

DVVA II

Dynamic Void Volume Analyzer

meets requirement of **ASTM D7854-16** for dynamic void volume analysis

The Micromeritics DVVA II is a state-of-the-art dynamic void volume analyzer capable of measuring the compressed void volume and density of carbon black powders with exceptional precision and accuracy.



Applications

The DVVA II can be used to accurately measure the fundamental property of carbon black aggregate structure by calculating the void volume of a sample under compression, providing an automated cleaner/greener alternative to the oil absorption test, while satisfying the requirements of ASTM D 7854-16 test method. Having a high resolution set of data that describes the void volume vs. geometric mean pressure characteristics of the material is a fundamen-

tal step in understanding, controlling or predicting phenomena related to void volume.

Operation

Prior to a test, the mass and density (skeletal or theoretical) of the sample material is entered. The test involves compressing the sample in an increasing pressure fashion to an applied pressure up to 230 MPa (33 kpsi). During compaction, the change in volume is monitored as a function of geometric mean pressure, thus recording the compacting

behavior of the material to be characterized independent of mass and geometry. The difference between the initial apparent volume and the apparent volume as a function of pressure expresses the reduction in void volume as a result of compression. The difference between each apparent volume and the skeletal volume is the void volume, for that pressure, usually expressed as the geometric average of the applied and transmitted pressures.

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The Science and Technology of Small Particles[™]

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Features

- Meets all requirements of ASTM D7854-16
- Compression scan results in less than 5 minutes
- Free of hazardous materials and waste
- Fully automated instrument control
- Safety interlock system
- User-replaceable piston tip
- USB connection to PC
- Windows 7 operating environment
- Hydraulic fluid not needed

Operation Cycle

1. **Optional Blank Run** - Collects data for correction compensation
2. **Sample Run** - Collects volume vs pressure data
3. **Cleanup Cycle** - Automatically disposes of sample into waste bin and the piston returns to home position

Pressure Scan Modes

Constant Ramp Scan offers fast measurement of compression data across a range of selectable scan rates to applied pressures up to 230 MPa. (33,000 psi)

Data Inputs

Mass, Approximate Bulk Density, Skeletal Density

User Model Inputs

Enables user to calculate parameters, such as alternate COAN structure and in-rubber properties from void volume curves based on your own experimentation

Data Outputs

- Time, Force, Piston Height, Temperature
- Calculations include applied, transmitted and geometric mean pressure and force, Void Volume, Apparent Density and Apparent Volume
- Graphical and Tabular Reports
- Numerous compression models such as Bauer, Wu, Kawakita, Cooper and Eaton, and Heckel

Dimensions

Height:	198 cm	(78 in)
Depth:	78.11 cm	(30.75 in)
Width:	69.22 cm	(27.25 in)
Weight:	285.76 kg	(630 lbs)