NanoDrop 8000 Sample Loading Helpful Hints

The Thermo Scientific NanoDrop 8000 Spectrophotometer allows measurements of between 1 to 8 samples at a time. Refer to the suggestions below for optimal results:

- **Position the instrument at an angle that will allow for optimal use of the pipette guide.**

- **Ensure the NanoDrop™ 8000 is not situated near an air vent or an exhaust fan from a nearby instrument.**

- **Ensure the pedestal surfaces are clean.** Clean the measurement surfaces with dH20 and use the NanoDrop Pedestal Reconditioning Compound (PR-1) as a rapid means to clean and recondition the pedestals.

- **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**.**

- **Do not use a single channel pipettor when measuring more than 1 sample.** Significant evaporation of the aliquots on the first few positions will result in erroneous measurements. Refer to page 2 for additional information regarding the use of single vs multi-channel pipettors for sample loading.

- **Use a small–volume (0.5-10 uL) multi-channel pipettor**.

  – Pipettors designed to dispense a large range of volume may not be calibrated accurately at the low end of their scale (1-2 uL), thereby resulting in a dispensed volume less than the intended 1.5 uL.

  – If using an electronic pipettors do not draw up a large volumes to dispense multiple aliquots. Draw and dispense individual 1– 2 uL aliquots for each measurement cycle.

  – Adjustable spread pipettors are suggested when sampling from racks of tubes.

- **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 multi-channel pipettor, they may not properly draw up, or dispense an adequate volume onto each pedestal.

- **Visually ensure that liquid columns have formed between each of the eight sets of pedestals after selecting 'Measure.'** Also 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.

For additional information contact Technical Support at 302-479-7707 or info@nanodrop.com. Outside of the US or Canada, contact your local distributor.

Sample Loading: Single vs. Multi–channel Pipettors

The Thermo Scientific NanoDrop 8000 Spectrophotometer is capable of measuring up to eight 1 ul samples in each measurement cycle. This flexibility and higher throughput capability makes the NanoDrop™ 8000 the perfect instrument for quantitation of nucleic acids and proteins in labs with higher throughput demands. Laboratories often have an assortment of pipettors available and choosing the proper pipettor is an important consideration when measuring small volume samples. Evaporation of samples over the time it takes to load all 8 pedestal positions on the NanoDrop 8000 with a single channel pipette can significantly overestimate the concentration of a sample. The graph below illustrates this point.

Comparison of Sample Loading Methods:
Multi Channel vs Single Channel Pipettors
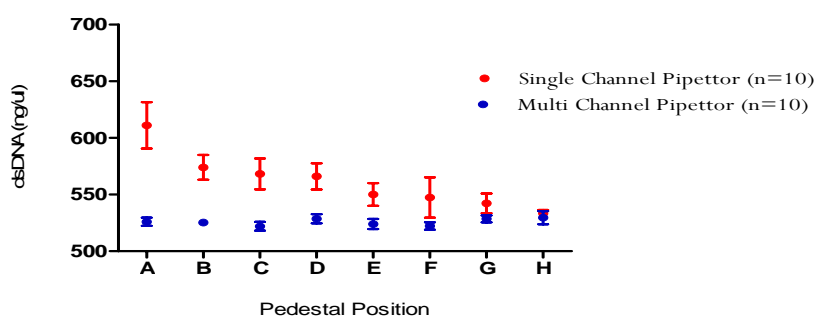
Eight aliquots of the same sample preparation were either loaded simultaneously with an eight channel pipettor or over the period of approximately one minute using a single channel pipettor.
 Note: Position A was loaded first for each measurement cycle when assessing the single channel pipettor mode.

Recommendations for Sample Loading

A single channel pipettor is recommended when using only one pedestal position (Figure 1a) for each measurement cycle. A multi-channel pipette is recommended when using 2 or more pedestal positions (Figure 1b) to ensure accurate results.

Figure 1a. Loading one sample.

Figure 1b. Loading multiple samples.

If loading multiple samples from tubes consider transferring the samples to a 96 well plate or 8-well strip tubes to facilitate simultaneous sample loading on the pedestals. Alternatively, use the 8 channel Thermo Scientific Matrix Equalizer 384 expandable pipette (Cat # 2130) for maximum efficiency and accuracy when measuring directly from tubes. The Matrix Equalizer has the ability to change the spacing of the tips from the wider spacing of a tube rack to load directly to the 9mm spacing of the NanoDrop 8000 pedestal.