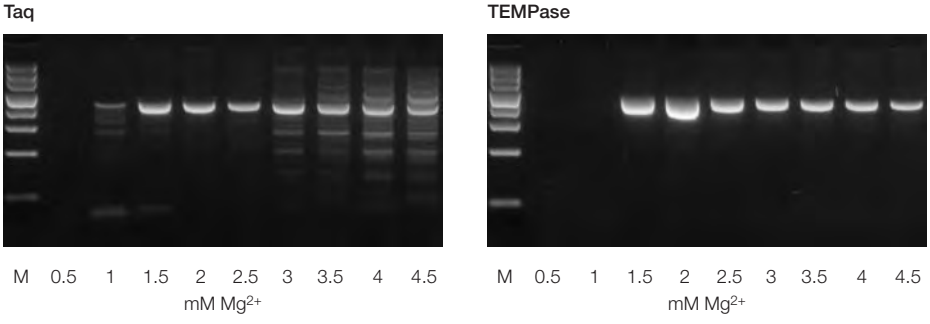
TEMPase Hot Start DNA Polymerase has a molecular weight of approximately 95 kDa and exhibits 5'→3' DNA polymerase activity and 5'→3' exonuclease activity. The 5'→3' exonuclease activity leaves 3'dA overhangs on the products, which are convenient for direct T-A cloning. TEMPase DNA Polymerase lacks 3'→5' exonuclease activity and has no proofreading abilities.

Ampliqon TEMPase Hot Start DNA Polymerase is available in two formulations:

TEMPase Hot Start DNA Polymerase, 5 U/µl
TEMPase Hot Start DNA Polymerase Glycerol Free, 5 U/µl

TEMPase Hot Start DNA Polymerase kits are available either without buffers, with one buffer of choice and extra $MgCl_2$ or with two buffers of choice and extra $MgCl_2$.

For more information on available buffers and their application, please see the buffer section on page 26-27.



TEMPase promotes increased specificity and yield
Example of PCR amplifications of BAIP3. Taq or TEMPase were used as indicated with Ammonium Buffer at the indicated Mg^{2+} concentrations. Taq results in a specific and high yield band at only one Mg^{2+} concentration (2 mM). TEMPase results in specific bands over a broad range of Mg^{2+} concentrations and increased yield. M: Marker.

TEMPase Hot Start DNA Polymerase

TEMPase Hot Start DNA Polymerase has been designed to diminish the formation of non-specific priming events during reaction set-up and the first ramp of thermal cycling. TEMPase Hot Start DNA Polymerase features higher specificity, superior sensitivity and greater yield compared to standard DNA polymerases. These features enable the detection of low abundance targets.

Features

- Convenient reaction set-up at room temperature
- Increased sensitivity
- Increased specificity
- Increased product yield
- dUTP incorporation possible

Suitable for

- Detection of low abundance targets
- Screening
- Amplification of GC-rich sequences
- Multiplex PCR
- Direct colony PCR
- Real-time PCR

TEMPase DNA Polymerase 5 U/µl

Without buffer

Product number	
A220003	500 units
A220004	1000 units
A220006	2 500 units
A220007	5 000 units

With 10x Ammonium Buffer and $MgCl_2$

Product number	
A221103	500 units
A221104	1 000 units
A221106	2 500 units
A221107	5 000 units

With 10x Combination Buffer and $MgCl_2$

Product number	
A223103	500 units
A223104	1 000 units
A223106	2 500 units
A223107	5 000 units

With 10x Ammonium Buffer, 10x Combination Buffer and $MgCl_2$

Product number	
A225103	500 units
A225104	1 000 units
A225106	2 500 units
A225107	5 000 units

TIP
Choose the right buffer

Ammonium Buffer is the best buffer to choose for most applications. It promotes robust amplification, high yield and high specificity.

TEMPase Hot Start DNA Polymerase Glycerol Free

TEMPase DNA Polymerase Glycerol Free 5 U/µl

Without buffer

Product number	
A240003	500 units
A240004	1000 units
A240006	2 500 units
A240007	5 000 units

With 10x Ammonium Buffer and $MgCl_2$

Product number	
A241103	500 units
A241104	1 000 units
A241106	2 500 units
A241107	5 000 units

With 10x Combination Buffer and $MgCl_2$

Product number	
A243103	500 units
A243104	1 000 units
A243106	2 500 units
A243107	5 000 units

With 10x Ammonium Buffer, 10x Combination Buffer and $MgCl_2$

Product number	
A245103	500 units
A245104	1 000 units
A245106	2 500 units
A245107	5 000 units

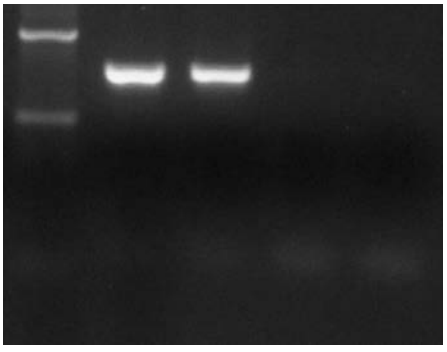
TEMPase Hot Start DNA Polymerase Glycerol Free is a glycerol-free formulation of regular TEMPase Hot Start DNA Polymerase. It is well suited for automation, freeze-drying and routine PCR applications that require high specificity, superior sensitivity, high yield and reliable DNA amplification.

Features

- Convenient reaction set-up at room temperature
- Increased sensitivity
- Increased specificity
- Increased product yield
- dUTP incorporation possible

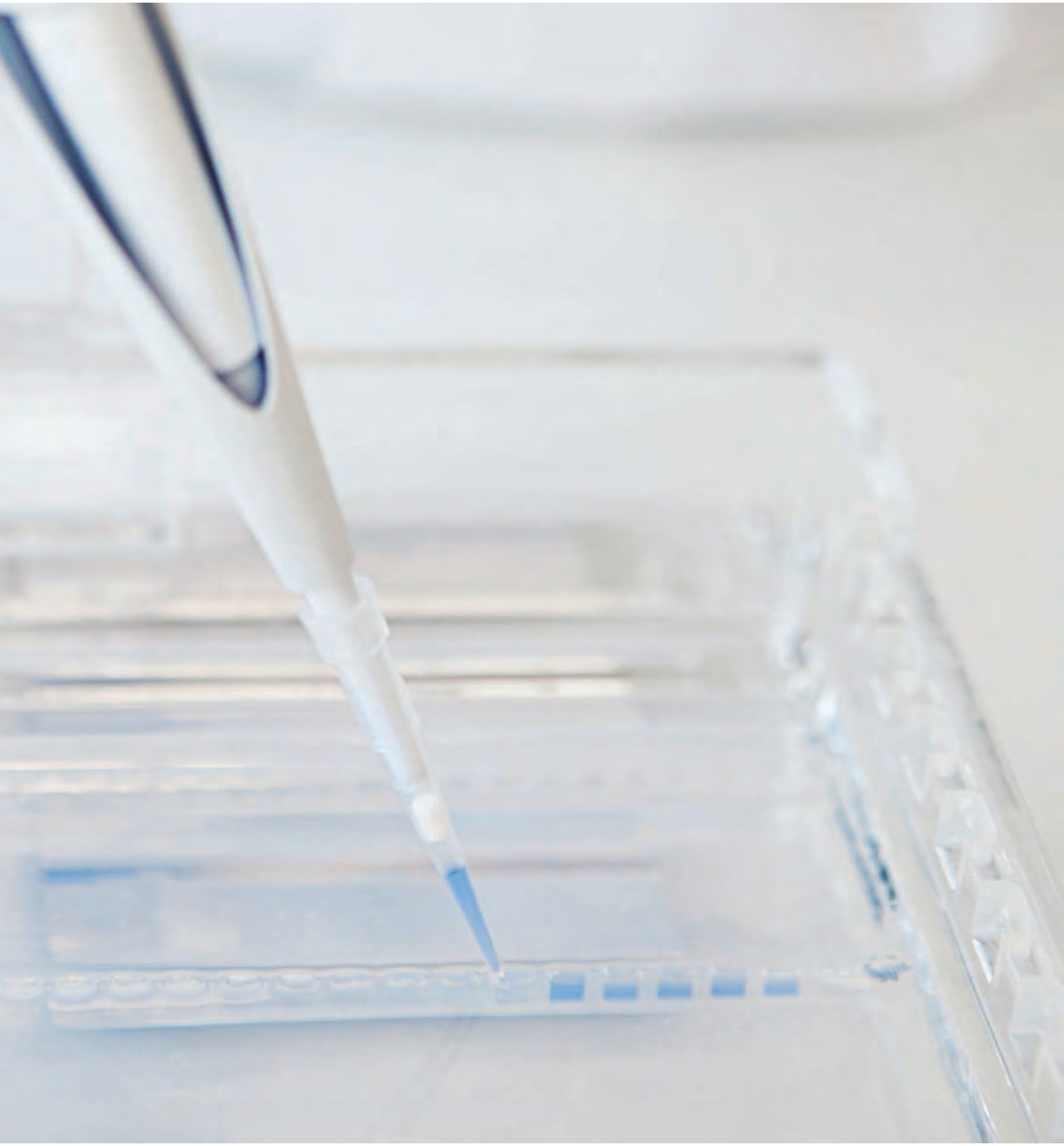
Suitable for

- Automated high throughput tests
- Freeze-drying
- Detection of low abundance targets
- Amplification of GC-rich sequences
- Multiplex PCR



M 1 1 2 2

TEMPase is inactive at ambient temperature
Ampliqon TEMPase is activated by initial heating at 95 °C for 15 minutes (lane 1). Without activation the enzyme is completely inactive (lane 2). M: Marker.



TEMPase Hot Start DNA Polymerase master mixes

TIP
Choose the right master mix

For most standard applications our Master Mix A based on Ammonium Buffer works best. It promotes robust amplification, high yield and high specificity. In some cases you may prefer to switch to our Master Mix C based on Combination Buffer.

If you want to visualise on agarose gels, we suggest that you choose Master Mix BLUE A or C.

For more information on buffers, please see the buffer section on page 26-27.

Introduction

TEMPase Hot Start DNA Polymerase master mixes offer easy reaction assembly at room temperature. Fewer reagent handling steps significantly reduce set-up time and eliminate the risk of contamination of stock solutions. Fewer handling steps also lead to increased reproducibility, and this feature makes TEMPase Hot Start DNA Polymerase master mixes suitable for standard tests.

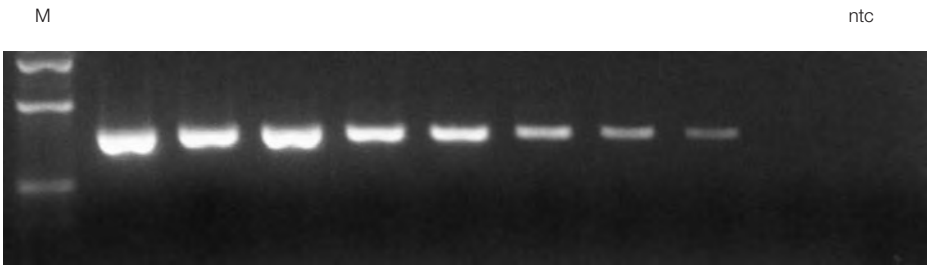
TEMPase Hot Start Master Mix is a ready-to-use 2x Master Mix composed of Ampliqon TEMPase Hot Start DNA Polymerase, a buffer system, dNTPs and $MgCl_2$. Just add your template and primers to successfully carry out PCR.

TEMPase master mix is available in two variations:

TEMPase Hot Start 2x Master Mix A

TEMPase Hot Start 2x Master Mix C

Master Mix A is based on Ammonium Buffer (a NH_4^+ buffer system). Master Mix C is based on Combination Buffer (a balanced KCl/NH_4^+ buffer system).



High sensitivity
TEMPase Hot Start Polymerase has high sensitivity and enables the detection of as little as one copy of a gene. In this experiment the indicated amount of DNA was amplified in a PCR using TEMPase and Ammonium Buffer. DNA quantities are given in ng or pg under each lane. M: Marker; ntc: No template control.

TEMPase Hot Start DNA Polymerase Master Mix

TEMPase Hot Start DNA Polymerase Master Mix is an alternative to TEMPase Hot Start DNA Polymerase. It offers the same excellent performance and increased reproducibility.

Features

- Convenient reaction set-up at room temperature
- Minimal optimisation
- Time-saving premixed solution
- Increased sensitivity
- Increased specificity
- Increased product yield
- dUTP incorporation possible

Suitable for

- Detection of low abundance targets
- Screening
- Direct colony PCR
- Amplification of GC-rich DNA sequences

TEMPase DNA Polymerase Master Mix

2x Master Mix A, 1.5 mM $MgCl_2$ final

Product number	
A230301	100 reactions
A230303	500 reactions
A230306	2 500 reactions
A230307	5 000 reactions

2x Master Mix C, 1.5 mM $MgCl_2$ final

Product number	
A230701	100 reactions
A230703	500 reactions
A230706	2 500 reactions
A230707	5 000 reactions

TIP
Choose the right master mix

For most standard applications our Master Mix A based on Ammonium Buffer works best. It promotes robust amplification, high yield and high specificity. In some cases you may prefer to switch to our Master Mix C based on Combination Buffer.

If you want to visualise on agarose gels, we suggest that you choose Master Mix BLUE A or C.

For more information on buffers, please see the buffer section on page 26-27.

TEMPase Hot Start DNA Polymerase Master Mix BLUE

For direct loading

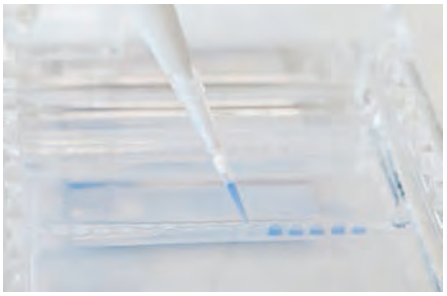
TEMPase DNA Polymerase Master Mix BLUE

2x Master Mix A, 1.5 mM $MgCl_2$ final

Product number	
A290401	100 reactions
A290403	500 reactions
A290406	2 500 reactions
A290407	5 000 reactions

2x Master Mix C, 1.5 mM $MgCl_2$ final

Product number	
A290801	100 reactions
A290803	500 reactions
A290806	2 500 reactions
A290807	5 000 reactions



Direct gel loading
After PCR with Master Mix BLUE, the products are loaded directly onto the agarose gel.

TEMPase Hot Start Master Mix BLUE is a time-saving alternative to TEMPase Hot Start Master Mix. It offers the same excellent performance, and products can be loaded directly onto the agarose or SDS DNA gel after PCR. You do not need a separate loading buffer and time-consuming sample preparation before electrophoresis. This makes TEMPase Hot Start Master Mix BLUE especially suitable for high throughput standard tests.

TEMPase Master Mix BLUE is composed of TEMPase DNA Polymerase, a buffer system, dNTPs, $MgCl_2$, blue dye and stabiliser. The blue dye and stabiliser do not interfere with the PCR. If necessary, you can remove the blue dye by spin column purificaition or other methods.

Features

- Direct loading onto agarose and SDS DNA gels
- Easy visualisation of pipetting
- Dye front runs at 100 – 500 bp on a 0.5-1.5 % agarose gel

Suitable for

- Detection of low abundance targets
- Screening
- Amplification of GC-rich sequences
- Multiplex PCR

AccuPOL DNA Polymerase

Introduction

AccuPOL DNA Polymerase is a thermostable high fidelity DNA polymerase with proofreading ability. This feature enables accurate and reliable PCR. Besides a 5'→3' DNA polymerase activity, AccuPOL DNA Polymerase exhibits a 3'→5' proofreading exonuclease activity that enables the enzyme to correct base pair mismatches. This results in PCR products with very few errors and blunt ends.

AccuPOL DNA Polymerase is recommended for applications, which require extremely high fidelity or blunt ends.

Features

- High fidelity, proofreading
- Error rate 1.1 x 10^{-6}
- Processes up to 3 kb
- Renders blunt-ended DNA

Suitable for

- Cloning and mutagenesis
- Gene expression
- Library construction
- Mutation studies

AccuPOL DNA Polymerase

Without buffer and $MgCl_2$	
Product number	
A210002	250 units
A210003	500 units
A210004	1 000 units
A210006	2 500 units

With Ammonium Buffer and $MgCl_2$	
Product number	
A211102	250 units
A211103	500 units
A211104	1 000 units
A211106	2 500 units

Fidelity comparison of thermostable polymerases using the LacIOZ Assay

Enzyme	AccuPOL	Pfu	Taq
Error rate* (fidelity)	1.1 x 10^{-6}	1.3 x 10^{-6}	18.0 x 10^{-6}
Elongation rate (nt/sec)	30	25	61

* The error rate equals mutation frequency per base per duplication.

FIDELITY

Fidelity depends on the polymerase, the buffer system that you use and the quality of your template DNA. Taq DNA Polymerase is quite precise when run at low-error conditions.

POLYMERASE-INDEPENDENT ERRORS

Polymerase-independent errors are caused by the DNA either because it has been damaged from the start (old DNA) or during the PCR. To avoid polymerase-independent errors the following tips could be useful:

- Add enough template DNA
- Run as few cycles as possible

Starting amount of DNA and cycle number above are interconnected. Because the lesser DNA at the beginning, the more cycles you have to run to obtain the same amount of the final product. With each additional amplification cycle the already existing errors will be copied and consequently doubled.

- Short DNA melting steps
- Low DNA melting temperatures

If DNA is exposed to high temperatures the DNA will be damaged and unwanted deamination of cytosine to uracil will occur. This results in a C-G to T-A mutation. To avoid this choose short denaturation time and if possible omit the initial denaturation step completely.

POLYMERASE-DEPENDENT ERRORS

To minimise polymerase-dependent errors you should choose conditions that promote a slow elongation rate. Because the slower the elongation rate of the polymerase, the more time is available to secure the incorporation of the correct nucleotides.

Conditions known to slow down polymerase extension rates are:

- Low enzyme concentrations
- Low dNTP concentrations
- Low Mg^{2+} concentrations

dNTP and Mg^{2+} concentrations are interconnected. High fidelity of Taq is obtained with equimolar concentrations of dNTPs and Mg^{2+}, e.g. 1 mM total dNTPs and 1 mM Mg^{2+}. Other substances in the reaction can consume Mg^{2+}, for example a chelator introduced with a DNA sample. Therefore, the optimal Mg^{2+} concentration for high fidelity is often a little higher than the theoretical values.

- Optimise cycling time

Unfortunately, high fidelity conditions are not the same as high yield conditions. To optimise yield with high fidelity conditions you should optimise your PCR cycling time. For that purpose use short DNA melting time and long annealing and elongation time.

The Ampliqon PCR buffer system

An optimal buffer system is essential to perform successful PCR, and a reliable PCR result depends on many factors: the quality of the DNA and primers, the region to be amplified as well as the PCR instrument itself. For the same reasons, Ampliqon has developed different Tris-based buffer solutions to match different requirements.

Ammonium Buffer

Ammonium Buffer is recommended for most PCR applications. It results in high yield of PCR products and minimises the need for optimisation of Mg^{2+} concentrations or the annealing temperatures. In our tests we observed high specificity over a broad range of annealing temperatures and Mg^{2+} concentrations. Ammonium Buffer also works well when dealing with difficult templates, e.g. GC-rich DNA sequences.

Standard Buffer

We recommand that you continue using our Standard Buffer if you have already optimised your protocols for this buffer. Standard Buffer is the traditional potassium buffer and has high specificity. However, optimisation of primer annealing temperatures and Mg^{2+} concentrations is often necessary. Highly pure DNA templates are preferable if you use this buffer.

Combination Buffer

Combination buffer is another option that gives high product yield and good specificity. The balanced ammonium-potassium formulation results in tolerance towards optimisation of primer annealing temperatures and Mg^{2+} concentrations. In our experience this buffer shows good results on some PCR instruments and is worth testing when selecting buffers for a new set-up.

Buffer for GC-rich DNA templates

GC-rich DNA sequences often require laborious work to optimise the amplification assay. Please see the section GC-rich DNA amplification on page 30-31 for more information.

All our regular buffers are available in four formulations:

1.5 mM $MgCl_2$ (final concentration)
Mg^{2+} free
1.5 mM $MgCl_2$ (final), detergent free
Mg^{2+} free, detergent free

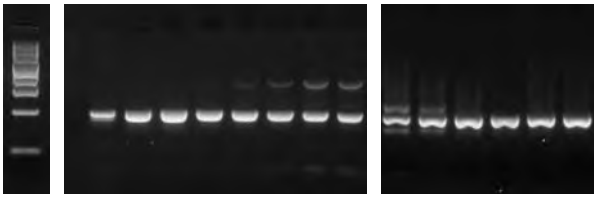
TIP
Choose the right buffer

Ammonium Buffer works for most PCR applications. It promotes robust amplification, high yield and high specificity.

Our Mg^{2+} free buffer is recommended if you need to optimise your Mg^{2+}, especially if your application requires Mg^{2+} concentrations lower than 1.5 mM.

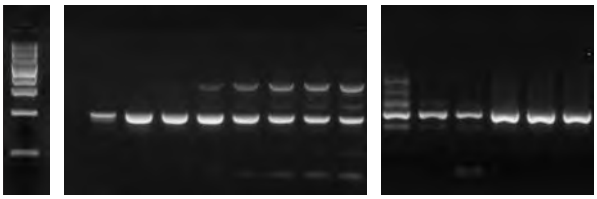
Detergent free buffers are recommended for automation and downstream applications that involve fluorescent spectrometry.

Ammonium Buffer



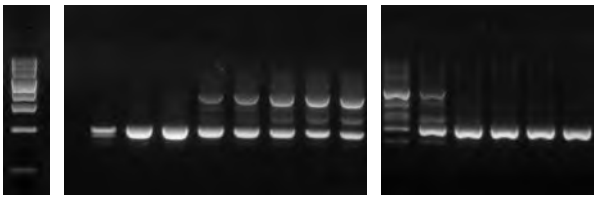
Minimal need for optimisation
A broad range of Mg^{2+} concentrations and temperatures result in a specific product with high yield. (Lanes 1.5 - 2.5 and lanes 57-66).

Standard Buffer



Optimisation needed
A narrow range of Mg^{2+} concentrations result in a specific product. (Lanes 1.5 - 2 and lanes 60-66).

Combination Buffer



Optimisation needed
A narrow range of Mg^{2+} concentrations result in a specific product with high yield. (Lane 1.5 and lanes 60-66).

Performance of the three Ampliqon buffers
Example of PCR amplifications of ENG9. TEMPase and the indicated buffers were used at the indicated Mg^{2+} concentrations or temperatures. The first image shows a Mg^{2+} dilution series from 0.5 – 4.5 mM $MgCl_2$ at 60 °C. The second part shows a temperature gradient from 51 – 66 °C at 1.5 mM $MgCl_2$. M: Marker.

Ampliqon buffers and $MgCl_2$

10x Ammonium Buffer

15 mM $MgCl_2$

Product number	
A301103	3 x 1.5 ml

Without $MgCl_2$

Product number	
A301203	3 x 1.5 ml

10x Standard Buffer

15 mM $MgCl_2$

Product number	
A302103	3 x 1.5 ml

Without $MgCl_2$

Product number	
A302203	3 x 1.5 ml

10x Combination Buffer

15 mM $MgCl_2$

Product number	
A303103	3 x 1.5 ml

Without $MgCl_2$

Product number	
A303203	3 x 1.5 ml

10x Ammonium Buffer, 10x Standard Buffer, 10x Combination Buffer and 25 mM $MgCl_2$

Product number	
A306101	4 x 1 x 1.5 ml

Buffer overview

Buffer	High yield	High specificity	Tolerance for primer annealing temperatures
Ammonium	✓✓	✓	✓
Standard	✓	✓✓	÷
Combination	✓	✓	✓

25 mM $MgCl_2$

Product number	
A308103	3 x 1.5 ml
A308110	10 x 1.5 ml
A308156	6 x 5 ml

Multiplex TEMPase Master Mix

Introduction

Multiplex TEMPase Master Mix is developed for the simultaneous amplification of two or more amplicons in a single reaction tube. The Multiplex TEMPase Master Mix minimises the need for optimisation and makes the development of multiplex PCR assays fast and easy.

Features

- Amplification of multiple PCR products in one tube
- High specificity, sensitivity and product yield
- Diminished formation of non-specific product
- Detection of low abundance targets
- Reaction set-up at room temperature

Suitable for

- Genotyping
- Forensics
- Detection and typing of microorganisms

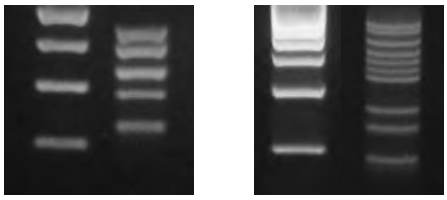
Multiplex 2x master mix is composed of TEMPase Hot Start DNA Polymerase and a specialised buffer system designed for multiplex PCR. TEMPase Hot Start DNA Polymerase is well suited for multiplex PCR because of its high specificity.

Additional $MgCl_2$ is enclosed in the multiplex kit to enable optimisation.

Betaine for enhancement can be purchased separately.

Multiplex TEMPase Master Mix

2x master mix, 3 mM $MgCl_2$ final	
Product number	
A260301	100 reactions
A260303	500 reactions
A260306	2 500 reactions
A260307	5 000 reactions



M CFTR five-plex M DMD ten-plex

Amplification of a five-plex and a ten-plex reaction
Five different templates of the CFTR gene (CFTR five-plex) and ten different templates of the DMD gene (DMD ten-plex) were amplified simultaneously in one tube respectively. M: Marker.

GC-rich DNA amplification

Introduction

Ampliqon offers a product series specifically developed for the amplification of GC-rich DNA sequences. Combined with TEMPase Hot Start DNA Polymerase, GC Buffer I and GC Buffer II promote excellent amplification results with targets of varying high degrees of GC content.

TEMPase Hot Start DNA Polymerase is a chemically modified form of Ampliqon Taq DNA Polymerase and is activated by an initial heating step. The heat activation is beneficial when amplifying GC-rich DNA sequences.

Features

- High success rate with the amplification of GC-rich DNA
- High specificity, sensitivity and product yield
- Diminished formation of non-specific product
- Reaction set-up at room temperature

Suitable for

- Amplification of GC-rich DNA targets
- Detection of low abundance targets
- Screening
- Direct colony PCR

GC-rich DNA amplification products are available in the following formats:

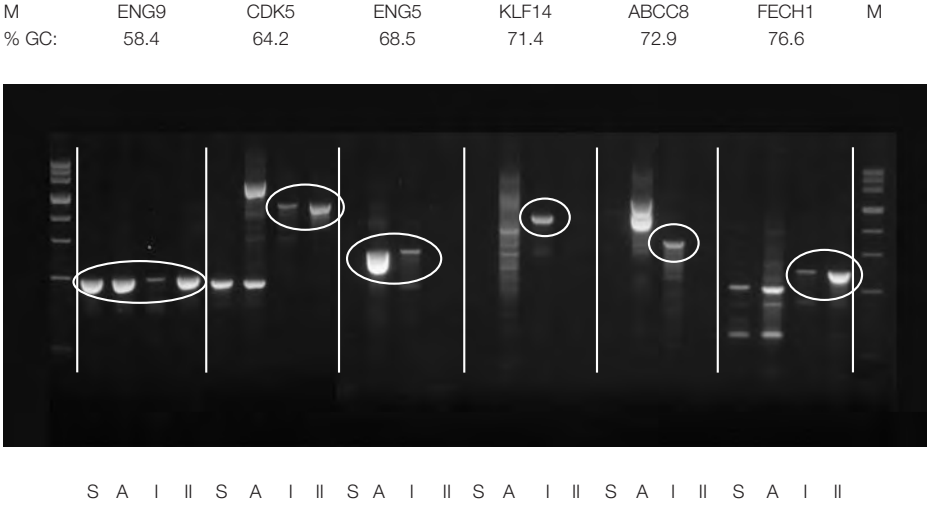
- GC-rich DNA Target Kit
- GC TEMPase Master Mix I
- GC TEMPase Master Mix II
- 4x GC Buffer I
- 4x GC Buffer II

GC-rich DNA amplification products offer easy reaction assembly at room temperature. The master mixes promote fewer handling steps, which significantly reduce set-up time and lead to increased reproducibility as well as minimises the risk of contamination of stock solutions.

Optimisation of GC-rich DNA amplification
Six genes with a varying percentage of GC contents were amplified with Standard Buffer (lanes S), Ammonium Buffer (lanes A), GC Buffer I (lanes I) and GC Buffer II (lanes II). M: Marker.

With an increasing percentage of GC in the expected amplicon, Standard Buffer and Ammonium Buffer fail to give the correct amplification products, while GC Buffer I and GC Buffer II succeed. Correct amplified products are circled.

Notice: Ammonium Buffer is the best buffer to choose for most PCR applications. For example, you only need to change your buffer from Standard Buffer to Ammonium Buffer to obtain a good result for ENG5.



GC-rich DNA Target Kit	
With GC Buffer I, GC Buffer II and $MgCl_2$	
Product number	
A227103	500 units

4x GC Buffer I	
Product number	
A301703	3 x 1.5 ml

4x GC Buffer II	
Product number	
A302703	3 x 1.5 ml

GC TEMPase DNA Polymerase Master Mix	
2x Master Mix I	
Product number	
A331701	100 reactions
A331703	500 reactions
A331706	2 500 reactions
A331707	5 000 reactions

2x Master Mix II	
Product number	
A332701	100 reactions
A332703	500 reactions
A332706	2 500 reactions
A332707	5 000 reactions

GC-rich DNA Target Kit

The GC-rich DNA Target Kit offers considerable flexibility and can be used as an initial testing kit before you use one of our GC TEMPase 2x master mixes. The kit contains TEMPase Hot Start Polymerase, GC Buffer I, GC Buffer II and $MgCl_2$. To enable optimisation additional $MgCl_2$ is enclosed in the GC-rich DNA Target Kit.

GC buffers are 4x buffers and are also available separately.

GC TEMPase master mixes

The GC TEMPase master mixes are ready-to-use 2x master mixes based on GC Buffer I or GC Buffer II. The master mixes contain TEMPase Hot Start DNA Polymerase, GC Buffer I or GC Buffer II, dNTPs and $MgCl_2$. Just add template and primers to successfully carry out PCR.

TIP
When to choose specialised GC buffers

If your PCR fails with TEMPase Hot Start Polymerase and Ammonium Buffer, try TEMPase and GC Buffer I either as a master mix or a kit. Both give very good results in many cases. If your amplification is still not satisfactory, then switch to our GC Buffer II.

To save time all buffers can be tested at the same time.

GC-rich DNA Target Kit
GC TEMPase master mixes

RealQ Plus master mixes

Introduction

Real-time PCR is a sensitive and reliable method for gene analysis and DNA quantitation. RealQ Plus master mixes are developed to enable real-time-based DNA amplification with high specificity and efficiency.

Ampliqon offers RealQ Plus 2x master mixes in two formulations: DNA binding fluorescent dye-based detection and probe-based detection. The two formulations cover most real-time PCR applications.

Choose between RealQ Master Mix Green or for Probe

RealQ Plus 2x Master Mix Green is the right choice when expenses and experiment preparation time should be limited or if you need to quickly analyse many genes.

RealQ Plus 2x Master Mix for Probe is the right choice when specificity is absolutely essential or if you need multiplexing.

To ensure best possible compatibility with the most popular real-time PCR instruments, our RealQ Plus master mixes are available with three different levels of ROX™ internal reference dye: high ROX, low ROX or without ROX.

For more information on ROX please see chart on page 35.

Ampliqon RealQ Plus master mixes are available in the following formats:

RealQ Plus 2x Master Mix Green

Without ROX

With low ROX

With high ROX

RealQ Plus 2x Master Mix for Probe

Without ROX

With low ROX

With high ROX

RealQ Plus master mixes are 2x master mixes and contain TEMPase Hot Start DNA Polymerase, an optimised buffer system, dNTPs and $MgCl_2$. Just add DNA template and primers to successfully carry out PCR.

REAL TIME WITH GREEN OR FOR PROBE

GREEN

When fluorescent dye is free in the solution, it emits a very low fluorescent signal. As soon as the dye binds to the double-stranded DNA the signal increases significantly (thousandfold), which makes the fluorescent signal of the dye directly proportional to the amount of amplified dsDNA.

Advantage

Since you neither need to design nor purchase a probe, an experiment set up with RealQ Plus Green becomes both cheaper and faster than an experiment with RealQ Plus for Probe.

Disadvantage

The use of fluorescent dye-based detection is not as specific as probe-based detection.

PROBE

In general most probe-based detection methods take advantage of fluorescent resonance energy transfer (FRET) by quenching the signal of a fluorescent reporter in the absence of the desired target. During the annealing or elongation period the quenching factor is separated from the fluorescent reporter and a signal is emitted and monitored.

This makes probe-based detection significantly more specific than fluorescent dye-based detection, since a signal is only detected when the correct target is amplified.

Advantage

You have the opportunity to use several different fluorescent reporters, thereby enabling multiplexing. Furthermore, the probe annealing step results in high specificity.

Disadvantage

The need for specifically designed probes makes this method more expensive and time-consuming to set up than fluorescent dye-based detection.

RealQ Plus Master Mix Green

Ampliqon RealQ Plus 2x Master Mix Green is a reliable master mix for real-time PCR based on DNA-binding fluorescent dye detection.

Features

- High specificity
- High stability and reproducibility
- Reliable quantitation and high efficiency
- Premixed all-in-one 2x solution
- Reaction set-up at room temperature

Applications

- Absolute and relative quantitation
- Presence / absence experiments
- SNP analysis
- Genotyping
- Pathogen detection

RealQ Plus 2x Master Mix Green

Without ROX

Product number	
A323402	400 reactions
A323406	4 000 reactions

With low ROX

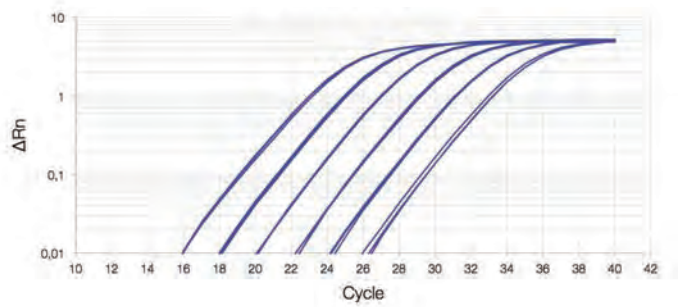
Product number	
A324402	400 reactions
A324406	4 000 reactions

With high ROX

Product number	
A325402	400 reactions
A325406	4 000 reactions

Performance of RealQ Plus Master Mix Green

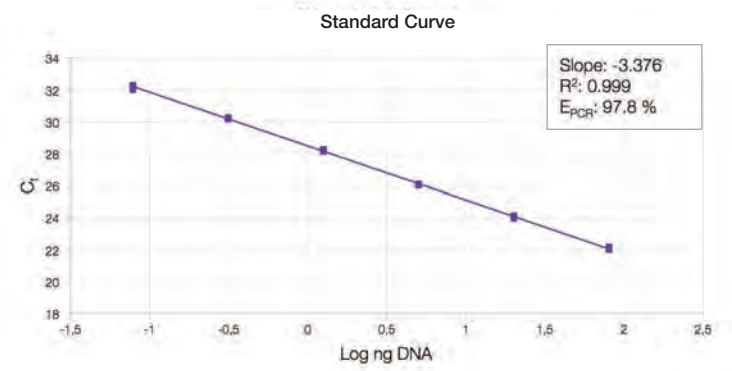
Amplification Plot



Amplification plot of a fourfold dilution series for PAH target (203 bp) amplified from human gDNA. Starting amounts of 80 ng gDNA was amplified in triplicates using RealQ Plus 2x Master Mix Green with high ROX™.

Performance of RealQ Plus Master Mix Green

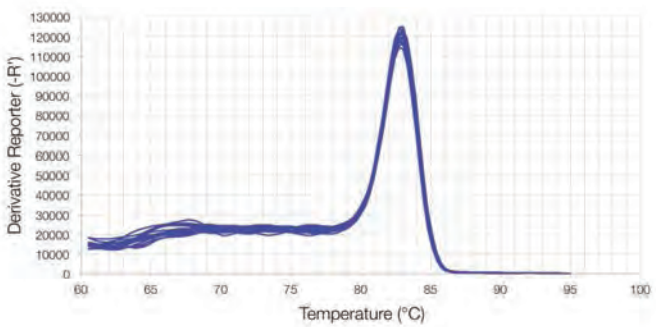
Standard Curve



Standard curve based on the amplification data above. This confirms a high linear range, high efficiency and low replicate deviations.

Performance of RealQ Plus Master Mix Green

Melt Curve



The melt curve analysis detected no non-specific products, which confirm the specificity of the mix.

ROX level and applied real-time instrument

	RealQ Plus Green, High	RealQ Plus Green, Low	RealQ Plus Green, Without	RealQ Plus for Probe, High	RealQ Plus for Probe, Low	RealQ Plus for Probe, Without
Bio-Rad						
CFX96 Touch™ & CFX384 Touch™			x			x
CFX Connect™			x			x
Opticon® 2			x			x
Chromo4™			x			x
iCycler iQ™ & MyiQ™			x			x
Roche						
Lightcycler® 480			x			x
Lightcycler® 1536			x			x
Lightcycler® Nano			x			x
Lightcycler® 96			x			x
Qiagen/Corbett						
Rotor-Gene Q			x			x
Rotor-Gene 6000			x			x
Life Technologies						
7500, 7500 Fast		x			x	
Vii™A7		x			x	
QuantStudio™ 12K Flex		x	x*		x	x*
7000 7300, 7700, 7900, 7900HT	x			x		
StepOne™, StepOnePlus™	x			x		
Agilent						
Mx3000™		x			x	
Mx3005P™		x			x	
Mx4000™		x			x	
Thermo						
PikoReal™			x			x
Cepheid						
SmartCycler®			x			x

* For openArray® experiments

RealQ Plus Master Mix for Probe

RealQ Plus 2x Master Mix for Probe is a real-time master mix for probe-based detection. The RealQ Plus 2x Master Mix for Probe is optimised to suit the application of TaqMan probes, but can also be used with other probe chemistries such as Molecular Beacon and Scorpion. The mix is also well suited for multiplexing.

Features

- High specificity
- High stability and reproducibility
- Reliable quantitation and high efficiency
- Pre-mixed all-in-one solution
- Reaction set-up at room temperature

Applications

- Multiplexing
- Absolute and relative quantitation
- Presence / absence experiments
- SNP analysis
- Genotyping
- Pathogen detection

RealQ Plus 2x Master Mix for Probe

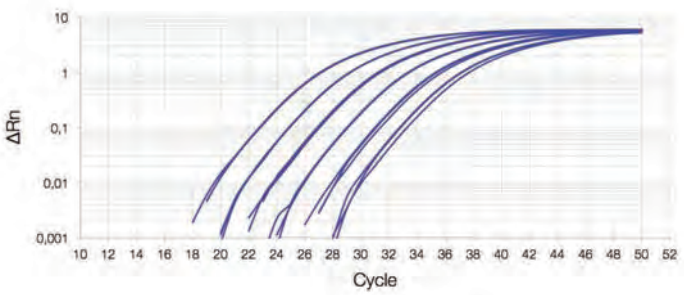
Without ROX	
Product number	
A313402	400 reactions
A313406	4 000 reactions

With low ROX	
Product number	
A314402	400 reactions
A314406	4 000 reactions

With high ROX	
Product number	
A315402	400 reactions
A315406	4 000 reactions

Performance of RealQ Plus Master Mix for Probe

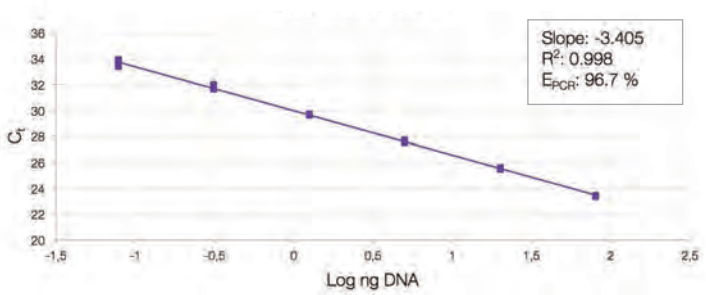
Amplification Plot



Amplification plot of a fourfold dilution series for Pthr target (75 bp) amplified from human gDNA. Starting amounts of 80 ng gDNA was amplified in triplicates using RealQ Plus 2x Master Mix for Probe with high ROX™.

Performance of RealQ Plus Master Mix for Probe

Standard Curve



Standard curve based on the adjacent amplification data. This confirms a high linear range, high efficiency and low replicate deviations.

STABILITY STUDIES AND GUIDELINES

STABILITY OF PCR ENZYMES AND MIXES

Ampliqon Taq and TEMPase DNA polymerases originate from a thermophilic bacterium. Therefore, they exhibit a natural heat resistance. We have thoroughly tested the stability of our enzymes at variable temperatures and in freeze-thaw studies, and they show high tolerance to high temperatures with regard to loss of polymerase activity.

Freezing and thawing

Taq and TEMPase are highly stable polymerases when exposed to repeated freezing and thawing. We tested Taq and TEMPase and found no loss in activity for at least 50 freeze-thaw cycles. Even Taq Glycerol Free, which is stored without glycerol as a cryoprotectant, maintains its full activity for up to 40 freeze-thaw cycles. After 50 freeze-thaw cycles still more than 90 % activity remains.

Stability at different temperatures

Taq, TEMPase and our master mixes show no loss of activity for at least 6 months when incubated at 4 °C and for at least 2 months when incubated at 25 °C.

RECOMMENDED STORAGE

Long-term storage of unopened tubes

We recommend that you keep enzymes, master mixes and buffers at -20 °C for long-term storage. The minimum shelf life at this condition in unopened tubes is three years for enzymes and master mixes and five years for buffers.

Storage of opened tubes

After the first opening of a tube we recommend that you store enzymes, master mixes and buffers at -20 °C to avoid growth caused by contamination after opening.

CONVENIENT DAY-TO-DAY STORAGE

Short-term storage of unopened tubes

If you want to avoid the time-consuming thawing process, you can store your enzymes, master mixes and buffers at 4 °C for up to six months without any risk.

If you forget your enzyme on the lab bench

Due to the high stability of Taq and TEMPase at room temperature, no harm is done if you forget your enzyme, master mix or buffer on your lab bench even over the weekend.

Nucleotides

dNTP

Introduction

Ampliqon dNTPs have a certified 99 % purity determined by HPLC. You can use our dNTPs in all molecular biology applications, including DNA polymerisation.

Features

- Ready to use
- High purity: >99 % by HPLC
- High stability
- pH 7.5

Suitable for

- DNA polymerisation
- Labelling
- Sequencing

dNTP Mix

dNTPs are available as convenient all-in-one mixes of dATP, dCTP, dGTP and dTTP with either a 100 mM or 40 mM total concentration.

dNTP Set

dNTPs are available as sets with each dNTP in a separate tube containing 100 mM of either dATP, dCTP, dGTP or dTTP.

Single dNTPs

Single dNTPs are available in 100 mM concentrations as:
dATP, dCTP, dGTP, dTTP or dUTP

dNTP Mix

100 mM total concentration

Product number	
A500004	2 x 0.5 ml
A500007	8 x 0.5 ml

40 mM total concentration

Product number	
A502004	2 x 0.5 ml
A502007	8 x 0.5 ml

dNTP Set

100 mM dATP, dCTP, dGTP & dTTP

Product number	
A511104	4 x 250 µl
A511107	16 x 250 µl

Single dNTPs

100 mM dATP

Product number	
A521102	1 x 250 µl

100 mM dCTP

Product number	
A521202	1 x 250 µl

100 mM dGTP

Product number	
A521302	1 x 250 µl

100 mM dTTP

Product number	
A521402	1 x 250 µl

100 mM dUTP

Product number	
A521502	1 x 250 µl

PCR Grade Water

Introduction

PCR is an efficient and sensitive method that enables the detection of DNA of as little as one copy of a gene. This extreme sensitivity also leads to the amplification of any contaminating DNA that may be present in the reaction. Therefore, setting up a PCR requires highest standards in pipetting routines and the utmost purity of the utilised reagents. Since water takes the largest volume, we recommend that you consider the source and quality of your water.

Ampliqon offers ultrapure PCR grade water.

Features

- Ultrapure H_2O
- Free of endonuclease, nicking and exonuclease activity
- Free of human DNA

PCR Grade Water	
Product number	
A360056	6 x 5 ml

Loading buffer

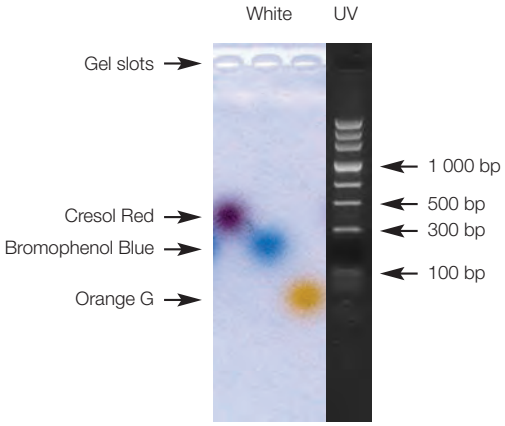
Introduction

DNA loading buffers are used for loading DNA samples onto an agarose or SDS DNA gel for gel electrophoresis. DNA loading buffers contain a density agent and a coloured dye (tracking dye). Loading buffers serve three main purposes: Firstly, they add density to the DNA samples, which allows the DNA to sink to the bottom of the well. Secondly, the tracking dye adds visibility to the DNA sample, which enables a visual control of the proper DNA sample loading. Thirdly, the different tracking dyes in the loading buffers run at characteristic positions on the gel, which allow you to monitor the migration of the DNA.

Features

- Ready-to-use buffers
- 5x formulation
- Three different tracking dyes available

Ampliqon offers three different loading buffers, which make it easy for you to find the optimal system for your specific task. Our loading buffers are formulated as 5x solutions. For a 10 µl loading volume add 2 µl 5x Loading Buffer to 8 µl of your DNA sample, mix well and load on a gel.



Loading Buffer

5x Loading Buffer Red	
Product number	
A608104	5 x 1 ml

5x Loading Buffer Blue	
Product number	
A608204	5 x 1 ml

5x Loading Buffer Orange	
Product number	
A608304	5 x 1 ml

Position of dye fronts of the tracking dyes on a 1 % agarose gel

Loading Buffer	Tracking dye	Front migrates approximately at
Red	Cresol red	300 – 500 bp
Blue	Bromophenol blue	100 – 300 bp
Orange	Orange G	50 – 80 bp

Ladders

Introduction

All Ampliqon ladders are convenient ready-to-use dsDNA ladders supplied in 0.5 ml packs. They span different size ranges and are mass calibrated for easy DNA quantitation.

The ladders are supplied in a loading buffer that is ready to use on agarose and SDS DNA gels. The ladders are suitable with both TBE and TAE electrophoresis systems.

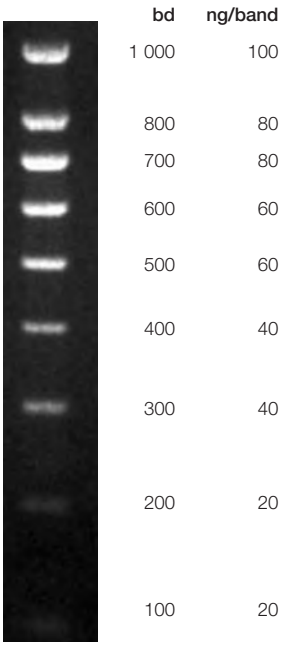
Low Range DNA Ladder

Features

Molecular range from 100 bp to 1 000 bp

Mass-calibrated bands from 20 to 100 ng for DNA quantitation

Low Range DNA Ladder



High Range DNA Ladder

Features

Molecular range from 200 bp to 12 000 bp

Mass-calibrated bands from 15 to 100 ng for DNA quantitation

PCR DNA Ladder

Features

Molecular range from 100 bp to 3 000 bp

Mass-calibrated bands of 25 and 75 ng for DNA quantitation

Extra bright 1 000 bp band serves as reference point

DNA Ladder

High Range DNA Ladder

Product number	
A610141	1 x 0.5 ml

Low Range DNA Ladder

Product number	
A610241	1 x 0.5 ml

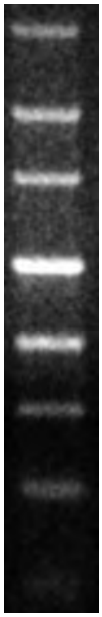
PCR DNA Ladder

Product number	
A610341	1 x 0.5 ml

High Range DNA Ladder

bd	ng/band
12 000	60
8 000	80
6 000	60
5 000	50
4 000	40
3 000	30
2 500	25
2 000	20
1 500	15
1 000	100
800	80
600	60
400	40
200	20

PCR DNA Ladder



bd	ng/band
3 000	25
2 000	25
1 500	25
1 000	75
700	25
500	25
300	25
100	25

Application chart

APPLICATION	Taq DNA Polymerase	Taq DNA Polymerase Glycerol Free	Taq DNA Polymerase RED	Taq DNA Polymerase Master Mix	Taq DNA Polymerase Master Mix RED	TEMPase Hot Start DNA Polymerase	TEMPase Hot Start DNA Polymerase Glycerol Free	TEMPase Hot Start Master Mix A + C	TEMPase Hot Start Master Mix A + C BLUE	GC-rich DNA Target Kit	GC TEMPase Master Mix I + II	Multiplex TEMPase Master Mix	AccuPOL DNA Polymerase	RealQ Plus Master Mix Green	RealQ Plus Master Mix for Probe
	STANDARD PCR					HOT START				SPECIAL PCR			HI FI	REAL-TIME	
Routine PCR	x		x	x	x	x		x	x						
High throughput	x	x	x	x	x	x	x	x	x						
Automation		x					x								
GC-rich DNA templates						x				x	x				
Multiplex PCR						x						x			
Sequencing													x		
Genotyping	x	x	x	x	x	x	x	x	x			x		x	x
Cloning	x					x							x		
Mutagenesis													x		
Freeze-drying		x					x								
Low abundance targets						x	x	x	x	x	x	x		x	x
Forensics												x			
DNA fingerprinting												x			
Colony PCR	x	x	x	x	x	x	x	x	x	x	x				
Gene expression						x	x	x	x	x	x				
Microbia/Pathogen detection						x	x	x	x	x	x	x		x	x
Quantitation														x	x
SNP analysis														x	x

Technical chart

FEATURE	STANDARD PCR					HOT START				SPECIAL PCR			HI FI	REAL-TIME	
Direct gel loading					✓				✓						
Pipetting visualisation			✓		✓				✓						
Proofreading activity													✓		
dUTP incorporation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
3'dA overhang	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
TECHNICAL DATA															
Fidelity versus Taq	1x					1x				< 1x	< 1x	1x	16x	1x	1x
Amplicon size	≤ 5 kb					≤ 5 kb				≤ 5 kb			≤ 3 kb	≤ 5 kb	
Elongation speed	35 - 100 nt/sec					35 - 100 nt/sec				35 - 100 nt/sec			25 nt/sec	35-100 nt/sec	
Processivity	60 nt					60 nt				60 nt			~20 nt	60 nt	
5'-3' exonuclease activity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
PERFORMANCE															
Fidelity	+	+	+	+	+	+	+	+	+	+	+	+	++	+	+
Specificity	+	+	+	+	+	++	++	++	++	++	++	++	+	+++	+++
Sensitivity	+	+	+	+	+	++	++	++	++	++	++	++	+	+++	+++
Yield	++	++	++	++	++	++	++	++	++	++	++	++	+	+	+

X: recommended X: suitable +: high ++: very high +++: excellent

Standard PCR

Size in units	250	500	1 000	2 500	5 000	10 000
Taq DNA Polymerase 5 U/µl. For routine PCR applications, which require high yield and reliable DNA amplification.						
Without buffer						
	A110002	A110003	A110004	A110006	A110007	A110008
With 10x Ammonium Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A111102	A111103	A111104	A111106	A111107	A111108
Mg^{2+} free	A111202	A111203	A111204	A111206	A111207	A111208
Tween free	A111402	A111403	A111404	A111406	A111407	A111408
Mg^{2+} free, Tween free	A111502	A111503	A111504	A111506	A111507	A111508
With 10x Standard Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A112102	A112103	A112104	A112106	A112107	A112108
Mg^{2+} free	A112202	A112203	A112204	A112206	A112207	A112208
Triton free	A112402	A112403	A112404	A112406	A112407	A112408
Mg^{2+} free, Triton free	A112502	A112503	A112504	A112506	A112507	A112508
With 10x Combination Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A113102	A113103	A113104	A113106	A113107	A113108
Mg^{2+} free	A113202	A113203	A113204	A113206	A113207	A113208
Tween free	A113402	A113403	A113404	A113406	A113407	A113408
Mg^{2+} free, Tween free	A113502	A113503	A113504	A113506	A113507	A113508
With two buffers of choice and extra $MgCl_2$ (25 mM)						
10x Ammonium Buffer (15 mM $MgCl_2$) + 10x Standard Buffer (15 mM $MgCl_2$)	A114102	A114103	A114104	A114106	A114107	A114108
10x Ammonium Buffer (15 mM $MgCl_2$) + 10x Combination Buffer (15 mM $MgCl_2$)	A115102	A115103	A115104	A115106	A115107	A115108
Taq DNA Polymerase 1 U/µl. The 1 U/µl concentration is especially convenient when preparing small amounts of reaction mix. For routine PCR applications, which require high yield and reliable DNA amplification.						
Without buffer						
	A050002	A050003	A050004	A050006	A050007	A050008
With 10x Ammonium Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A051102	A051103	A051104	A051106	A051107	A051108
Mg^{2+} free	A051202	A051203	A051204	A051206	A051207	A051208
Tween free	A051402	A051403	A051404	A051406	A051407	A051408
Mg^{2+} free, Tween free	A051502	A051503	A051504	A051506	A051507	A051508
With 10x Standard Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A052102	A052103	A052104	A052106	A052107	A052108
Mg^{2+} free	A052202	A052203	A052204	A052206	A052207	A052208
Triton free	A052402	A052403	A052404	A052406	A052407	A052408
Mg^{2+} free, Triton free	A052502	A052503	A052504	A052506	A052507	A052508
With 10x Combination Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A053102	A053103	A053104	A053106	A053107	A053108
Mg^{2+} free	A053202	A053203	A053204	A053206	A053207	A053208
Tween free	A053402	A053403	A053404	A053406	A053407	A053408
Mg^{2+} free, Tween free	A053502	A053503	A053504	A053506	A053507	A053508
With two buffers of choice and extra $MgCl_2$ (25 mM)						
10x Ammonium Buffer (15 mM $MgCl_2$) + 10x Standard Buffer (15 mM $MgCl_2$)	A054102	A054103	A054104	A054106	A054107	A054108
10x Ammonium Buffer (15 mM $MgCl_2$) + 10x Combination Buffer (15 mM $MgCl_2$)	A055102	A055103	A055104	A055106	A055107	A055108

Volume							
Size in units	Sample 50	250	500	1 000	2 500	5 000	10 000
of enzyme 5 U/µl	1 x 10 µl	1 x 50 µl	1 x 100 µl	2 x 100 µl	5 x 100 µl	10 x 100 µl	3 x 667 µl
of enzyme 1 U/µl	1 x 50 µl	1 x 250 µl	1 x 500 µl	2 x 500 µl	5 x 500 µl	10 x 500 µl	20 x 500 µl
of each buffer if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	2 x 1.5 ml	5 x 1.5 ml	3 x 5 ml	6 x 5 ml
of $MgCl_2$ if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	2 x 1.5 ml	5 x 1.5 ml	3 x 5 ml	6 x 5 ml

Standard PCR

Size in units	250	500	1 000	2 500	5 000	10 000
Taq DNA Polymerase RED 5 U/µl. With inert red dye for the convenient identification of enzyme and confirmation of complete mixing. For routine PCR applications, which require high yield and reliable DNA amplification.						
Without buffer						
	A200002	A200003	A200004	A200006	A200007	A200008
With 10x Ammonium Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A201102	A201103	A201104	A201106	A201107	A201108
Mg^{2+} free	A201202	A201203	A201204	A201206	A201207	A201208
Tween free	A201402	A201403	A201404	A201406	A201407	A201408
Mg^{2+} free, Tween free	A201502	A201503	A201504	A201506	A201507	A201508
With 10x Standard Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A202102	A202103	A202104	A202106	A202107	A202108
Mg^{2+} free	A202202	A202203	A202204	A202206	A202207	A202208
Triton free	A202402	A202403	A202404	A202406	A202407	A202408
Mg^{2+} free, Triton free	A202502	A202503	A202504	A202506	A202507	A202508
With 10x Combination Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A203102	A203103	A203104	A203106	A203107	A203108
Mg^{2+} free	A203202	A203203	A203204	A203206	A203207	A203208
Tween free	A203402	A203403	A203404	A203406	A203407	A203408
Mg^{2+} free, Tween free	A203502	A203503	A203504	A203506	A203507	A203508
With two buffers of choice and extra $MgCl_2$ (25 mM)						
10x Ammonium Buffer (15 mM $MgCl_2$) + 10x Standard Buffer (15 mM $MgCl_2$)	A204102	A204103	A204104	A204106	A204107	A204108
10x Ammonium Buffer (15 mM $MgCl_2$) + 10x Combination Buffer (15 mM $MgCl_2$)	A205102	A205103	A205104	A205106	A205107	A205108
Taq DNA Polymerase RED 1 U/µl. With inert red dye for the convenient identification of enzyme and confirmation of complete mixing. The 1 U/µl concentration is especially convenient when preparing small amounts of reaction mix. For routine PCR applications, which require high yield and reliable DNA amplification.						
Without buffer						
	A060002	A060003	A060004	A060006	A060007	A060008
With 10x Ammonium Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A061102	A061103	A061104	A061106	A061107	A061108
Mg^{2+} free	A061202	A061203	A061204	A061206	A061207	A061208
Tween free	A061402	A061403	A061404	A061406	A061407	A061408
Mg^{2+} free, Tween free	A061502	A061503	A061504	A061506	A061507	A061508
With 10x Standard Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A062102	A062103	A062104	A062106	A062107	A062108
Mg^{2+} free	A062202	A062203	A062204	A062206	A062207	A062208
Triton free	A062402	A062403	A062404	A062406	A062407	A062408
Mg^{2+} free, Triton free	A062502	A062503	A062504	A062506	A062507	A062508
With 10x Combination Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A063102	A063103	A063104	A063106	A063107	A063108
Mg^{2+} free	A063202	A063203	A063204	A063206	A063207	A063208
Tween free	A063402	A063403	A063404	A063406	A063407	A063408
Mg^{2+} free, Tween free	A063502	A063503	A063504	A063506	A063507	A063508
With two buffers of choice and extra $MgCl_2$ (25 mM)						
10x Ammonium Buffer (15 mM $MgCl_2$) + 10x Standard Buffer (15 mM $MgCl_2$)	A064102	A064103	A064104	A064106	A064107	A064108
10x Ammonium Buffer (15 mM $MgCl_2$) + 10x Combination Buffer (15 mM $MgCl_2$)	A065102	A065103	A065104	A065106	A065107	A065108

Volume							
Size in units	Sample 50	250	500	1 000	2 500	5 000	10 000
of enzyme 5 U/µl	1 x 10 µl	1 x 50 µl	1 x 100 µl	2 x 100 µl	5 x 100 µl	10 x 100 µl	3 x 667 µl
of enzyme 1 U/µl	1 x 50 µl	1 x 250 µl	1 x 500 µl	2 x 500 µl	5 x 500 µl	10 x 500 µl	20 x 500 µl
of each buffer if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	2 x 1.5 ml	5 x 1.5 ml	3 x 5 ml	6 x 5 ml
of $MgCl_2$ if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	2 x 1.5 ml	5 x 1.5 ml	3 x 5 ml	6 x 5 ml

Standard PCR

Size in units		250	500	1 000	2 500	5 000	10 000
Taq DNA Polymerase Glycerol Free 5 U/µl. For automation and freeze-drying. For routine PCR applications, which require high yield and reliable DNA amplification.							
Without buffer							
		A100002	A100003	A100004	A100006	A100007	A100008
With 10x Ammonium Buffer and extra $MgCl_2$ (25 mM)							
15 mM $MgCl_2$		A101102	A101103	A101104	A101106	A101107	A101108
Mg^{2+} free		A101202	A101203	A101204	A101206	A101207	A101208
Tween free		A101402	A101403	A101404	A101406	A101407	A101408
Mg^{2+} free, Tween free		A101502	A101503	A101504	A101506	A101507	A101508
With 10x Standard Buffer and extra $MgCl_2$ (25 mM)							
15 mM $MgCl_2$		A102102	A102103	A102104	A102106	A102107	A102108
Mg^{2+} free		A102202	A102203	A102204	A102206	A102207	A102208
Triton free		A102402	A102403	A102404	A102406	A102407	A102408
Mg^{2+} free, Triton free		A102502	A102503	A102504	A102506	A102507	A102508
With 10x Combination Buffer and extra $MgCl_2$ (25 mM)							
15 mM $MgCl_2$		A103102	A103103	A103104	A103106	A103107	A103108
Mg^{2+} free		A103202	A103203	A103204	A103206	A103207	A103208
Tween free		A103402	A103403	A103404	A103406	A103407	A103408
Mg^{2+} free, Tween free		A103502	A103503	A103504	A103506	A103507	A103508
With two buffers of choice and extra $MgCl_2$ (25 mM)							
10x Ammonium Buffer (15 mM $MgCl_2$) + 10x Standard Buffer (15 mM $MgCl_2$)		A104102	A104103	A104104	A104106	A104107	A104108
10x Ammonium Buffer (15 mM $MgCl_2$) + 10x Combination Buffer (15 mM $MgCl_2$)		A105102	A105103	A105104	A105106	A105107	A105108
Volume							
Size in units	Sample 50	250	500	1 000	2 500	5 000	10 000
of enzyme 5 U/µl	1 x 10 µl	1 x 50 µl	1 x 100 µl	2 x 100 µl	5 x 100 µl	10 x 100 µl	3 x 667 µl
of each buffer if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	2 x 1.5 ml	5 x 1.5 ml	3 x 5 ml	6 x 5 ml
of $MgCl_2$ if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	2 x 1.5 ml	5 x 1.5 ml	3 x 5 ml	6 x 5 ml

Samples: standard PCR and hot start PCR

Samples of Taq and TEMPase DNA Polymerases, 50 units:							
With 10x Ammonium Buffer, 10x Standard Buffer, 10x Combination Buffer and extra $MgCl_2$ (25 mM)							
	Taq 5 U/µl	Taq 1 U/µl	Taq RED 5 U/µl	Taq RED 1 U/µl	Taq 5 U/µl, Glycerol free	TEMPase 5 U/µl	TEMPase 5 U/µl, Glycerol free
15 mM $MgCl_2$	A116199	A056199	A206199	A066199	A106199	A226199	A246199
Mg^{2+} free	A116299	A056299	A206299	A066299	A106299	A226299	A246299
Detergent free	A116499	A056499	A206499	A066499	A106499	A226499	A246499
Mg^{2+} free, detergent free	A116599	A056599	A206599	A066599	A106599	A226599	A246599
Volume							
Size in units	50	50	50	50	50	50	50
of enzyme 5 U/µl	1 x 10 µl	1 x 50 µl	1 x 10 µl	1 x 50 µl	1 x 10 µl	1 x 10 µl	1 x 10 µl
of each buffer if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml
of $MgCl_2$ if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml

Standard PCR master mix

Size in 50 µl reactions	Sample 20	100	500	2 500	5 000	10 000	20 000
Taq Master Mix. Suitable for standard tests due to reduced set-up time and increased reproducibility.							
Taq DNA Polymerase 2x Master Mix							
1.5 mM $MgCl_2$ final concentration	A140399	A140301	A140303	A140306	A140307	A140308	A140309
2 mM $MgCl_2$ final concentration	A150399	A150301	A150303	A150306	A150307	A150308	A150309
Taq DNA Polymerase 1.1x Master Mix							
1.5 mM $MgCl_2$ final concentration	A120399	A120301	A120303	A120306	A120307	A120308	A120309
2 mM $MgCl_2$ final concentration	A130399	A130301	A130303	A130306	A130307	A130308	A130309
Taq Master Mix RED. For direct loading onto agarose gels. With inert red dye and stabilisers.							
Taq DNA Polymerase 2x Master Mix RED							
1.5 mM $MgCl_2$ final concentration	A180399	A180301	A180303	A180306	A180307	A180308	A180309
2 mM $MgCl_2$ final concentration	A190399	A190301	A190303	A190306	A190307	A190308	A190309
Taq DNA Polymerase 1.1x Master Mix RED							
1.5 mM $MgCl_2$ final concentration	A160399	A160301	A160303	A160306	A160307	A160308	A160309
2 mM $MgCl_2$ final concentration	A170399	A170301	A170303	A170306	A170307	A170308	A170309
Volume							
Reactions of 50 µl	Sample 20	100	500	2 500	5 000	10 000	20 000
of 1.1x master mixes	1 x 0.9 ml	3 x 1.5 ml	15 x 1.5 ml	75 x 1.5 ml	45 x 5 ml	50 x 9 ml	1 x 900 ml
of 2x master mixes	1 x 0.5 ml	2 x 1.25 ml	10 x 1.25 ml	50 x 1.25 ml	25 x 5 ml	28 x 9 ml	1 x 500 ml

Hot start PCR
GC-rich PCR

Size in units	250	500	1 000	2 500	5 000	10 000
TEMPase Hot Start DNA Polymerase 5 U/µl. For reaction set-up at room temperature, superior amplification and high specificity.						
Without buffer						
	A220002	A220003	A220004	A220006	A220007	A220008
With 10x Ammonium Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A221102	A221103	A221104	A221106	A221107	A221108
Mg^{2+} free	A221202	A221203	A221204	A221206	A221207	A221208
Tween free	A221402	A221403	A221404	A221406	A221407	A221408
Mg^{2+} free, Tween free	A221502	A221503	A221504	A221506	A221507	A221508
With 10x Combination Buffer and extra $MgCl_2$ (25 mM)						
15 mM $MgCl_2$	A223102	A223103	A223104	A223106	A223107	A223108
Mg^{2+} free	A223202	A223203	A223204	A223206	A223207	A223208
Tween free	A223402	A223403	A223404	A223406	A223407	A223408
Mg^{2+} free, Tween free	A223502	A223503	A223504	A223506	A223507	A223508
With two buffers and extra $MgCl_2$ (25 mM)						
10x Ammonium Buffer (15 mM $MgCl_2$) + 10x Combination Buffer (15 mM $MgCl_2$)	A225102	A225103	A225104	A225106	A225107	A225108
GC-rich DNA Target Kit. Optimised to successfully amplify difficult GC-rich DNA targets.						
TEMPase Hot Start DNA Polymerase with two special buffers and extra $MgCl_2$ (25 mM)						
4x GC Buffer I and 4x GC Buffer II	A227102	A227103	A227104	A227106	A227107	A227108
Samples are only available as GC TEMPase 2x Master Mix, 20 reactions.						
Master Mix with Buffer I	A331799 (1 x 0.5 ml)					
Master Mix with Buffer II	A332799 (1 x 0.5 ml)					
Volume						
Size in units	Sample 50	250	500	1 000	2 500	5 000	10 000
of enzyme 5 U/µl	1 x 10 µl	1 x 50 µl	1 x 100 µl	2 x 100 µl	5 x 100 µl	10 x 100 µl	3 x 667 µl
of each buffer if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	2 x 1.5 ml	5 x 1.5 ml	3 x 5 ml	6 x 5 ml
of $MgCl_2$ if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	2 x 1.5 ml	5 x 1.5 ml	3 x 5 ml	6 x 5 ml

Hot start PCR

Size in units		250	500	1 000	2 500	5 000	10 000
TEMPase Hot Start DNA Polymerase Glycerol Free 5 U/µl. For automation and freeze-drying, for reaction set-up at room temperature, superior amplification and high specificity.							
Without buffer							
		A240002	A240003	A240004	A240006	A240007	A240008
With 10x Ammonium Buffer and extra $MgCl_2$ (25 mM)							
15 mM $MgCl_2$		A241102	A241103	A241104	A241106	A241107	A241108
Mg^{2+} free		A241202	A241203	A241204	A241206	A241207	A241208
Tween free		A241402	A241403	A241404	A241406	A241407	A241408
Mg^{2+} free, Tween free		A241502	A241503	A241504	A241506	A241507	A241508
With 10x Combination Buffer and extra $MgCl_2$ (25 mM)							
15 mM $MgCl_2$		A243102	A243103	A243104	A243106	A243107	A243108
Mg^{2+} free		A243202	A243203	A243204	A243206	A243207	A243208
Tween free		A243402	A243403	A243404	A243406	A243407	A243408
Mg^{2+} free, Tween free		A243502	A243503	A243504	A243506	A243507	A243508
With two buffers and extra $MgCl_2$ (25 mM)							
10x Ammonium Buffer (15 mM $MgCl_2$) + 10x Combination Buffer (15 mM $MgCl_2$)		A245102	A245103	A245104	A245106	A245107	A245108
Volume							
Size in units	Sample 50	250	500	1 000	2 500	5 000	10 000
of enzyme 5 U/µl	1 x 10 µl	1 x 50 µl	1 x 100 µl	2 x 100 µl	5 x 100 µl	10 x 100 µl	3 x 667 µl
of each buffer if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	2 x 1.5 ml	5 x 1.5 ml	3 x 5 ml	6 x 5 ml
of $MgCl_2$ if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	2 x 1.5 ml	5 x 1.5 ml	3 x 5 ml	6 x 5 ml

Hot start PCR master mix
Hot start PCR master mix BLUE (for direct gel loading)
Multiplex PCR
GC-rich PCR

Size in 50 µl reactions	Sample 20	100	500	2 500	5 000	10 000	20 000
TEMPase Master Mix. For reaction set-up at room temperature, superior amplification and high specificity. Recommended for detection of low copy number targets.							
TEMPase DNA Polymerase 2x Master Mix A (With Ammonium Buffer)							
1.5 mM $MgCl_2$ final concentration	A230399	A230301	A230303	A230306	A230307	A230308	A230309
TEMPase DNA Polymerase 2x Master Mix C (With Combination Buffer)							
1.5 mM $MgCl_2$ final concentration	A230799	A230701	A230703	A230706	A230707	A230708	A230709
TEMPase Master Mix BLUE. For direct loading to agarose gels. With inert blue dye and stabilisers.							
TEMPase DNA Polymerase 2x Master Mix A BLUE							
1.5 mM $MgCl_2$ final concentration	A290499	A290401	A290403	A290406	A290407	A290408	A290409
TEMPase DNA Polymerase 2x Master Mix C BLUE							
1.5 mM $MgCl_2$ final concentration	A290899	A290801	A290803	A290806	A290807	A290808	A290809
Multiplex. For multiplex PCR reaction set-up at room temperature. Allows you to apply multiple primer sets within a single tube.							
Multiplex TEMPase 2x Master Mix							
3 mM $MgCl_2$ final concentration	A260399	A260301	A260303	A260306	A260307	A260308	A260309
GC-rich. Optimised to successfully amplify difficult GC-rich DNA targets.							
GC TEMPase 2x Master Mix I							
1.5 mM $MgCl_2$ final concentration	A331799	A331701	A331703	A331706	A331707	A331708	A331709
GC TEMPase 2x Master Mix II							
1.5 mM $MgCl_2$ final concentration	A332799	A332701	A332703	A332706	A332707	A332708	A332709
Volume							
Reactions of 50 µl	Sample 20	100	500	2 500	5 000	10 000	20 000
of 2x master mixes	1 x 0.5 ml	2 x 1.25 ml	10 x 1.25 ml	50 x 1.25 ml	25 x 5 ml	28 x 9 ml	1 x 500 ml

High fidelity PCR

Size in units	Sample 50	250	500	1 000	2 500
AccuPOL DNA Polymerase 2.5 U/µl. High fidelity proof-reading DNA polymerase, recommended for cloning, mutagenesis and blunt ends.					
Without buffer					
	-	A210002	A210003	A210004	A210006
With 10x Ammonium Buffer and extra $MgCl_2$ (25 mM)					
15 mM $MgCl_2$	A211199	A211102	A211103	A211104	A211106
Mg^{2+} free	A211299	A211202	A211203	A211204	A211206
Tween free	A211499	A211402	A211403	A211404	A211406
Mg^{2+} free, Tween free	A211599	A211502	A211503	A211504	A211506
Volume					
Size in units	Sample 50	250	500	1 000	2 500
of enzyme	1 x 20 µl	1 x 100 µl	1 x 200 µl	2 x 200 µl	5 x 200 µl
of each buffer if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	2 x 1.5 ml	5 x 1.5 ml
of $MgCl_2$ if included	1 x 1.5 ml	1 x 1.5 ml	1 x 1.5 ml	2 x 1.5 ml	5 x 1.5 ml

Real-time master mix

Size in 25 µl reactions	Sample 40	400	4 000
RealQ Plus 2x Master Mix. Optimised all-in-one master mix for real-time PCR, well suited for quantitation, detection of gene expression, SNP analysis, pathogen detection and multiplex PCR (for probe).			
Green			
Without ROX	A323499	A323402	A323406
Low ROX	A324499	A324402	A324406
High ROX	A325499	A325402	A325406
For Probe			
Without ROX	A313499	A313402	A313406
Low ROX	A314499	A314402	A314406
High ROX	A315499	A315402	A315406
Volume			
Reactions of 25 µl	Sample 40	400	4 000
Volume of 2x Master Mix	1 x 0.5 ml	4 x 1.25 ml	40 x 1.25 ml

Nucleotides

dNTP Mix. dATP, dCTP, dGTP and dTTP equimolar mixed in one tube				
100 mM (25 mM of each dATP, dCTP, dGTP and dTTP)			A500004	A500007
50 mM (12.5 mM of each dATP, dCTP, dGTP and dTTP)			A501004	A501007
40 mM (10 mM of each dATP, dCTP, dGTP and dTTP)			A502004	A502007
Volume				
of dNTP Mix			2 x 0.5 ml	8 x 0.5 ml
dNTP Set. One tube of each dATP, dCTP, dGTP and dTTP, 100 mM each				
	A511104	A511107	A511109	A511120
Volume				
Volume of each dNTP in the set				
Total number of tubes	1 x 0.25 ml 4	4 x 0.25 ml 16	20 x 0.25 ml 80	2 x 1 ml 8
Single dNTPs. One tube of one specific dNTP				
dATP, 100 mM				A521102
dCTP, 100 mM				A521202
dGTP, 100 mM				A521302
dTTP, 100 mM				A521402
dUTP, 100 mM				A521502
Volume				
Volume of dNTP				1 x 0.25 ml

Buffers

Buffers, special buffers and $MgCl_2$.			
Ammonium Buffer			
15 mM $MgCl_2$	A301103	A301110	A301156
Mg^{2+} free	A301203	A301210	A301256
Tween free	A301403	A301410	A301456
Mg^{2+} free, Tween free	A301503	A301510	A301556
Standard Buffer			
15 mM $MgCl_2$	A302103	A302110	A302156
Mg^{2+} free	A302203	A302210	A302256
Triton free	A302403	A302410	A302456
Mg^{2+} free, Triton free	A302503	A302510	A302556
Combination Buffer			
15 mM $MgCl_2$	A303103	A303110	A303156
Mg^{2+} free	A303203	A303210	A303256
Tween free	A303403	A303410	A303456
Mg^{2+} free, Tween free	A303503	A303510	A303556
4x GC Buffer I			
	A301703	A301710	A301756
4x GC Buffer II			
	A302703	A302710	A302756
$MgCl_2$, 25 mM			
	A308103	A308110	A308156
Volume			
Volume of buffers and $MgCl_2$	3 x 1.5 ml	10 x 1.5 ml	6 x 5 ml

PCR accessories

	Volume	
H_2O		
PCR Grade Water	6 x 5 ml	A360056
Enhancers		
Betaine Enhancer Solution 5 M	5 x 1 ml	A351104
Additives		
50 x Glass Blocking Agent	3 x 0.2 ml	A351413
50 x Glass Blocking Agent	3 x 1.25 ml	A351423
ROX Internal Reference Dye, 200 µM	3 x 0.2 ml	A351513
Loading buffers		
Loading Buffer Red	5 x 1 ml	A608104
Loading Buffer Blue	5 x 1 ml	A608204
Loading Buffer Orange	5 x 1 ml	A608304
DNA ladders		
High Range DNA Ladder, 200-12 000 bp, 100 lanes,	1 x 0.5 ml	A610141
Low Range DNA Ladder, 100-1 000 bp, 100 lanes	1 x 0.5 ml	A610241
PCR DNA Ladder, 100-3 000 bp, 100 lanes	1 x 0.5 ml	A610341

Custom-made laboratory reagents

Introducing custom-made reagents

Additional to our PCR enzyme production, Ampliqon also manufactures a wide range of custom-made laboratory reagents.

Delivery time maximum eight days

We produce more than 1 000 different custom-made laboratory reagents for Danish hospitals, universities, life science institutions and industries. Our laboratory reagent production is based on flexible on-demand procedures that enable us to adjust our daily production of basic chemicals, biochemical and biological reagents to suit the individual requirements and specifications of our customers.

Our reagent production team has expert knowledge of a vast variety of buffer, media, acid, base and salt solutions, calibration and test solutions, solutions for colouring, fixation, preservation, cleaning and disinfection.

Danish customers

In Denmark Ampliqon exclusively supplies laboratory reagents through VWR – Bie & Berntsen. Ordering and product enquiries are handled solely by VWR – Bie & Berntsen, and we kindly refer you to the VWR customer service for order placement and purchasing information:

Email: teamkemikalier@dk.vwr.com
Phone: +45 4386 8788
Fax: +45 4386 8790

Customers from outside Denmark

Ampliqon also services reagent customers and distributors from outside Denmark and you can order Ampliqon labelled or private label reagents directly from Ampliqon.

For further information on how to purchase custom-made laboratory reagents from outside Denmark, please contact our customer service:

Email: reagent@ampliqon.com
Phone: +45 7020 1169
Fax: +45 7020 1179

PRACTICAL INFORMATION

Price list

Our current PCR enzyme price list is issued as a separate document. To receive a copy please send an email to: support@isogen-lifescience.com

Sample policy

Samples are available in connection with orders only

We offer a limited quantity only

Sample size

20 reactions for master mixes

50 units for enzymes

40 reactions for RealQ master mixes

How to order PCR enzymes

Please place your order by email or fax.

Email: order@isogen-lifescience.com
Fax: +31 30 688 8009

Shipping procedures

PCR enzymes are shipped on dry ice or gel packs

International shipment by air freight / courier

Packaging and fees

We charge a fee for packaging and dry ice.

Contact Ampliqon

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www.ampliqon.com

Email: info@ampliqon.com
Phone: +45 7020 1169
Fax: +45 7020 1179

GENERAL TERMS AND CONDITIONS OF SALE AND DELIVERY

These terms and conditions cover all Ampliqon PCR enzyme sales and product support in Denmark and abroad.

Prices

Prices are quoted in our current price list. The list is issued as a separate document. VAT is not included in list prices.

Buyers from outside Denmark with a valid VAT number are exempt from Danish VAT.

Fees for packaging and dry ice are charged separately in invoice and are subject to total weight of shipment and shipping destination.

Delivery

Delivery in Denmark by truck (DAP).

International delivery if possible by courier freight (DAP) otherwise by air freight (CPT).

Ampliqon does not accept return of PCR enzyme shipments, packaging and the like, and buyer bears all expenses in case of unclaimed goods.

Payment

Prepayment is requested prior to shipping, unless other payment terms have been agreed. Buyer bears expenses involved in settlement of invoice.

Use

Buyer is solely responsible for the use and handling of purchased products.

Our PCR enzymes based on TEMPase are produced on licence basis and sold for laboratory use only.

Our PCR enzymes based on Taq are patent free, and use is unrestricted.

Ampliqon recommends that Ampliqon PCR enzymes are handled by skilled laboratory staff. Our PCR products are non-hazardous.

Product support

Ampliqon offers unlimited and free-of-charge product and technical support. Buyer is kindly asked to put questions and make technical enquiries by email at enzyme@ampliqon.com.

Buyer is solely responsible for his or her laboratory set-up and results and for the application of product advice rendered by the Ampliqon support team.

Complaint

Ampliqon is responsible for good production and documentation practices as well as quality control of batch and proper product handling and packaging.

Ampliqon thoroughly investigates any product complaint and offers replacement shipment free of charge, if your product should prove to have been damaged in our care.

Buyer must provide Ampliqon with a product set-up log or similar as documentation of complaint.

Liability

Ampliqon is not liable for any mishandling or misuse of Ampliqon PCR enzyme products in buyer's possession.

Ampliqon is not liable for operational loss, consequential damage or any indirect loss at buyer's place.

If product liability is imposed upon Ampliqon against other holder than buyer due to buyer's use, including resale and distribution, Ampliqon must be indemnified by buyer.

Litigation

If any dispute between buyer and Ampliqon occurs and amicable settlement fails, such dispute shall be settled by the Danish courts.

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