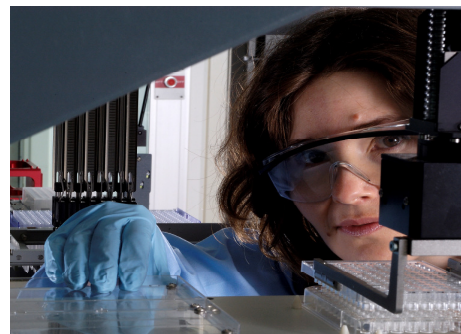


# Pion Instruments

*Pion's research, methodologies and instruments for determination of PhysChem properties enable the global pharma industry to effectively focus resources on the most promising leads, accelerating the drug development process, saving time and money. PhysChem data guides researchers and identifies potential drug chemistry problems before they occur. Pion's technology spans discovery through formulation to manufacturing.*

## Pioneering API-Sparing PhysChem Characterization

- Patented UV Fiber Optic Real Time Concentration Monitoring
- Standardized HT Permeability for GIT, BBB, Skin models
- Small volume Dissolution assessment and analysis
- Patented HT miniaturized Shake Flask Solubility
- Ionization and lipophilicity for sub mg API
- Methods backed by over 100 peer-reviewed articles



### μDISS Profiler™



### Small Volume, Real Time, Concentration Monitoring

*Versatile in situ UV measurements for evaluation of various effects on solubility, dissolution, supersaturation and precipitation profiles.*

- Instant evaluation of salts, excipients and other formulations 1-20 mL media
- Wide dynamic range across full UV-Vis spectrum
- Sub mg samples
- High speed data capture
- comprehensive data analysis:
  - ❖ powder area estimation
  - ❖ particle size assessment
  - ❖ disc IDR prediction
- Intrinsic dissolution rate measurements
- 8 parallel assay channels
- Independent stirring speeds
- Down to 1 mL media volume
- Works in turbid solutions:
  - ❖ simulated intestinal fluids
  - ❖ presence of nanoparticles
  - ❖ background precipitates

### PAMPA Explorer™/Evolution™



### High Throughput Permeability Assay Using Artificial Membranes

*A 96 well format test utilizing optimized lipid membranes and implemented on manual (Explorer) or automated (Evolution) liquid handling platforms.*

- Turnkey solution Sole provider of complete test system
- Proven GIT, BBB, Skin models
- Scalable packages for various throughput needs and budgets
- Highly cost effective screen
- Individual well stirring with Gut-Box™
- Targeted biomimetic models
- Comprehensive, integrated data analysis software
- Global support from world recognized permeability experts
- Easy integration with liquid handling platforms and detection systems

## Rainbow™ and Spectra™

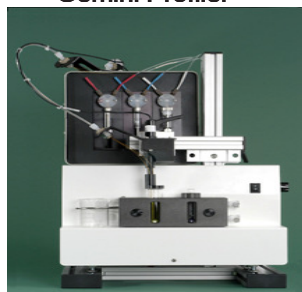


## Dynamic Dissolution Monitoring

*Real time in situ UV dissolution measurements for laboratories from R&D through manufacturing*

- Wide dynamic range across full UV-Vis spectrum
- Secure data management
- No operator intervention for data collection
- No ancillary liquid handling
- Economical per data point
- High speed data capture
- Up to 8 channels configurable
- Quiet, robust, low-maintenance
- 21 CFR Part 11 compliant

## Gemini Profiler™



## Ionization and Lipophilicity

*An acid base semi-automated potentiometric titrator for  $pK_a$ ,  $\log P$ , solubility measurements based on Bjerrum analysis.*

- Sub mg API samples
- Water insoluble APIs
- Inexpensive with small footprint
- Industry standard for  $pK_a$  and  $\log P$  determination
- Analyzes Polyprotic compounds
- Determines  $pK_a$  in the presence of precipitate
- Assay volume down to 1 mL
- Expanded pH range in solvents

## $\mu$ SOL Explorer™/Evolution™



## High Throughput Miniaturized Shake Flask Solubility

*A 96 well format test using neat API or DMSO stock solutions with manual (Explorer) or automated (Evolution) liquid handling platforms.*

- Turnkey solution
- Easy integration with any liquid handling platform
- Measurements in aqueous and simulated intestinal fluids
- Fast, inexpensive concentration based method
- Built in UV quantitation
- Detection: from 50 ng/mL up to 2 mg/mL
- Full spectral shape analysis for impurity/decomposition detection
- HT excipient screening

To learn more about how Pion can help your research, please visit our website - [www.pion-inc.com](http://www.pion-inc.com)

### Patents and Trademarks

Pion's methods and products are protected by multiple U.S.A. and foreign patents with several patents pending. Gemini Profiler,  $\mu$ SOL Explorer,  $\mu$ SOL Evolution,  $\mu$ DISS Profiler, PAMPA Explorer, PAMPA Evolution, Double-Sink, STIRWELL, Gut-Box, Spectra, Rainbow, Indigo and IndigoSAM are trademarks of Pion Inc.