# Jordan University of Science and Technology

## Microwave-assisted total digestion of sulphide ores for multi-element analysis

**Authors:** M. Al-Harahsheh S. Kingman, C. Somerfield, F. Ababneh

**Abstract:** A new two-stage microwave-assisted digestion procedure using concentrated HNO3, HCl, HF and H3BO3 has been developed for the chemical analysis of major and trace elements in sulphide ore samples prior to inductively coupled plasma atomic emission spectroscopy (ICP-AES) analysis. In the first stage 0.2 g of the certified reference material (CRM) sample was digested with a combination of acids (HNO3, HCl, and HF) in a closed Teflon vessel and heated in the microwave to 200 ?C for 30 min. After cooling, H3BO3 was added and the vessel was reheated to 170 ?C for 15 min. The precision of the method was checked by comparing the results against six certified reference materials. The analytical results obtained were in good agreement with the certified values, in most cases the recoveries were in the range 95?105%. Based on at least 17 replicates of sample preparation and analysis, the precision of the method was found to be ?5%.