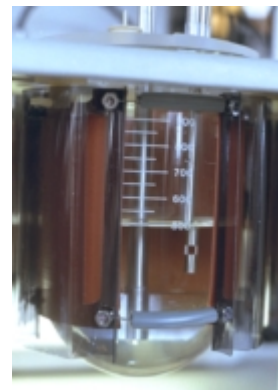


## Multichannel Diode Array UV Spectrometer for Tablet Dissolution Testing

### Partner

The Rainbow Dynamic Dissolution Monitor™ was developed for Delphian Technology, USA, transferred to production and manufactured in quantity by tec5. It is a high-quality 6 to 8 channel UV spectrometer system for acquiring precise, accurate, reproducible and robust dissolution profiles of drug formulations.



### Application

To test the release of agents from tablets they are dissolved in vessels imitating the environment of a human stomach. Since most of the agents are UV sensitive the kinetics of this release can be determined by measuring the concentration via absorption over time. Dissolution testing methodologies so far like (HPLC) are Slow and Expensive. Therefore, a new approach was search to measure the concentration in 8 vessels simultaneously within seconds. The new design followed the concept. "Pipe the Light, Not the Liquid"

### Spectrometer System



The system utilizes 6 (8) immersion probes (Hellma) to acquire 6 (8) UV spectra simultaneously during a dissolution test. Each probe is placed inside a dissolution vessel and remains in the vessel for the duration of the test. During a run, the system can acquire absorbance scans every 10 seconds. A deuterium lamp is used as light source, which provides light to all channels via a special designed light guide.

After interacting with the sample, the light is guided to a series of 6 (8) photo diode array ultraviolet spectrometers (Zeiss MMS UV) which measure from 240 to 390 nm with an absolute wavelength accuracy of 0.2 nm and a temperature drift less than 0.005 nm/K. The spectral pixel spacing is 0.8 nm, giving an overall Raleigh resolution of about 3 nm. After setup, the system runs without analyst intervention for up to 72 hours. All results are automatically calculated and secured in real time.

The instrument and its software are GMP compliant. Benefit analysis shows that it has significant advantages for dissolution measurement over systems using filtering and flow-through cells. The Rainbow Dynamic Dissolution Monitor™ is thus suitable for routine dissolution analysis in pharmaceutical quality control.

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