

Compression Tests on Small Discs

By The Instron Applications Team

Summary

The purpose of the test was to demonstrate the Instron 5542 for testing small disks in compression. Tests were run on wet and dry disks using both the crosshead and Linear Variable Durable Transducer (LVDT) for measuring displacement.

Description of Tests

Tests were run on two wet and two dry samples. The test procedure for all tests was:

- Position the platens at zero displacement by using the specimen protect feature set at a 0.2 N threshold value;
- Reset gauge length;
- Move platens apart and position specimen in middle of platens;
- Move crosshead down until a 10 N load was detected;
- Note crosshead position and use crosshead displacement as anvil height and LVDT gauge length; and
- Reset gauge length and balance LVDT if used

In the tests where crosshead position was used to measure displacement, results should be reported with and without gauge length correction. The corrected gauge length is used for calculating strain. In tests where the LVDT is used to measure displacement, no slack correction was necessary.

Conclusions

The flexibility of the software was demonstrated in these tests. Things to consider are use of slack correction, method of measuring sample dimensions and method of calculating modulus. Because the sample height is used as the gauge length, this will affect the measurement of modulus.

The results obtained with the LVDT show higher modulus values because machine compliance was eliminated. A small travel LVDT is recommended for such tests for the most accuracy.

Apparatus

- 5544 with 1 kN load cell
- Two 2 in diameter platens
- Compression application software
- 2.5 mm LVDT mounted onto platens