

## A STUDY ON ALABANDITE FROM THE YEONHWA (?) MINE, SOUTH KOREA

Insung Lee<sup>1</sup> and Jae-II Chung<sup>2</sup> .<sup>1</sup>Geological Sciences, Seoul National Univ., Seoul, South Korea; <sup>2</sup>Earth and Environmental Sciences, Chonbuk National Univ., Chonju, South Korea

Alabandite is found in zinc-lead-silver ores from the calcic skarn deposits of the Yeonhwa (?) mine, South Korea. The Alabandite is intergrown intimately with sphalerite, pyrrhotite, pyrite, rhodochrosite and rhodonite, and, on some occasions with galena containing minute inclusions of freibergite and Mn-bearing magnetite. Its chemical compositions as determined by electron microprobe show that it is characterized by relatively high content of iron, ranging from 7.9 to 11.1 mole percent FeS, and coexisting sphalerite has the compositions ranging from 14.1 to 22.0 mole percent FeS, and from 13.0 to 16.3 mole percent MnS. The unit-cell edge from the X-ray powder data for the mineral having the composition approximately (Mn<sub>0.9</sub>Fe<sub>0.1</sub>)S is  $a_0 = 5.206 \text{ \AA}$ . As to the assemblage alabandite solid solution + pyrrhotite + pyrite with triple mutual contact, the solvus temperature was determined at about 270° from the maximum content of iron in the mineral, 11.1 mole percent FeS. It is pointed out that, this temperature value is somewhat lower than that of arsenopyrite geothermometer, i.e., 330° with sulfur fugacity of 10<sup>-9</sup> atm., and this discrepancy will be due to the unrefractory nature of alabandite.