

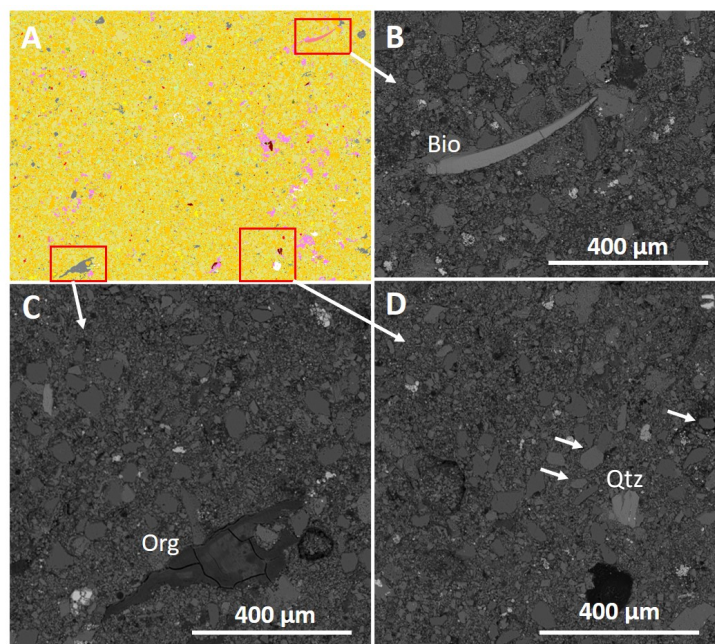
Critical Raw Materials characterisation: metalliferous shale deposits or waste piles

X-ray Mineral Services has developed a comprehensive analytical work for the characterisation of metalliferous shale.

Our META analytical workflow is a comprehensive materials characterisation workflow. It consists of Minerals, Elements, Texture and data Analytics. For this application, the META workflow deployed incorporated QXRD, ICP, LIBS, XRF, FTIR and automated mineralogy (AMICS) techniques providing cross-validated analytical data. Data are consolidated in Spotfire® to provide a compositional atlas and a confirmation of shale content for valorization.

Our high-resolution characterisation META1 workflow includes bulk rock and clay fraction mineralogy, quantified using a QXRD Rietveld method. SEM automated mineralogy (AMICS) provides grain-based composition maps, textural attributes and deportment of metalliferous phases. ICP analysis by fusion and acid digestion methods along with XRF analysis provide quantitative elemental data. All analytical data are consolidated in Spotfire® to enable data modelling and data verification for mineralogical and elemental techniques.

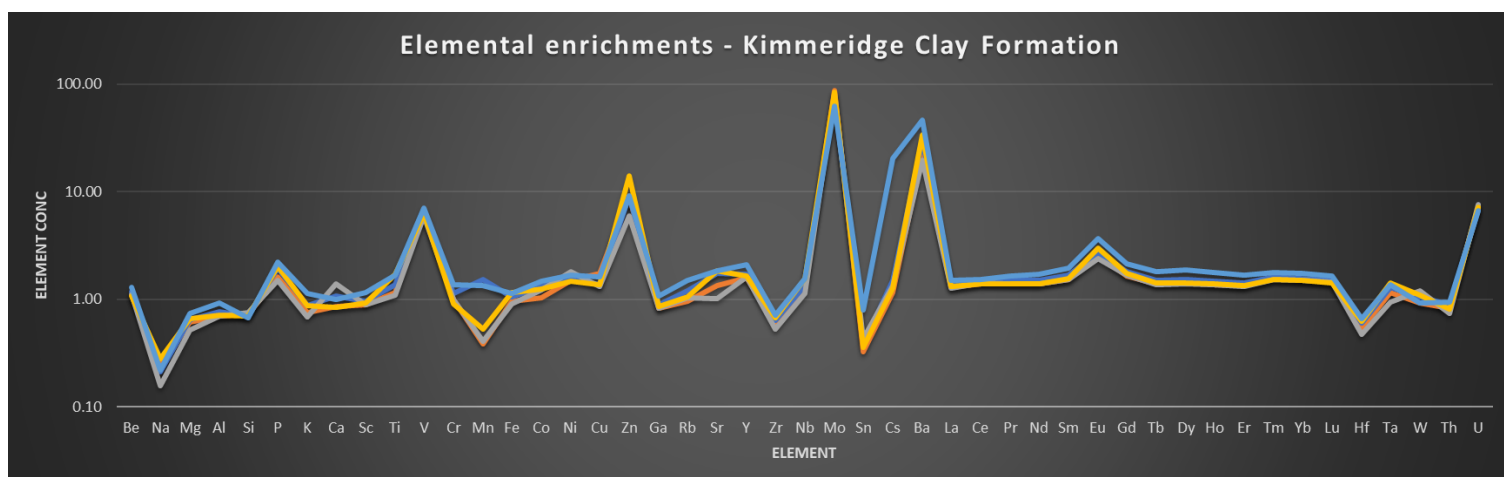
Our META2 workflow, using portable analytical tools, used ED-XRF and FTIR for the characterisation of



Automated mineralogy and BSE image of metalliferous shale

metalliferous shale. These rapid techniques can provide onsite grading of shale deposits, can be used to constrain targeted drilling, and can provide quality control data for geometallurgical assessment or brownfield reprocessing.

Spotfire® dashboards consolidate lab and onsite data for continuous data assessment of mineral processing and ROI.



Innopoli 1
Tekniikantie 12
02150 Espoo
Finland

FINLAND: +358 41 3131 646
e: info@xrayminerals.fi

