Special Issue

Advances in Chemical Analysis Procedures (Part III): Future Trends in Reducing the Environmental Impact

Message from the Guest Editors

Future trends in chemical analysis will be heavily focused on reducing environmental impact through green analytical chemistry, which includes using eco-friendly solvents, miniaturized instruments, and AI-driven optimization of analytical methods. These advancements aim to minimize waste, reduce energy consumption, and lower the use of hazardous materials in chemical analysis. These goals can be achieved in different ways. Particularly, the main field in which many researchers work relates to replacing traditional solvents with bio-based solvents, ionic liquids, and supercritical fluids, which are less toxic and have lower VOC emissions and use miniaturized procedures. In this scenario, following the recent trends of the application of automation and AI integration (AI algorithms can optimize analytical methods, predict potential problems, and enhance the efficiency of data analysis, ultimately minimizing waste and resource use).

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