

Micromeritics highlights the value of efficient density measurement solutions for the pharmaceutical industry

Combining a gas pycnometer and envelope density analyzer to measure critical parameters for solid dosage forms

NORCROSS, GEORGIA, UNITED STATES, March 5, 2020 /EINPresswire.com/ -- Micromeritics Instrument Corp., a global leader in material characterization technology, is shining the spotlight on the value of its Micromeritics AccuPyc II pycnometer and Micromeritics GeoPyc envelope [density](#) analyzer bundle, an efficient, comprehensive solution for density measurement for the pharmaceutical industry. The AccuPyc II and GeoPyc both measure volume by pycnometry, a displacement technique, but using different media. Together they determine a range of density parameters for pharmaceutical powders, granules, compacted ribbons and tablets (coated or uncoated).

These parameters characterize the performance of key processes such as tableting and roller compaction, and influence critical quality attributes such as hardness, disintegration and dissolution profile. Fast, automated and efficient the latest AccuPyc II model 1345 and GeoPyc 1365 can be used to measure solid dosage forms from R&D, through manufacturing, and into product quality control.

When it comes to determining density sample mass is a unique, easily determined value but volume can be measured in a range of ways. With the AccuPyc, volume is determined by gas displacement, typically helium or nitrogen. Gas penetrates a tablet, into the spaces between particles in a powder sample, and potentially into individual particles. The density parameters generated by gas pycnometry therefore provide insight into the internal structure of pharmaceutical powders and products. In contrast, the quasi-fluid used with the GeoPyc is unable to penetrate the structure of a sample and the displaced volume is therefore defined by an 'envelope' around it. These data quantify an averaged density for finished products, a complementary metric to those determined by gas pycnometry.

For the pharmaceutical industry, the density parameters generated by the AccuPyc and GeoPyc are valuable and relevant because:

- True, absolute, or skeletal density (AccuPyc II) influences the flow, segregation and



The Micromeritics Accupyc II and Micromeritics Geopyc 1365 offer a comprehensive and efficient solution for density measurement for a wide range of pharmaceutical applications

compressibility behavior of powders and granules, parameters that define manufacturing efficiency and influence product quality. Measurement can directly quantify coating integrity.

- Bulk density (GeoPyc) is an essential measurement for uniform die-filling and dosing and provides insight into flowability.

- Envelope density (GeoPyc) can be used to monitor the consistency of compression processes. When combined with true density it quantifies average porosity, which influences mechanical integrity and dissolution performance.

The AccuPyc II and GeoPyc are both highly automated and both offer simple rapid, precision measurement. Both use Micromeritics' confirm software, which is specifically designed for 21 CFR Part11 compliance. To find out more about the AccuPyc II and GeoPyc bundle for the pharmaceutical industry [click here](#).



About Micromeritics Instrument

Micromeritics Instrument Corporation is a global provider of solutions for material characterization with best-in-class instrumentation and application expertise in five core areas: density; surface area and porosity; particle size and shape; powder characterization; and catalyst characterization and process development.

The company is headquartered in Norcross, Georgia, USA and has more than 400 employees worldwide. With a fully integrated operation that extends from a world-class scientific knowledge base through to in-house manufacture, Micromeritics delivers an extensive range of high-performance products for oil processing, petrochemicals and catalysts, to food and pharmaceuticals, and works at the forefront of characterization technology for next-generation materials such as graphene, metal-organic-frameworks, nanocatalysts, and zeolites. Under its premium brand Particulate Systems, Micromeritics discovers and commercializes innovative material characterization technologies that are complementary to core product lines. Cost-efficient contract testing is offered via its laboratory Particle Testing Authority (PTA).

The strategic acquisitions of Freeman Technology Ltd and Process Integral Development S.L. (PID Eng & Tech) reflect an ongoing commitment to optimized, integrated solutions in the industrially vital areas of powders and catalysis.

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