

# ADVANCES IN CONE-PLATE RHEOMETERS FOR BUSY LABS

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## ABSTRACT

Numerous laboratories in myriad industries have time, materiel and personnel constraints. Pharmaceutical, medical or biomedical labs, in particular, may also have to deal with 21 CFR Part 11 and/or good [automated] manufacturing practices compliance. Cone-Plate geometry has been and is used because of (1) the small sample size required and (2) easy portion loading and cleaning or “presentation”. This paper presents data for a variety of products, covering a range of viscosities. E.g.: aqueous solutions, lotions and creams, among others. Simple tests may involve one speed, for quick QC/QA checks. Rotational, multi-shear rate data, on the other hand, provide more information concerning shear-thinning or thixotropic behavior. Furthermore, simple math models, such as Bingham, Casson [variants] or Herschel-Bulkley, may be used to calculate practical yield stresses. Rheometry is important because it helps quantify product behavior and, therefore, assists product formulation and end-use tailoring. Convenient upgrades, to aid and ease the work burdens of practitioners, include, for example: (1) magnetic couplings for quick cone removal and reattachment, (2) barcode scanning capability to help automate sample logging, and (3) 21 CFR Part 11 compliance in both standalone mode and with optional software for instrument control and data acquisition. Relevant equipment advances will be discussed.