

Air-drying User Guideline



The guidelines in this document can help users avoid problems in air-drying. For storage and stability, expiry and general handling of these product pre-drying, please refer to the individual Product Handling Guides.

Safety precautions:

Read and understand the SDS (Safety Data Sheets) before handling the reagents. Copies of these SDSs are available on our website or upon request.

There are several advantages for air-drying, including room temperature shipping and storage, extended shelf-life and increased flexibility in sample volume. In order to be compatible with air-drying however, enzyme preparations must include specialized excipients that preserve the mixture as it is exposed to high temperature and dehydration. An ideal air-dryable formulation should stabilize an enzyme in a dried format and allow very fast rehydration and reactivation of the enzyme preparations, without impacting its performance post rehydration. The MDX products listed in table 3 are suitable for air-drying.

Air-drying Parameters Guidance

Drying parameters in table 1 are suitable for the Air-Dryable 1-Step RT-qPCR Mix in a convection oven. Variation in master mix volume, type of reaction vessel and air-drying equipment will require optimization of the air-drying protocol.

Table 1. Air-drying parameters

| Mix | Master Mix Volume | Temperature | Time* |
|-------------------------------|-------------------|-------------|--------|
| MDX095 alone | 5 µL | 50 °C | 80 min |
| MDX095 with primers and probe | 6 µL [†] | 50 °C | 90 min |

* Indicated drying time is for 5 µL of the Mix in PCR tubes or 96-well plates.

[†] 5 µL of 4x Air-Dryable 1-Step RT-qPCR Mix and 1 µL of 20x primers and probe mix.

Determination of moisture content of air-dried material

- Following air-drying, the residual moisture content of dried RT-qPCR mix should be assessed by Loss on Drying (LOD) test using the formula in table 2.

Table 2. LOD test formula

| LOD calculation | | Moisture loss after air-drying at 50 °C for 80 min |
|-----------------|--|---|
| Moisture loss = | $(W2-W3) / (W2-W1) \times 100$ | |
| | W1 = weight of empty reaction vessel W2 = weight of reaction vessel containing wet Air-Dryable 1-Step RT-qPCR Mix W3 = weight of reaction vessel containing dried Air-Dryable 1-Step RT-qPCR Mix | 70 % ± 1.0 % (MDX095) 83 % ± 1.0 % (MDX095 with primers and probe) |

Optimization

If the Moisture Loss is above the % shown in the table 2 - repeat the procedure with a new batch of master mix and reduce the time in the drying oven by 10 min.

If the Moisture Loss is below the % shown in the table 2 - repeat the procedure with a new batch of master mix and increase the time in the drying oven by 10 min.

Packaging Guidance

For maximum shelf-life, we suggest to heat seal the air-dried material with desiccant sachet to improve stability.

- Air-dried material must be packaged immediately after the drying cycle
- Dried material should be packaged in heat-sealed foil pouches with 5 g sachet silica

Associated products

Table 3. Air-dry compatible products

| Product | Catalog Number |
|--------------------------------|----------------|
| Air-Dryable 1-Step RT-qPCR Mix | MDX095 |
| Air-Dryable qPCR Mix | MDX082 |

Technical Support

For any technical enquiries, please contact our Technical Support team via email at: mbi.tech@meridianlifescience.com