

**Title:**

Sensing Coil Development in Measuring Magnetic Properties Material

**Journal:**

Advanced Structured Materials, Volume 174, 2022.

**Document Type:**

Book Chapter

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**Full text link:**

Publisher : [https://link.springer.com/chapter/10.1007/978-3-031-01488-8\\_2](https://link.springer.com/chapter/10.1007/978-3-031-01488-8_2)

**Scopus preview:**

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**Abstract:**

Magnetic materials are main components of complex technology in fulfilling the industry's basic demands. However, there are no effective instruments developed to determine the magnetic property of the material. Hence, this study aimed to develop sensing coils which are used for measuring the magnetic properties of materials. The developed sensing coils are calibrated, and the data is collected by LabVIEW before being used in analyzing the value of box coefficients. The calculated box coefficients, KB and KH, are 0.093314 and 0.005925, respectively. These box coefficients are important to ensure the accuracy of the magnetic properties measurement. To increase the reading accuracy in the future, it is recommended to justify the accuracy and precision of the coils, to increase the magnetic field produced by the solenoid by using the proper solenoid or using an AC converter, and amplify the induced voltage reading. As the conclusion, this study provided the precision measurement of magnetic properties which affects the total core loss. This is an important variable to consider when designing magnetic devices for optimum performance.