

The Olis[®] DSM CD Spectrophotometers Are More Digital, More Direct, More Fail-safe, Faster.

CD Simplified.

With your Digital Subtractive Method (DSM) CD, you will get superb results, quickly and correctly.

Never Doubt the Results

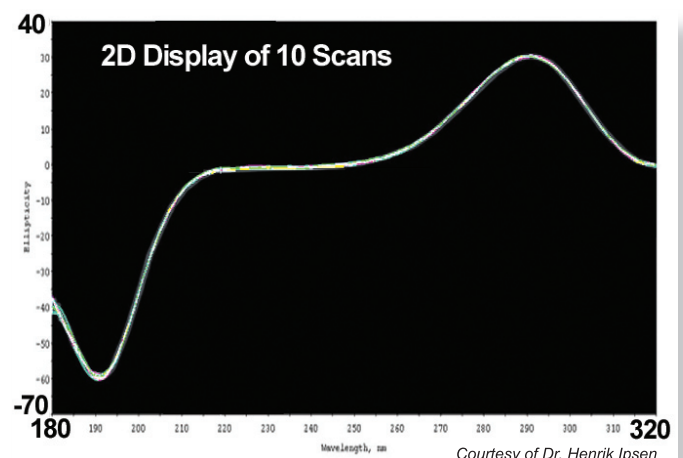
You will never doubt your answer because of questionable settings made on the lock-in amplifier, because our dual beam instrument has no lock-in amplifier.

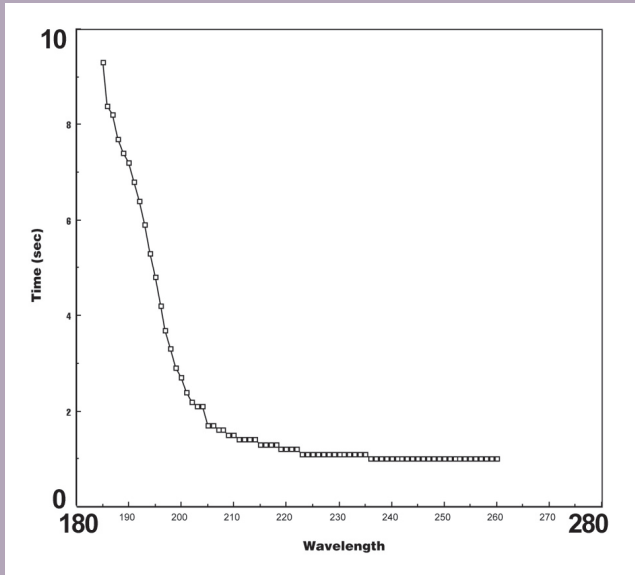
Never Calibrate

You are freed from concern about imprecise calibration, because your Olis DSM CD requires no calibration.

Absolute Reproducibility

Zero drift and other attributes of the Olis dual beam detection produce absolutely reproducible results.





Never Compromise between Time and Best Results

You will never compromise between time and collecting precision data.

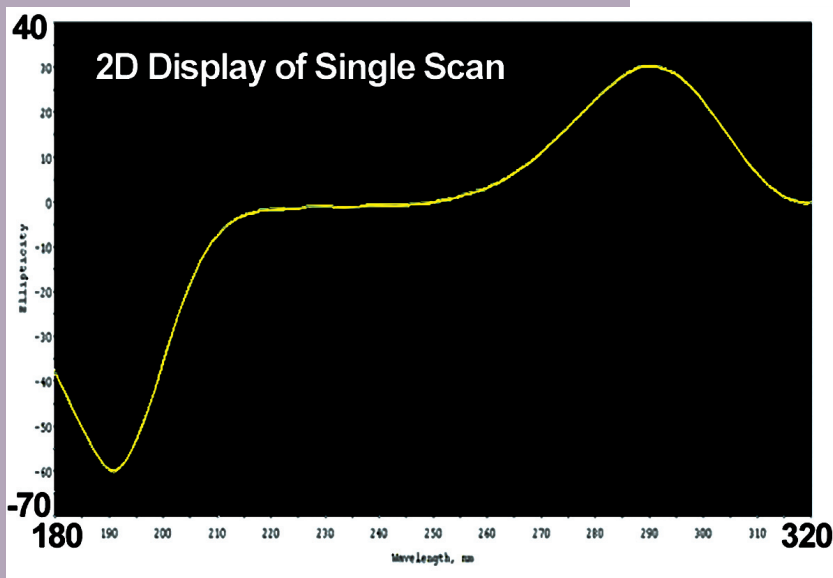
Commonly, data from 260-205 nm are acquired at 0.5 to 1 second per datum; from 205-200 nm, at 1 to 2 seconds, and only from 193 nm are >5 seconds per datum needed.

Reduce Nitrogen Use

Short acquisition times plus the independent regulation of nitrogen flow into compact chambers minimize nitrogen requirements.

Freedom from Perfect Sample Conditions

No longer labor mightily to ensure that your sample is stable. Benign or meaningful changes in the sample can be seen when you have the analysis software provided with the Olis instrument recording the whole spectra and allowing you to conclude whether your sample is adhering to the cuvette wall, undergoing photolysis, or otherwise undergoing changes.



Minimal Repeat Scanning

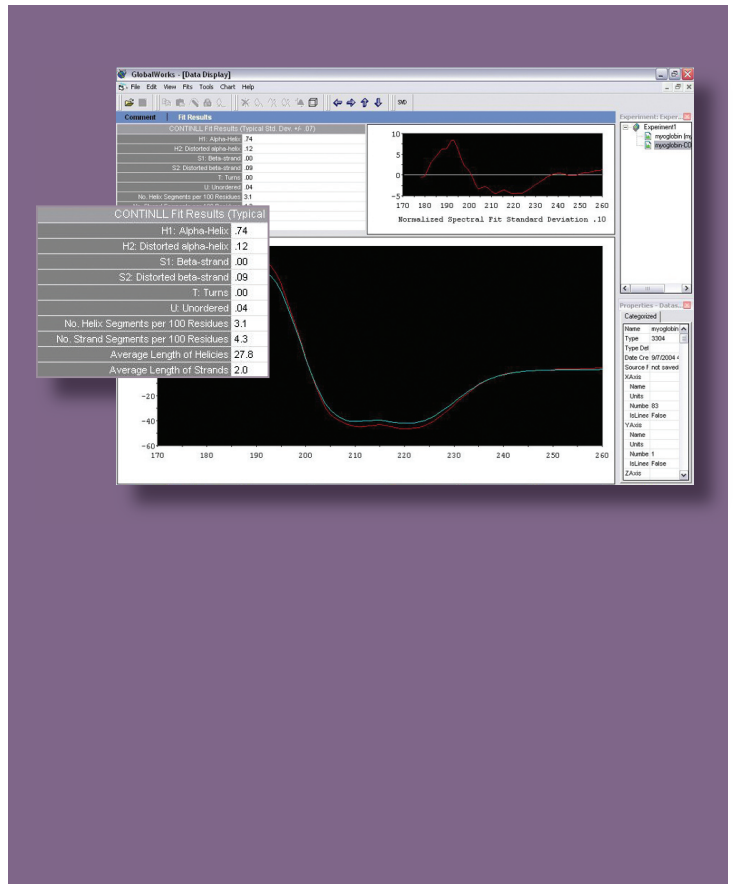
How many scans would you average when one looks like this?

Secondary Structure Determination, Immediately

As fast as you can say “data collection over; what are the structural percentages?” you will know. With a mouse click, choose among the four widely used algorithms for secondary structure determination—SELCON3, CONTINLL, CDSSTR, and VARSLC—and have your answer, numerically and graphically.

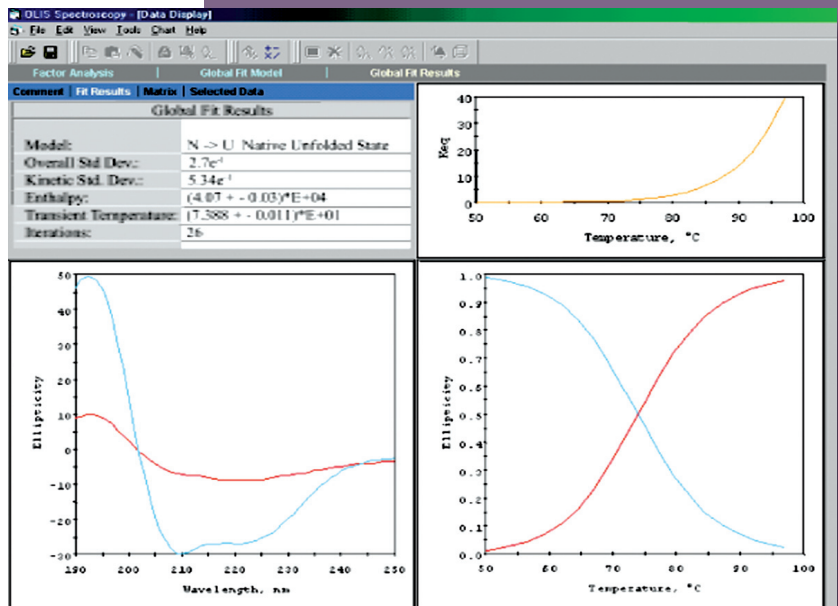
All Analysis on One Platform

In addition to extraordinary 3D data analysis algorithms², unique to the Olis GlobalWorks™ program, the Olis SpectralWorks™ software also includes about thirty 2D data processing algorithms (e.g., peak finder, integration, etc.) and nearly 60 algorithms for 3D analysis.



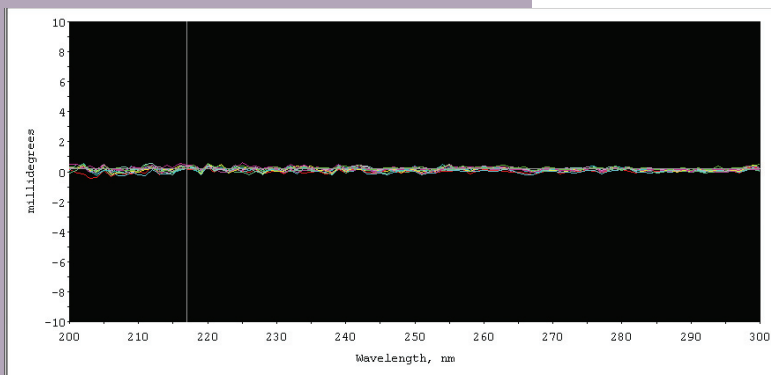
Collect Scans and Apply SVD for Better Results

With full spectral scans to follow thermal, chemical, and kinetic processes, you can obtain spectral answers, which could include spectral intermediates invisible with fixed wavelength acquisition. SVD, the first step in 3D data analysis, has the secondary benefit of reducing noise by 40-fold, so quite rapid data acquisition still results in low noise answers.



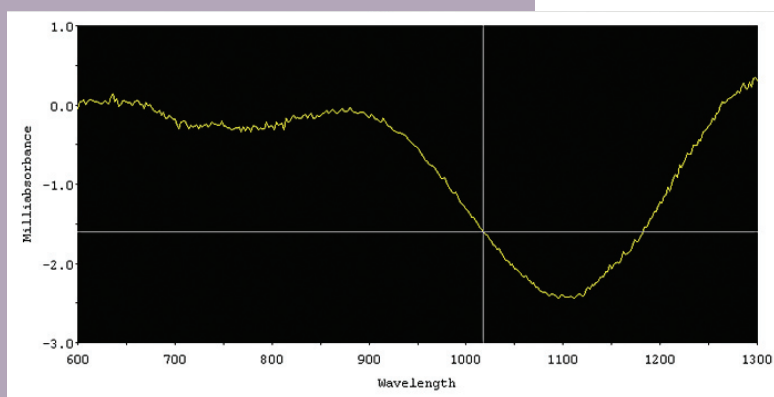
REFERENCES

- 1 Olis DSM CD spectrophotometers have no lock-in amplifier; the answer is mathematically produced.
- 2 Our application of SVD and spectral reconstruction algorithms using the outstanding Matrix Exponentiation method for kinetics are introduced and explained in volume 384 of Methods in Enzymology, Chapters 1, 2, and 3.



Freedom to Design Very Long Experiments

Design your experiments to continue to hours, even days, with the drift-free Olis CD. Shown are 12 scans collected over a 24 hour period; integration time was 5 sec/ pt. Drift is 0.007 mdeg/ hour* (< 0.1725 mdeg/ day).

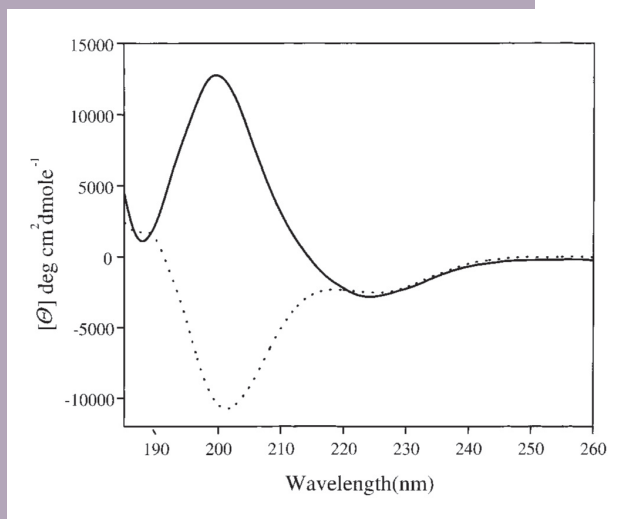


Success doing NIR CD to 2600 nm

The Olis models 17 and 1000 CD spectrophotometer are unique in the world for successful CD spectral scanning into the NIR to 1700 nm and even 2500 nm. (In-house measurement)

No Scale Assignment is Necessary

Only with the Olis CD spectrophotometers can CD signals larger than 2000 millidegrees be acquired.



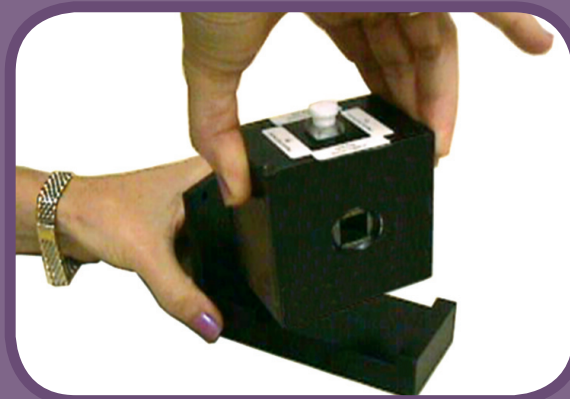
Success Working with Turbid Samples

Without integrating spheres, moving sample stages, or other complication, the Olis DSM CD acquires credible spectra from particulate sample preparations. (Biochemistry 2002, 41, 7391-7399)

* Converting millidegrees to absorbance returns drift of 2.3×10^{-7} AU per hour.

Affordable and Effective MCD

With the DeSa 1.4 Tesla Magnet, turn your CD into a uni- and bi-directional MCD for under \$5000!



More Informative Experiments

You can design and execute more informative experiments easily. Enjoy the power of studying your protein as it undergoes dynamic change induced by pressure, temperature, concentration, and pH changes, secure in knowing that the 3D data will be fitted as quickly and correctly as you now work with 2D files. More informative experiments provide better answers. A very good thing!

What remains the same: Sample presentation and cuvette selection

Both sample preparation and cuvette selection are the same whether one is using traditional single beam CD or the modern Olis® DSM CD. However, one will find that lower concentrations can be used successfully with the Olis® DSM spectrophotometers, especially with the extraordinarily sensitive Olis DSM 1000 CD.



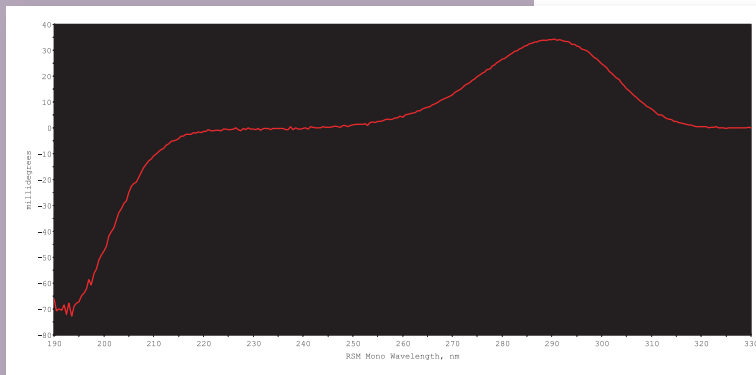
Custom Accessory Integration

A nearly limitless selection of accessories can be used with Olis DSM CD spectrophotometers, optimizing our instruments for your exact needs.

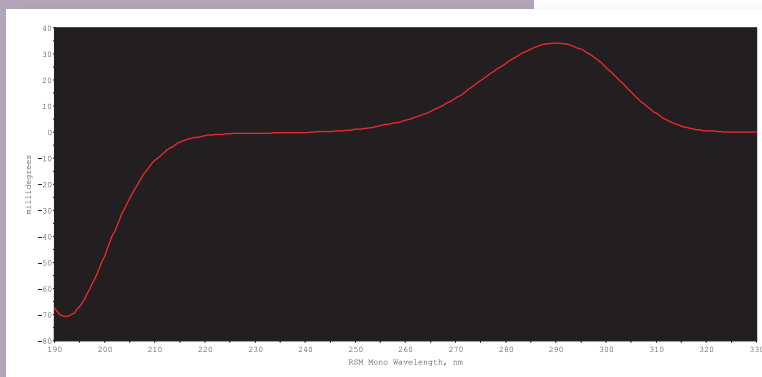
Digital Noise Removal: Fast, Easy, Thorough

Traditional CDs use a lock-in amplifier to fix an electronic time constant prior to data acquisition. Our method for noise reduction/ removal is mathematical (digital) after data acquisition.

The Olis CD spectrophotometer gathers and processes 10^6 digital data points per second. Each plotted CD datum is determined by processing these raw digital values. By selecting an integration time, one determines how many data points are considered for each CD datum.

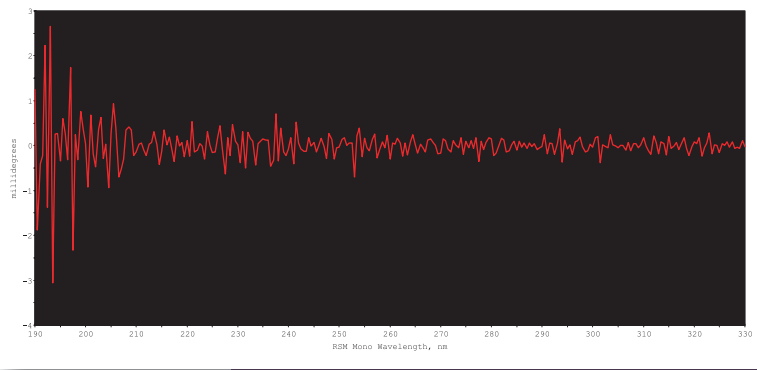


Use of a long integration time means more raw values contribute to the CD but a slow(er) instrument response. Use of short integration times (faster instrument response) often results in discernable noise, particularly where the light level is low or the CD signal is small, e.g., at the shorter wavelengths. Notice the higher noise in the <200 nm region in this un-filtered scan.



Here, after the digital filtering, we achieve a spectrum with equal noise levels along the entire span. Taking the difference of this filtered spectrum and the un-filtered one from which it was produced (above), we have the perfectly random noise (facing page). The higher noise in the UV region is attributable to lower light levels and a deliberately inadequate data acquisition rate (we cannot show removal of noise without first including some noise!).

As the difference between the filtered and unfiltered data illustrates so beautifully, application of the appropriate filter (here, a 13 point) does a perfect job of removing high and low noise along the entire length of the spectrum. And, one can confirm that the shape of the spectrum was not distorted. (Had it been, this difference spectrum would be structured, not flat.)



Exclusive to the Mathematical (Digital) Method:

- Allows maximum data acquisition rates under all conditions
- Allows reversible noise filtering after raw data are collected
- The shape of the spectrum with the noise removed by the filtering can be confirmed as unaffected (not distorted).
- Useful information about the noise itself can be found in the difference between the raw unfiltered data and the final filtered data.

Whereas, with the Traditional Electronic Method:

- There are no raw data to return to, so there is no means of adjusting the data once they are acquired.
- There is no means of determining whether the spectrum has been distorted other than to run the experiment again with a different time constant and hope to conclude which of the two is 'more' correct.
- An accepted way of noise reduction is to signal average multiple scans. Of course, each scan will have high noise in the same region as the other scan. We include this method, too, for those people who choose to use it.

Three Olis CD Spectrophotometers:

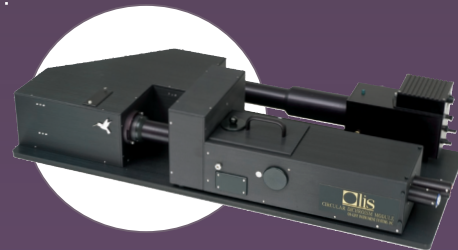
The Rapid-Scanning 1000

167-540 nm
extendible to 1100 nm, 1700 and 2600 nm
Capable of millisecond scan rates



The Tiny 20

170-720 nm
extendible to 1100, 1700, and 2600 nm
Smallest CD Ever!



The Variable-slit 17

185-850 nm
extendible to 1700 nm
and 2600 nm
Cary™ prism-grating



For more information on this and other Olis products:

Visit www.olisweb.com
Write sales@olisweb.com
Call **1-800-852-3504** in the US & Canada
1-706-353-6547 worldwide
Tour **On-Line Instrument Systems, Inc.**
130 Conway Drive, Suites A, B & C
Bogart, GA 30622

Like all Olis spectrophotometers, the Olis DSM CDs are both application- and era-upgradeable, earning the moniker "endlessly upgradeable."

