Technical note

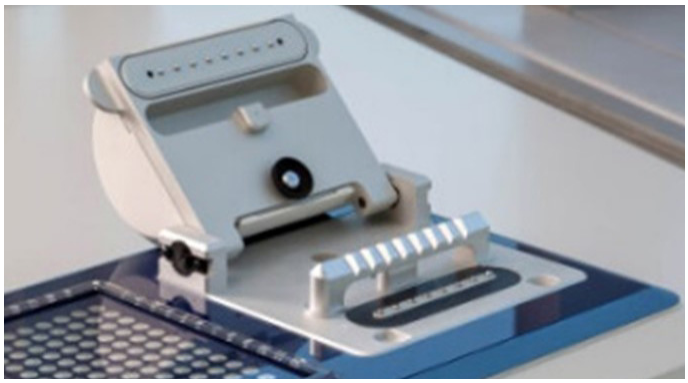
NanoDrop Eight Spectrophotometer Sample Loading Helpful Tips

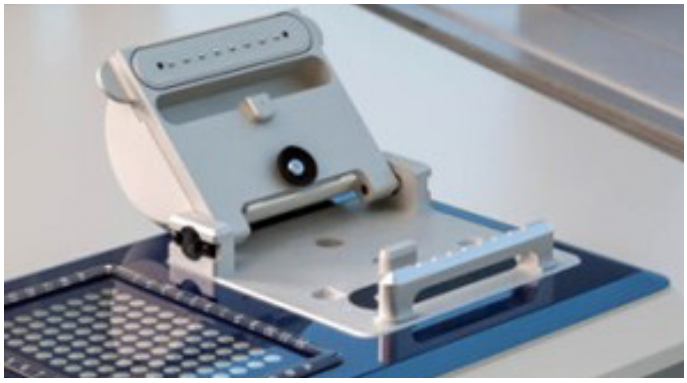
Introduction

The Thermo Scientific™ NanoDrop™ Eight 8-channel Microvolume Spectrophotometer allows measurements of one to eight, 1.0 – 2.0 µL samples simultaneously. This flexibility and higher throughput capability makes the NanoDrop Eight spectrophotometer the perfect instrument for quantitation of nucleic acids and proteins in labs with higher throughput demands.

Laboratories often have an assortment of pipettes available, and choosing the proper pipette is an important consideration when measuring small volume samples. If using a single channel pipette, the amount of time required to load all eight pedestals on the NanoDrop Eight instrument leads to evaporation and significant overestimation of the sample concentration. Refer to the following suggestions for optimal results:

1. Position the magnetic pipette guide in the left- or right-handed orientation, depending on the user's preference, to allow for optimal use of the guide.





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2. Ensure the NanoDrop Eight instrument is not situated near an air vent or an exhaust fan from a nearby instrument. An air vent or fan may lead to concentration changes due to evaporation.

3. Clean the pedestal surfaces.

    - The pedestals can be cleaned and reconditioned with the NanoDrop Pedestal Reconditioning Compound (PR-1), which helps to restore the pedestal hydrophobicity.

    - If PR-1 is not easily accessible, apply 5.0 µL of deionized water to the bottom pedestals, lower the arm to allow a column to form between the upper and lower pedestals, wait for about 30 seconds, and wipe the water off the upper and lower pedestals with a lab wipe.

4. Usex a small volume (0.5 – 10 µL) multi-channel pipette.

    - Pipettes designed to dispense a large volume range may
    not be calibrated accurately at the low end of their scale (1.0 – 2.0 µL), resulting in a dispensed volume less than intended.

    - If using an electronic pipette, do not draw up large volumes to dispense multiple aliquots. Draw and dispense individual 1.0 – 2.0 µL aliquots for each measurement cycle.

    - Adjustable spread pipettes are suggested when sampling from racks of tubes.

5. Avoid using filter pipette tips.

    - Filter tips are not recommended as filter particulates can impact absorbance measurements at 230 nm.

6. Always change pipette tips after each set of aliquots.

    - Fresh tips will ensure that no residual sample left in the tips has begun to concentrate, thereby affecting the quality of subsequent readings.

7. Do not use a single-channel pipette when measuring more than one sample.

    - Significant evaporation of the aliquots on the first few positions will result in erroneous measurements. Refer to Figure 1 for additional information regarding the use of single- vs multi-channel pipettes for sample loading.

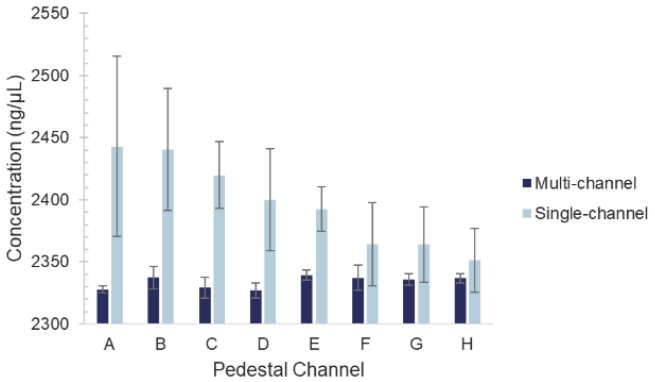


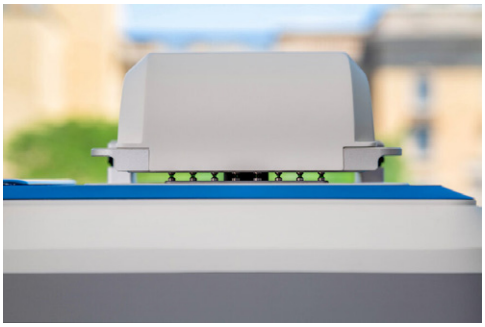
Figure 1. Eight aliquots of the same sample preparation were either loaded simultaneously with a multi-channel pipette or over a period of approximately one minute using a single channel pipette. Note: position A was loaded first for each measurement cycle when assessing the use of a single channel pipette. Error bars represent ± standard deviation of n = 5.

8. Ensure that adequate volumes of sample are being pipetted onto the center of each pedestal.

    - If tips are not seated properly on each channel of a pipette, the pipette may not properly draw up or dispense an adequate volume onto each pedestal.

9. Visually confirm that liquid columns have formed between each of the pedestals after starting a measurement.

    - Note whether all columns remain centered throughout the measurement cycle. Columns that are too thin or shifted off to one side may not completely cover the fiber optic center of each pedestal, resulting in an inaccurate measurement.



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