Impact of Agitation Speeds on Dissolution Testing

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Dissolution test is a standard test prescribed by FDA. It is a very important and the only way to get active pharmaceutical ingredient (API) release profile as a function of time in pharmaceutical industry and regulatory agent. Thus this method is useful in the pharmaceutical and biotechnology industry to formulate drug dosage forms and to develop quality control specifications for its manufacturing process.

Dissolution testing is sensitive to a number of parameters. The ability to show changes in so many parameters is its power and its frustration. It is critical to minimize sources of variability and maximize sensitivity during dissolution tests.

In this work, the influence of agitation speed on dissolution testing was investigated. The velocity fields including the mean velocity distribution and turbulent velocity profiles were both explored via LDV (Laser Doppler Velocimetry) under 50, 75 and 100 rpm, respectively. Turbulent kinetic energy was found out to be the reason which affected the sensitivity of dissolution testing.