

Composition and Dissemination Characteristics of the Main Minerals of Luziyuan Pb-Zn Deposit in Zhenkang area, Yunnan Province, China

WANG Yan¹, XING Shu-wen², LIANG You-wei³, HUANG Fan^{1*}, LI Zhi-wei⁴,
MA Yu-bo¹, ZHANG Yong¹

(1. *MLR Key Laboratory of Metallogeny and Mineral Assessment, Institute of Mineral Resources, CAGS, Beijing 100037, China*; 2. *Institute of Geomechanics, CAGS, Beijing 100081, China*; 3. *Institute of Multipurpose Utilization of Mineral Resource, CAGS, Chengdu 610041, China*; 4. *Hydraulic Environment Geological Exploration Research Institute, China Coal Geology Engineering Co., LTD, Beijing 100040, China.*)

Abstract: Luziyuan Pb-Zn deposit is a newly discovered large-size Pb-Zn polymetallic ore deposit in recent years. More than 20 kinds of minerals have been found; the main metal minerals are sphalerite, galena and chalcopyrite, and the gangue minerals are mainly rhodonite, calcite, quartz and so on, with the total amount of gangue minerals as high as 89.04%. Ore property, mineral composition, occurrences forms of valuable elements and dissemination characteristics of Luziyuan Pb-Zn deposit were analyzed comprehensively by semi quantitative analysis of X ray fluorescence spectra of raw ore, phase analysis and scanning electron microscopy analysis. Results show that Cu can be concentrated in chalcopyrite, tetrahedrite, and bornite; Pb is mainly contained in galena, and Zn mainly exists in sphalerite. Their dissemination characteristics show that most metal sulfides in the ore are irregular aggregates; chalcopyrite is often closely associated with galena, sphalerite and other metal sulfides. The relationships between sphalerite and galena, chalcopyrite and sphalerite are very complex; the boundary is extremely irregular, and often wrapped each other. Grain size of mineral is fine, and it was difficult to dissociate. The fine distributed chalcopyrite fills in the void spaces between sphalerite aggregates as solid solution separation structure, so chalcopyrite is unable to dissociate.

Keywords: Luziyuan; occurrences form; dissemination characteristics; grain size