Rapid determination of rhodium, palladium, and platinum in supported metal catalysts using multivariate analysis of laser induced breakdown spectroscopy data

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Rapid Determination of Rhodium, Palladium, and Platinum in Supported Metal Catalysts using Multivariate Analysis of Laser Induced Breakdown Spectroscopy Data

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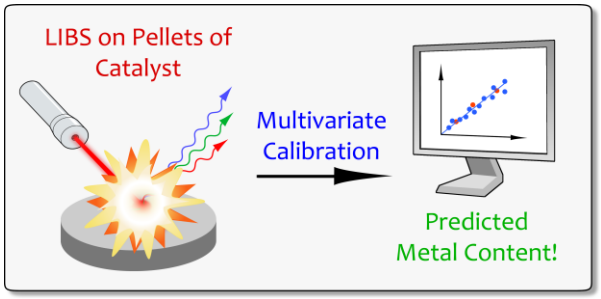
Graphical Abstract



Highlights

- A LIBS method was developed for the analysis of supported catalyst materials.
- Reference materials were prepared and characterised by neutron activation analysis.
- No wet chemical steps are required to prepare the samples.
- Multivariate calibration techniques were used to predict metal content in samples.
- Root mean squared errors as low as 0.1 wt % can be obtained.

Key Words

Laser induced breakdown spectroscopy, supported metal catalysts, multivariate analysis, platinum metals, partial least squares.