

Surveying analytical techniques for a comprehensive analysis of airborne particulate samples in museum environments

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Streszczenie

The paper presents a comprehensive review of the literature that assesses various instrumental techniques applicability to investigate airborne particulate matters chemical composition inside museum environments. This study includes a range of techniques (XRF, SEM-EDS, LA-ICP-MS, FTIR, Raman, GC-MS) and emphasizes the importance of utilizing matrix-matched reference materials for precise analysis. Each technique provides a valuable approach to understanding the chemical nature of airborne particles. XRF allows for fast determination of elemental composition, while SEM-EDS allows for observation of particle morphology and elemental detection. LA-ICP-MS facilitates the identification of major, minor, and trace elements present in collected samples. Both Raman spectroscopy and FTIR provide insight into the chemical compounds present. Identification of volatile compounds is achieved using GC-MS. This review presents a cohesive understanding of the diverse methodologies used to understand the multifaceted composition of airborne particulate matter in museum settings.

Słowa kluczowe

cultural heritage, museum environment, airborne particulate matter, multi-instrumental analysis

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