

Development of Sphalerite (ZnS) matrix-matched standard for in-situ analysis of trace elements by laser ablation inductively coupled plasma-mass spectroscopy (LA-ICP-MS)

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In-situ analysis of trace elements in natural sphalerite samples using LA-ICP-MS is hampered by a lack of availability of suitable homogenous matrix-matched sulfide calibration standards. The synthesis of the standard MUL-ZnS1 and MUL-ZnS2 by incorporating 17 trace elements (V, Cr, Mn, Co, Cu, Ga, Ge, As, Se, Mo, Ag, Cd, In, Sb, Tl, Pb, Bi) in two different (Zn,Fe)S matrix is reported here. Chemical analysis to confirm the homogeneity of major and trace elements were performed by electron probe microanalysis (EMPA) solution ICP-MS and LA-ICP-MS. The results suggest that the two standards are appropriate calibration standards for LA-ICP-MS analysis of trace elements in sphalerite.