

# VISCOSIZER TD

## AUTOMATING ULTRA-LOW VOLUME TAYLOR DISPERSION ANALYSIS



MOLECULAR SIZE



SOLUTION VISCOSITY

### Key benefits

- Microcapillary flow-based system
- Automated test methodology
- Temperature-controlled sample storage and measurement
- Up to 50 sample vials per run
- Nanoliter-scale sample volume for sizing
- Microliter-scale sample volume for relative viscosity
- Total sample volume of 35µl for triplicate measurements for size and relative viscosity
- UV detection allows measurements at low concentration down to microgram quantities
- Label-free tracking of target molecule behavior in complex matrices

Malvern Instruments' Viscosizer TD is an **automated biophysical characterization tool utilizing Taylor Dispersion Analysis** providing unique solution-based molecular size and stability measurement capabilities, combined with Poiseuille flow for complementary relative viscosity assessment.

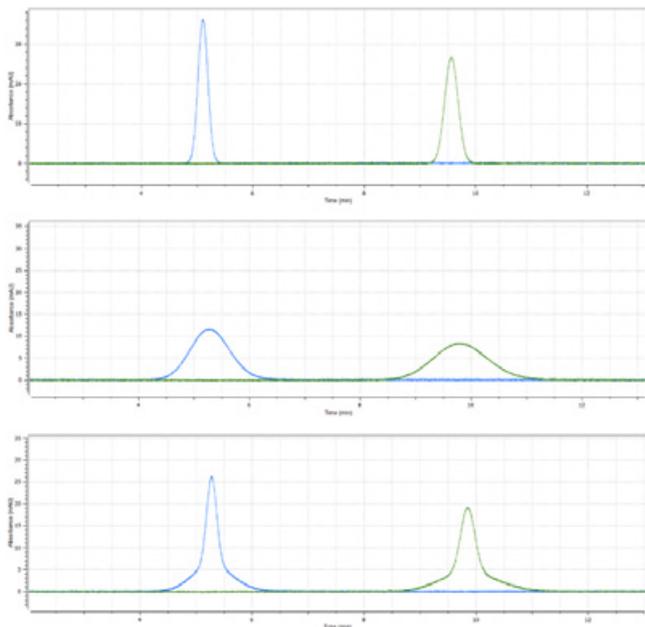
Viscosizer TD uses ultra-low sample volumes with environmental control and automated protocols to enable an **orthogonal technique for early developability screening** for self-association and conformational stability of candidate molecules.



Taylor Dispersion Analysis gives access to an unmatched molecular size range, and enables **sizing of small molecules, peptides and proteins**, and samples with mixtures of these species.

Target molecule detection is by UV absorbance, and setting the baseline on a matched sample buffer allows **monitoring of biomolecules in the presence of excipients and surfactants, and in biologically-relevant matrices**.

Taylor Dispersion Analysis with UV-detection offers mass-weighted size measurements that are not adversely affected by the presence of a small amount of aggregates, which means that **samples can be run without dilution or filtration**.



**Small molecule**

Caffeine  
R<sub>H</sub> 0.33 nm

Representative Taylorgrams of small molecules, proteins and mixtures recorded by the Viscosizer.

Hydrodynamic radius, R<sub>H</sub> values obtained by Taylor Dispersion Analysis are given.

**Protein**

IgG  
R<sub>H</sub> 5.58 nm

**Two-component**

Caffeine + IgG  
R<sub>H</sub> 5.47 nm  
R<sub>H</sub> 0.33 nm



	Parameter	Analysis type / Specification
	Molecular (particle) Size	Taylor Dispersion Analysis using UV Area Imaging
	Relative Viscosity	Poiseuille's Law
Temperature	Measurement temperature range*	4 - 40°C (*specified under NTP conditions (ambient of 20°C) )
	Sample storage temperature*	4 - 40°C (*specified under NTP conditions (ambient of 20°C) )
	Minimum temperature	20°C below ambient (both measurement and storage temperature)
Optics	User selectable filter	214nm; 254nm or 280nm
Parameter - Size	<b>Size range (Hydrodynamic Radius)</b>	0.2 - 50nm
	Accuracy	Better than 5% (% difference between mean result and reference result)
	Reproducibility across vials	Better than 2.5% RSD
	Sample volume	40nl per measurement consumed (typical) plus residual volume of 15µl (recoverable)
Parameter - Viscosity	<b>Viscosity range</b>	0.9 – 50cP (or mPas)
	Accuracy	Better than 5.5% (% difference between mean result and reference viscosity)
	Reproducibility across vials	Better than 2.5% RSD
	Sample volume	6µl per measurement consumed plus residual volume of 15µl (recoverable)



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