



# The SSSpinTester

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## *Innovative Powder Strength Tester:*

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- ◆ Quantifies the strength of fine powders in as little as 15 minutes.
- ◆ 16x18 inch footprint makes the tester easy to accommodate in any testing lab.
- ◆ Requires ONLY ~0.05 grams of material to run full strength analysis.
- ◆ Testing range from 0.2 to 6000 KPa.



*This Novel Tester Takes the User to  
the Cutting-Edge of Productivity*





**In Pharmaceuticals:** All drugs must be “packaged” somehow with incipients in order to be marketable. Material bulk properties MUST be measured at some point in the development process to quantify drug formulations for use in tablet press, tablet fill, and segregation modeling. The *SSSpinTester* can be used to measure bulk properties of pharmaceutical powders at formulation time. In the formulation step of drug development, only a few grams of material are created



## The *SSSpinTester* will Revolutionize the Pharmaceutical and Chemical Industries



due to very high cost of production. The *SSSpinTester* is the only instrument that can measure material bulk properties (strength) during the formulation step in drug development—the amount of sample required by other testers prohibits measuring these properties until much later in the process. Having this data sooner rather than later narrows the R&D path, speeding time to market for new products by at least as six to eight months. Optimization and characterization of products can now be done at the formulation stage. Low pressure measurements simulate filling of dies—characterization and quality control can now be achieved on a capsule-to-capsule, tablet-to-tablet basis.

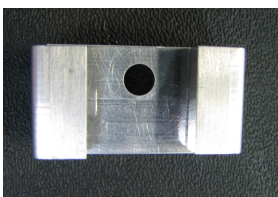


**In Chemicals:** Measured critical to proper design and product changes often change with conditions. This is particularly sample *SSSpinTester* uses, making it an essential tool from the formulation process, all the way through end-product quality assurance.



values of material strength under stress are and utilization of both process system equipment. Material properties of fine powder exposure to fluctuating environmental conditions are true in the chemical industry. The single analysis can be conducted in under ten minutes.

Material sample size is based on the parameters of the testing cell: a conical frustum with a top aperture 0.25 inches and 0.20 inches deep. Depending on sample density, this translates into a bulk weight between 0.01 and 1.00 grams material to conduct the single test necessary to determine the unconfined yield strength. Materials tested to date include



*SSSpinTester test cell*

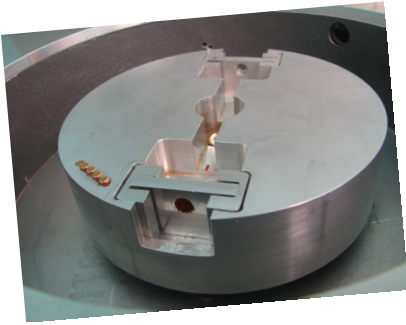
ASTM standard limestone reference powder, herbicides, household cleanser, time-release allergy compound, sodium sulfate, lactose monohydrate, multiple spice mixtures, powdered drink mix, light-weight polyethylene powders, pigment powder, tungsten/lead mixture, calcium carbonate, titanium dioxide, infant formula, sodium citrate dehydrate, fabric care compound, gelatin, cosmetics, vitamins, talc, sleep aid compound, and more.

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# - The Science of Centrifugal Force -

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“Reactive centrifugal force is the reaction force to centripetal force. A mass undergoing curved motion, such as a circular motion, constantly accelerates toward the axis of rotation. This centripetal acceleration is provided by a centripetal force, which is exerted on the mass by some other object. In accordance with Newton’s Third Law of Motion, the mass exerts an equal and opposite force on the object. This is the reactive centrifugal force. It is directed away from the center of rotation, and is exerted *by* the rotating mass *on* the object that originates the centripetal acceleration. The concept of reactive centrifugal force, as used in mechanics and engineering, is referred to as just *centrifugal force*.” (Wikipedia)



*Internal centrifugal rotor holds small sample cells*

The SSSpinTester applies the science of centrifugal force to the measurement of unconfined yield strength of fine powders by first consolidating material using centrifugal force and then causing the compacted material to yield using centrifugal force. Using state-of-the-art technology, it allows measurement at forces as small as 0.05 kPa and as large as 72 kPa (ASTM standard base limestone). We no longer must rely on inherently inaccurate extrapolation for answers.

Current methods of measuring strength of a powdered material require at least 50 gram of sample—and some as much as 300 gram—usually hard to come by in the pharmaceutical and chemical industries. If you can generate sufficient sample to run a particle size analysis, you’ve got a sample of sufficient quantity to measure strength with the SSSpinTester.



*The pictured sample is sufficient material to run five (5) strength tests.*

## **Specific Machine Features:**

- ◆ FAST—results in less than 5 minutes.
- ◆ Small sample—0.020 gram to 1.000 gram, depending on density of sample material.
- ◆ One test acquires data—no multiple measurement required.
- ◆ Direct measurement eliminates need for messy extrapolation of data.
- ◆ Bench-top friendly 16” x 18” footprint—it fits anywhere.
- ◆ Data displayed graphically and numerically.
- ◆ Comes with pre-programmed, dedicated laptop computer.
- ◆ Certified CE Compliant

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## *Particulate Systems*

a Division of *Micromeritics*

4356 Communications Drive

Norcross, GA 30093-2901 USA

<http://www.particulatesystems.com>

Email: [pat.wommack@micromeritics.com](mailto:pat.wommack@micromeritics.com)

Office: 770-662-3681

Cell: 404-229-8384

Manufactured by:



## *Material Flow Equipment, LLC*

7010 NW 23rd Way, Suite A

Gainesville, FL 32653 USA

<http://www.matflowsol.com>

Email: [matflowsol@bellsouth.net](mailto:matflowsol@bellsouth.net)

Phone: 352-379-8879

Fax: 352-379-8878