

In situ spectroscopic studies of the Mo-H-O system to 500°C and 150 MPa

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Fluid inclusion evidence suggests that aqueous fluids of intermediate density play an important role in the transport of molybdenum in ore-forming hydrothermal systems associated with hypabyssal intrusions. In order to better understand the solubility and speciation of Mo in such supercritical fluids, a method has been developed to directly investigate the Mo-H-O system at elevated pressures and temperatures using complementary X-ray and vibrational spectroscopic techniques. In this communication we describe a novel procedure for in situ solubility measurements of minerals, and present new data on the solubility of molybdenite and on the local structure of Mo aqua ions in aqueous fluids of intermediate density at temperatures and pressures up to 500°C and 150 MPa, respectively.