

FLUID INCLUSIONS STUDY CRITERIA OF ORE-BEARING HYDROTHERMAL SYSTEMS' PREDICTIONS

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Empirical data, obtained from fluid inclusions study investigations of hydrothermal deposits of different formations indicate the possibility of potential ore bearing diagnostics of hydrothermal systems by phase composition of fluid inclusions in minerals. Heterophase fluid inclusions, containing transparent (halite, sylvite, calcite, unhydnrite etc.) and opaque (pyrite, chalcopryrite, magnetite, molybdenite, etc.) daughter minerals are characteristic for minerals of scarnic, porphyric and greisenic types of ores. In this case ore profile of fluids corresponds to an ore daughter minerals of fluid inclusions. So, for porphyry copper deposits the presence of chalcopryrite in inclusions is typomorphic, for porphyry ores of molybdenic profile – the presence of molybdenium, for scarn – ferrum deposit – of magnetite, for deposits of gold-arsenicum formation – of arsenopryrite, etc. Additional criteria are quantitative and volumetric relations of non-transparent daughter minerals: inclusions of minerals from copper – and molibdemium porphyric ores, as well as scarn-iron ones are characterized by the presence of up to 3 transparent daughter minerals, occupying up to 50 % of vacuoles. At the same time minerals of tungsten – and (or) tin – bearing scarns and greisens are characterized by fluid inclusions, containing more than three non-metalliferous daughter minerals, occupying 70-90 % of vacuoles volume. Liquid carbone dioxide is often representing in fluid inclusions in minerals of porphyry and greisen types of ores. However, as typomorphic indication, it can apparently be used only for mineralization of lower temperature atages. In particular, threephase inclusions (solution + liquid CO₂ + gas) are typical of gold and uranium deposits in sedimentary series of low and middle stages of metamorphism as well as for deposits of mercury, antimony and arsenic formations.