Calibration

Thermo Scientific NanoDrop Spectrophotometers

Spectrophotometers measure light transmittance from which absorbance is calculated. Using Beer's law, the software for all NanoDrop™ Spectrophotometer calculates the concentration of samples based on absorbance, molar extinction co-efficient and pathlength. The calibration check will specifically assess the accuracy of the pathlengths used for measurements on the respective spectrophotometer. **NOTE**: The operating software automatically performs wavelength calibrations using standard reference lines in the Xenon spectrum upon initialization.

CF-1 is a concentrated aqueous potassium dichromate ($K_2Cr_2O_7$) **standard** solution used to photometrically certify that the pathlengths utilized for measurements on the NanoDrop 2000/2000c and the NanoDrop1000 Spectrophotometers are within calibration specifications. The solution is gravimetrically prepared using 0.673 g NIST SRM935a potassium dichromate and verified using an independently certified reference UV-Vis spectrophotometer (Agilent 8453). It is roughly ten times more concentrated than other commercially available K2Cr2O7 solutions used to confirm calibration of standard spectrophotometers and is available through Thermo Fisher Scientific or your local distributor.

The CF-8 calibration kit includes CF-1, as described above, and 8-well PCR strip tubes for use in confirming calibration of the NanoDrop 8000.

It is good practice to check the instrument's performance every six months with a fresh vial of CF-1. Calibration check software is included in the operating software and is also available for free download from the Support tab at www.nanodrop.com.

Thermo Scientific NanoDrop 3300 Fluorospectrometer

Unlike absorbance spectroscopy, measurement of fluorescence is always reported in RFU or relative (non-absolute) fluorescent units. To determine concentrations using a fluorospectrometer, a standard curve must first be generated using reagent standards of known concentrations. Determination of sample concentrations on the fluorospectrometer is, therefore, much less dependent upon actual path lengths.

NIST SRM reagents such as fluorescein (Invitrogen F-36915) and quinine sulfate are commercially available for assessing fluorescence performance.