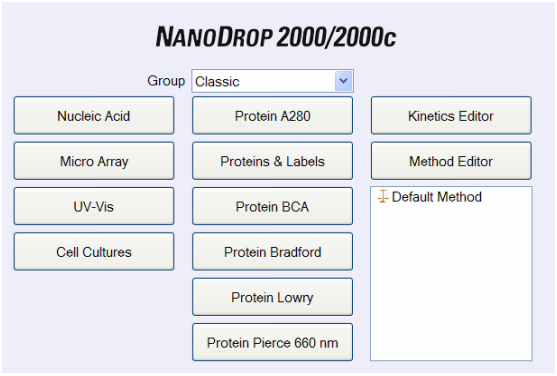
Thermo Scientific NanoDrop 2000/2000c Spectrophotometers

Quick Start

1. Double click on the desktop NanoDrop™ 2000 software icon and select the application of interest. Follow the prompts for instrument initialization.

2. Ensure **Add to report** is selected in the left pane to automatically include all measurements in the saved report.

3. Establish a Blank using the appropriate buffer. Pipette 1-2 ul of the blanking buffer onto the bottom pedestal, lower the arm and click the **Blank** button. The blank solution is generally the same buffer that the molecule of interest is suspended or dissolved in.
   - For the NanoDrop 2000c model, select the **Use cuvette** box to make measurements with a cuvette.
   - Insert the cuvette noting the direction of the light path indicated by the etched arrow.
   - The arm must be down for all measurements-including measurements made with cuvettes.
   - The optical path is directed 8.5 mm above the bottom of the cuvette. Refer to the manufacturer for volume recommendations.



Pedestal measurement

Cuvette measurement

4. Wipe away the blank and enter the sample ID in the appropriate field. Pipette 1-2 ul of sample and hit **Measure.**
   - It is recommended that a fresh aliquot of sample be used for each measurement.

After a measurement:

- Wipe both measurement pedestals using a dry, lint-free laboratory wipe and the instrument is ready for the next sample.
- When using the cuvette option, remove the cuvette, rinse thoroughly and dry between samples.

Blanking Cycle

It is generally recommended that an aliquot of the blanking buffer be measured as if it were a sample. This will confirm that the instrument is working well and that any sample dried down from previous measurements is not a concern. To run a blanking cycle, perform the following:

1. Load an aliquot of the blank onto the lower measurement pedestal and lower the sampling arm into the down position.

2. Click on the **Blank** button to store the blank reference.

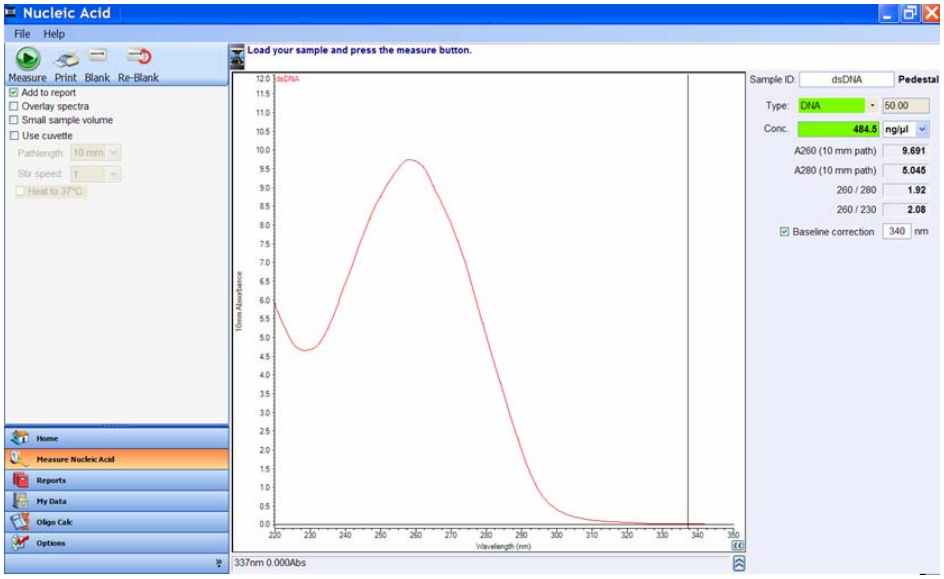
3. Analyze a fresh replicate of the blank as though it were a sample by selecting **Measure**. The result should be a spectrum that varies no more than 0.04 A (10 mm absorbance equivalent).

4. Wipe the blank from both measurement pedestal surfaces and repeat the process until the spectrum is within 0.04 A (10 mm path).

Although it is not necessary to blank between each sample, it is recommended that a new blank be taken every 30 minutes when measuring many samples.

For Technical Support contact us at 302-479-7707 or send an email to nanodrop@thermofisher.com.

Software Features



The NanoDrop 2000/2000c software interface is divided into a left pane and a right pane. Task bars and Action buttons are located in the left pane while the right pane acquisition pages display the sample spectra.

Task Bars

Home - displays the main menu with the available selection of applications.
Measure (specific application)- active application screen.
My Data - manages data archiving and retrieval.
Reports - exportable user configurable report associated with current data set.
Diagnostics - accesses the Intensity and Calibration checks.
Options - includes tabs for account management and report printing options.

Action Icons

Measure - initiates the measurement of a sample.
Print Screen - prints a copy of the spectrum and associated sample data to the default printer.
Blank - initiates the measurement of the buffer or carrier liquid in which the sample is suspended.
Re-Blank - establishes a new reference (blank) and recalculates the absorbance spectrum for the most recent sample and displays the revised spectrum on the screen.

Optional Selections

Add to Report - used to indicate sample data that should be added to the current report.
Overlay spectra - selection of this feature displays multiple spectra at a time.
Small sample volume - 0.5 ul volume capability used for concentrated samples.
Nucleic acid and A280 applications only (examples $\geq$150 ng/ul dsDNA or $\geq$4.5 mg/ml BSA)
Use cuvette - select to enable cuvette measurements.

Menu Bar

File - used to open and close workbooks**.**
Help - electronic Help files. May be accessed directly from many software screens.

Sample data is stored in workbooks at user-specified locations. Workbooks may be accessed through the **My Data** task bar in the left pane.

Cleaning and Reconditioning

Pedestal Cleaning

1. Apply 3-5 ul of dH_20 on to the bottom pedestal. Never use a squirt bottle to apply de-ionized water or any other liquid to the surface of the instrument.
2. Lower the upper pedestal arm to form a liquid column; let it sit for approximately 2-3 minutes.
3. Wipe away the water from both the upper and lower pedestal with a dry, lint-free lab wipe.

- **Between measurements:** Wipe the sample from both the upper and lower pedestals with a clean, dry, lint-free lab wipe, to prevent sample carryover and avoid residue buildup.
- **Between users:** A final cleaning of both measurement surfaces with dH_20 is recommended after the last sample measurement.
- **Additional cleaning:** Substitute 0.5M HCl for the dH_20 in the procedure above when proteins have dried on the pedestal.
- **Decontamination:** Use a sanitizing solution, such as a 0.5% solution of sodium hypochlorite (1:10 dilution of common commercial bleach solution, freshly prepared), to decontaminate the measurement pedestals. Follow with 3- 5 ul of dH20.

The use of detergents or isopropyl alcohol is **not** recommended as they may un-condition the pedestal measurement surfaces. If a solution containing either is used, it is important to follow with 3- 5 ul of dH20.

Pedestal Reconditioning

Use the instrument pedestal reconditioning kit, PR-1, as a rapid means of reconditioning the pedestals when the surface properties have been compromised and liquid columns break during measurement.

1. Open the vial containing PR-1 and use the applicator provided in the kit to remove a pin-head sized amount of the compound.
2. Apply a very thin, even layer of PR-1 to the surface of the upper and lower pedestals and wait 30 seconds for thee PR-1 to dry.
3. Fold a clean, dry laboratory wipe into quarters and remove the PR-1 by aggressively rubbing the surface of the upper and lower pedestals until all compound residue is removed. The appearance of a black residue on the laboratory wipe is normal.
4. Use canned air to remove excess lint from the diaphragm.

Test the effectiveness of the re-conditioning by pipetting a 1ul sample of dH_2O (using a calibrated 2 ul pipettor) onto the lower measurement pedestal.

The figure on the left is a flat bead of water on an unconditioned pedestal. The figure on the right is a1ul sample of dH_2O on a properly conditioned pedestal.

Un-conditioned Pedestal-water "Flattens out"

Properly Conditioned Pedestal-water "Beads up"

Cuvette Cleaning

- For routine, daily cleaning use a dry lab swab or lab wipe to wick away any spills within or around the cuvette holder assembly.
- The cuvette holder assembly may be cleaned of excess dust using canned air.
- DO NOT squirt any liquid into the block as the liquid will flow into the instrument. If liquid does get into the block, it is best to use a lab wipe or a lab cotton swab to absorb the liquid.
- Follow the recommendations of the cuvette manufacturer for the cleaning and maintenance of cuvettes.
- Cuvettes with scratches in the optical path should not be used. Ensure all optical surfaces are free of lint and fingerprints prior to insertion in the NanoDrop 2000c cuvette holder.