

Fluid Inclusion Study of Stibnite Using Infrared Microscopy: An Example from the Brouzils Antimony Deposit (Vendée, Armorican Massif, France)

LAURENT BAILLY, VINCENT BOUCHOT, CLAIRE BÉNY, AND JEAN-PIERRE MILÉSI
Bureau de Recherches Géologiques et Minières, BP 6009-3, Avenue Claude Guillemin, 45 060 Orléans, France

Abstract

A microthermometric study using infrared microscopy was performed on fluid inclusions hosted in stibnite crystals of the Brouzils antimony deposit, in order to characterize the fluids responsible for the deposition of the antimony at the end of the Variscan metallogenic sequence. Primary fluid inclusions in stibnite were moderately saline (3.5–4.75 wt % NaCl equiv) with homogenization temperatures varying between 140° and 160°C. Two generations of later fluids are also contained in the stibnite samples. The first generation of secondary fluid inclusions is found exclusively in stibnite and is characterized by low salinities (1.35–2.2 wt % NaCl equiv), homogenization temperatures of approximately 215°C, and the presence of one or more solid mineral phases. The second generation of fluid inclusions is younger and is found in stibnite along secondary planes as well as in quartz gangue; it corresponds to H₂O-CO₂ fluid with homogenization temperatures of about 180°C. This infrared microscopy study thus shows that the quartz and stibnite of the Brouzils veins are not cogenetic and reveals the polyphase character of the vein infill in which three successive episodes of hydrothermal circulation are identified.