

Eppendorf PCR Consumables – Compatibility Guide for PCR and qPCR Cyclers

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Abstract

One of the key issues regarding PCR consumables performance (plates, stripes and respective sealing options) is their compatibility with several cycler systems available on the market. In this Application Note Eppendorf PCR/qPCR Consumables were tested on the main cycler brands and compared to consumable systems recommended by the cycler manufacturer. Physical thermo block compatibility (fitting) and PCR/qPCR assay parameters have been evaluated and these results show similar performance (sensitivity and efficiency) of Eppendorf consumables as compared to specific consumables of the competitor systems in most of the cycler platforms.



Introduction

PCR and qPCR consumables vary in numerous parameters. Among them material properties and quality, well/skirt dimensions, well surface characteristics play the most important role. These differences together with various sealing options lead to often substantial variances when changing from one consumable brand to another and can influence overall PCR/qPCR assay performance.

It is therefore of much importance to identify whether a given consumable is compatible with a given PCR/qPCR platform by comparing to the consumable system recommended by the manufacturer. Here we present a summary of extensive compatibility tests of Eppendorf PCR/qPCR Consumables on the major cycler brands currently on the market.

Materials and Methods

Compatibility with Standard PCR Devices

The following platforms were used in the PCR assay test: Applied Biosystems® (Life Technologies®), Analytic Jena®, Apollo®, Biometra®, Bio-Rad®, G-Storm®, peqLab®, Takara®, Techne®, VWR®. For the PCR assay a gDNA (Promega®) was used. After the PCR assay the samples were separated by agarose gel electrophoresis (E-Gel®, Invitrogen) and documented. Compatibility and assay performance was evaluated by presence and quality of PCR products on the gel (data not shown).

Compatibility with qPCR Devices

The following platforms were used in the qPCR assay test: Roche Applied Science®, Applied Biosystems® (Life Technologies®), Stratagene® (Agilent Technologies®), Bio-Rad®.

All cyclers used were with valid calibration status. General check of the compatibility of Eppendorf real-time PCR consumables was first performed (block fit) and then a real-time PCR assay was performed with low profile twin.tec PCR Plate (assuming that the Eppendorf PCR plates and tubes have the same parameters and composition, the results obtained with the plate will be similar with the tubes).

For the qPCR assay performance a standard assay with lambda DNA (Promega) and Kapa SYBR® Fast qPCR Mastermix (Kapa Biosystems®) was used. Three independent qPCR assays over six concentration logs of the lambda DNA template (10^1 - 10^6) and 3 replicates for each concentration were performed. Compatibility was evaluated based on following qPCR reaction parameters: Ct Mean, Ct SD, CV, melting curves analysis (data not presented).

Results

Table 1: Compatibility with Standard PCR cyclers. (+): compatible, (-): not compatible

PCR Instrument	twin.tec PCR Plate 96						twin.tec PCR Plate 384	Tube Strips		Cap Strips	
	unskirted, divisible	unskirted	unskirted, low profile divisible	unskirted, low profile	semi-skirted	skirted		PCR Tube Strip 0.2 mL	PCR Tube Strip 0.1 mL	domed	flat
ABI 2720	-	-	-	-	-	-	-	-	-	-	-
ABI 9600	-	-	-	-	-	-	-	-	-	-	-
ABI 9700	-	-	-	-	+	-	+	+	-	+	+
ABI 9800	-	-	+	+	-	-	-	-	+	+	+
ABI Veriti®	+	+	-	-	-	-	-	-	-	-	-
ABI Veriti Fast	-	-	+	+	-	-	-	-	+	+	+
Analytic Jena Alpha SC	-	-	+	+	-	+	-	-	+	+	+
Apollo ATC-201	+	+	+	+	+	+	-	+	+	+	+
Biometra Tpersonal	-	-	-	-	-	-	-	-	-	-	-
Biometra 3000	-	-	-	-	-	-	-	-	-	-	-
Biometra Tgradient	+	+	+	+	+	+	-	+	+	+	+
Biometra Tprofessional	+	+	+	+	+	+	-	+	+	+	+
Bio-Rad iCycler®	+	+	-	-	+	-	-	+	+	+	+
Bio-Rad myCycler™	+	+	-	-	+	-	-	+	+	+	+
Bio-Rad C1000	+	+	+	+	+	+	-	+	+	+	+
Bio-Rad S1000	+	+	+	+	+	+	+	+	+	+	+
Bio-Rad PTC 200	-	-	+	+	+	+	-	+	-	-	+
G-Storm GS1	+	+	+	+	+	+	-	+	+	-	+
peqLab peqSTAR 96	+	+	+	+	+	+	-	-	+	+	+
Takara Dice TP600	+	+	+	+	-	-	-	-	-	-	-
Techne Touchgene	+	+	+	+	+	+	-	+	+	+	+
Techne TC-412	+	+	+	+	-	-	-	-	-	-	-
Techne TC-PLUS	+	+	-	-	+	+	-	-	+	-	+
VWR Uno Cyclers	+	+	+	+	+	+	-	+	+	-	+

*with adapter, **without adapter

Standard accessory included with the respective cycler unit

Table 2: Compatibility with qPCR cyclers. (+): compatible, (-): not compatible

Consumable	qPCR Instrument			
	Roche LightCycler 480	Stratagene Mx3005P	Bio-Rad CFX96/384	ABI StepOnePlus
twin.tec PCR Plates 96, skirted	-	-	+	-
twin.tec PCR Plates 96, semi-skirted	-	+	-	-
twin.tec PCR Plates 96, unskirted	+*	+	-	-
twin.tec PCR Plates 96, unskirted, divisible	-	+	-	-
twin.tec PCR Plates 96, unskirted, low profile	+*	+	+	+
twin.tec PCR Plates 96, unskirted, low profile, divisible	-	+	+	+
twin.tec <i>real-time</i> PCR Plates 96, skirted	-	-	+	-
twin.tec <i>real-time</i> PCR Plates 96, semi-skirted	-	+	-	-
twin.tec <i>real-time</i> PCR Plates 96, unskirted, low profile	+*	+	+	+
twin.tec <i>microbiology</i> PCR Plates 96, skirted	-	-	+	-
twin.tec <i>microbiology</i> PCR Plates 96, semi-skirted	-	+	-	-
twin.tec <i>real-time</i> PCR Plates 384	+	-	+	-
PCR Tubes Strips 0.1 mL without caps	-	+**	+	+
<i>real-time</i> PCR Tubes Strips 0.1 mL without caps	-	+**	+	+
Cap Strips, flat	-	+	+	+
Masterclear® Cap Strips	-	+	+	+
Masterclear® <i>real-time</i> PCR Film, adhesive	+	+	+	+
Heat Sealing Film	+	+	+	+

Note: order numbers for twin.tec PCR Plates and twin.tec *real-time* PCR Plates correspond to colorless and white skirts respectively. For other skirt colors please refer to the order information in the Eppendorf Catalog or at www.eppendorf.com

*With Eppendorf Twin.tec Adapter for LC480: Cat.#0030 133.412

**With Mx3005P Perfect fit frame (provided with the cycler or can be ordered: Cat.#401421)

Conclusion

We present here a comprehensive compatibility test of Eppendorf PCR/qPCR Consumables on the major cycler brands currently on the market. Both the thermo block compatibility (fitting) and PCR/qPCR assay parameters were evaluated and summarized in a table as overall positive or

negative result respectively as compared to the consumable system recommended by the specific cycler manufacturer. The results show broad range of compatibility of Eppendorf consumables on the main cycler platforms.

Order information

Référence Dutscher	Désignation	Order No. International	Order No. North America
033632	Twin.tec PCR Plates 96, skirted	0030 128.648	951020401
033637	Twin.tec PCR Plates 96, semi-skirted	0030 128.575	951020303
035669	Twin.tec PCR Plates 96, unskirted	0030 133.366	30133366
035670	Twin.tec PCR Plates 96, unskirted, divisible	0030 133.374	30133374
035660	Twin.tec PCR Plates 96, unskirted, low profile	0030 133.307	30133307
035668	Twin.tec PCR Plates 96, unskirted, low profile, divisible	0030 133.358	30133358
033331	Twin.tec PCR Plate 384	0030 128.508	951020702
035029	Twin.tec real-time PCR Plates 96, skirted	0030 132.513	951022015
035032	Twin.tec real-time PCR Plates 96, semi-skirted	0030 132.548	951022055
035665	Twin.tec real-time PCR Plates 96, unskirted, low profile	0030 132.700	30132700
035671	Twin.tec microbiology PCR Plates 96, skirted	0030 129.300	129300
035673	Twin.tec microbiology PCR Plates 96, semi-skirted	0030 129.326	30129326
035708	Twin.tec real-time PCR Plates 384	0030 132.734	951020702
035630	PCR Tubes Strips 0.1 mL without caps	0030 124.804	30124804
033517	PCR Tubes Strips 0.2 mL	0030 124.359	951010022
035357	Real-time PCR Tubes Strips 0.1 mL without caps	0030 132.882	951022102
035634	Cap Strips, flat	0030 124.847	30124847
033956	Cap Strips, domed	0030 124.839	30124839
035356	Masterclear Cap Strips	0030 132.874	951022089
035713B	Masterclear real-time PCR Film, adhesive	0030 132.947	30132904
033969	Heat Sealing Film	0030 127.838	30127838

Your local distributor: www.eppendorf.com/contact

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