A Study on The Emerald in The Jiajika Rare Metal Mining Area, Sichuan Province, China

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Abstract: For the first time, the emerald was found in the Jiajika, Sichuan Province, which is the largest hard rock-type rare metal mining area. Based on the geological survey, optical microscopy and electron microprobe analysis, emeralds were first discovered as two kinds of occurrence. One is emerald-bearing coarse grained beryl without independent grains, the other are born with beryls both of which are fine grained. At the edge of the coarse beryl in No.A vein, the contents of Cr2O3 and CaO were significantly higher than the core, respectively 0.40% ~0.63% and 0.12% ~ 0.41%, which showed the composition characteristics of emerald. With high contents but greatly changed of Cr_2O_3 and FeO and low content of V_2O_3 of the emerald in Jiajika, which are consistent with the characteristics of most emerald deposits. As color causing elements for emerald in Jiajika, Cr and Fe were derived from the Triassic Xikang Group sand shale. Be, Si, Al and other major elements were derived from intrusive acidic granite or pegmatite. By comparing with various types of emerald deposits, and combined with the study area of tectonic background, formation, magmatite and mineral characteristics, there may be a deep ore-forming fluid source in the Jiajika rare metal mining area, and it is worth to carry out deep exploration to guide deep ore prospecting.

Keywords: Emerald; Hard rock-type rare metal mining area; Jiajika