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Air-Dryable Probe Mix

Product description

The Air-Dryable Probe Mix is specially formulated for the development of air-dried diagnostic assays offering reliable qPCR-based detection of DNA target sequences.

The kit includes a glycerol-free 4x qPCR mix containing antibody-mediated hot start Taq polymerase, dNTPs, $MgCl_2$ and a blend of excipients to ensure reliable drying, without loss of activity.

Quality control

PCR Biosystems operates under an ISO 13485 certified Quality Management System. Our products are extensively tested and undergo a comprehensive, multi-step quality control process according to ISO 13485 standards, to ensure optimum performance, consistency and traceability.

Pack size	4x Air-Dryable Probe Mix
600 reactions	3 x 1 mL
2000 reactions	2 x 5 mL
10000 reactions	1 x 50 mL

Shipping and storage

On arrival the kit should be stored between -30 °C and -15 °C. If stored correctly the kit will retain full activity until the indicated expiry date.

Limitations of product use

This product has been manufactured under an ISO 13485 certified Quality Management System and is suitable for further manufacturing use as a component, reagent or reagent assembly for molecular biology diagnostics.

Technical support

Help and support are available on our website at https://pcrbio.com/resources/ including answers to frequently asked technical questions. For technical support and troubleshooting please email technical@pcrbio.com with the following information:

- Amplicon size
- Reaction setup
- Cycling conditions
- Screen grabs of amplification traces and melting profile

Important considerations

When air-drying, we recommend getting a loss of weight, referred to as Loss on Drying (**LoD**), of approximately **70%**, which results in a dried gel containing only 5-10% water.

LoD is calculated using the following formula:

LoD = (W2-W3)/(W2-W1) x 100%

where **W1** is the weight of the tube, **W2** the weight of the wet product, and **W3** the weight of the air-dried product.

If primers, probes, and eventually ROX (if the PCR instrument requires it) are added before the process, stock solutions at high concentrations should be used, in order to add the smallest volume possible to the 4x mix. We recommend not exceeding 1 extra µL in volume. Larger volumes would require longer drying times and higher LoD to reach the same percentage of remaining water in the dried product.

The time to obtain the desired LoD can vary using different drying instruments. We routinely achieve an **LoD of 70 ± 1%** when drying 5 µL of the 4x Air-Dryable Probe Mix in 96 well plates or PCR tubes and an **LoD of 74.5 ± 0.5%** when drying 6 µL of the 4x Air-Dryable Probe Mix plus oligos **at 40 °C for 80-90 min**. In both cases, the amount of remaining water was **approximately 8%.**

When using this product for the first time with a specific drying instrument, we recommend measuring the LoD using multiple tubes at regular time intervals (e.g., after 60, 70, 80, 90 min) in order to define the best protocol to achieve a LoD of 70 ± 1% or 74.5 ± 0.5% based on the mix (without or with oligos) and the drying instrument used.

Reaction setup

1. Before starting, thaw and briefly vortex the 4x Air-Dryable Probe Mix
2. Add primers, probes and eventually ROX, then distribute the mix in the well and start the drying process. See Important considerations above for more details on this stage.

Reagent	20 µL reaction	Final concentration	Notes
4x Air-Dryable Probe Mix	5 µL	1x	
Forward primer (0.1 - 1 mM)		400 nM - 1 µM	Total volume of primers, probes, and ROX should not exceed 1 µL. See 'Important considerations' above.
Reverse primer (0.1 - 1 mM)		400 nM - 1 µM	
Probe (0.1 - 1 mM)		125 - 500 nM	
ROX (50 µM) *Optional*		Depending on instrument requirements	ROX Additive is available separately, catalogue number PB20.14-P6

3. Once ready, add 20 µL DNA template and water to each well.
4. Program the instrument using the following conditions, acquiring data on the appropriate channel(s):

Cycles	Temperature General	Temperature SARS-CoV-2 Detection	Time	Notes
1	95 °C	95 °C	2 minutes	Polymerase activation and template denaturation
40-50	95 °C 55 °C to 65 °C	95 °C 58 °C	15 seconds 30 seconds	Denaturation Anneal/Extension
Melt analysis	Refer to instrument instructions			Optional melt profile analysis, available for hybridisation probes only