http://olisweb.com

## Chemistry-Kinetics

Reaction kinetics are an important component of chemical research in the laboratory and in the classroom. The concepts of kinetic analysis are the building blocks of many undergraduate chemistry courses as well as the basis for many research projects. Olis supports the monitoring of reactions by optical spectroscopy in the ultraviolet, visible, or near infrared spectral regions on timescales from microseconds to hours. Kinetic reactions can be triggered by a variety of methods including manual mixing, stopped flow mixing, or flash photolysis. However, any trigger that can be initiated by a TTL signal can be integrated into an Olis system.

**Absorbance and Fluorescence**: The most powerful and sophisticated Olis kinetic system is the RSM 1000, which can be easily configured for use in any wavelength range from deep ultraviolet to near infrared. Its patented ScanDisk technology supports the collection of up to 1000 spectral scans per second. For absorbance spectra at more modest rates, the HPDA 8452 collects spectra scans at a rate of up to 10 scans/second. The RSM 1000, DB 620, or HPDA 8452 can be utilized for single wavelength kinetic wavelengths.

The DM 45, DM 245, RSM 1000F, and SLM series fluorimeters provide the ability to monitor fluorescence reactions as well.

Stopped flow, flash lamps, LEDs, Peltier TLC 45, Peltier TLC 50, and magnetic stirrers are popular accessories for these measurements.

Olis instruments include the software package GlobalWorks, which is a powerful tool in the elucidation of kinetic mechanisms. In addition to standard single wavelength kinetic fits. Spectral data can be globally fit using singular value decomposition (SVD). With this fitting option, spectra of each kinetic component are extracted. This additional information allows fitting to more complex mechanism and helps to characterize the reaction intermediates. Spectral information also proves helpful in eliminating incorrect mechanisms that require impossible spectra in order to be correct.

**Links to client publications:**

Download a PDF of client publications related to Kinetics here.