CHAPTER V

FLUID INCLUSION STUDY

5.1 Natural of Fluid Inclusion

The occurrence and nature of fluid inclusion were examined in sphalerite, dolomite, quartz and calcite. Only stage I sphalerite and stage IV quartz contains primary-appearing inclusions large enough for heating experiment. Other minerals or quartz of the other stages either contain too small inclusions or too dark to be able to determine microthermometrically. Those inclusions used for heating run were unfortunately unsuitable for freezing experiment due to their small size and poor optical resolution.

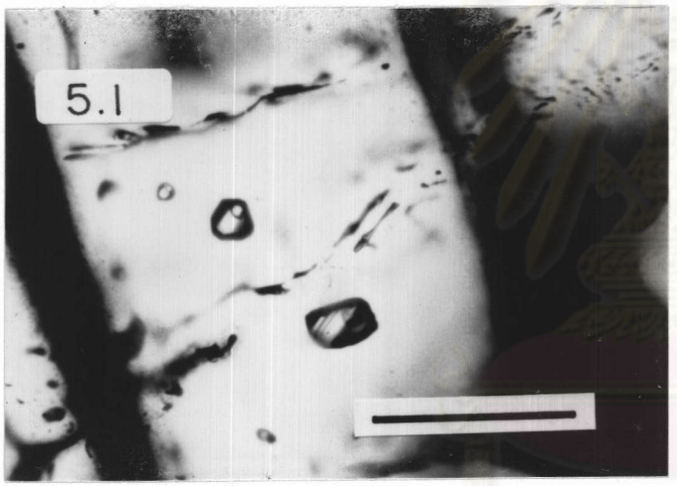
Most primary and pseudosecondary inclusions examined in stage I sphalerite and stage IV quartz are simple liquid-rich type with approximately constant liquid/vapor ratio (Figures 5.1 and 5.2). The inclusions normally range in size from 1-25 micrometers and frequently form negative crystal shape. No CO_2-bearing inclusions was observed. There is also no daughter crystal found in those inclusions.

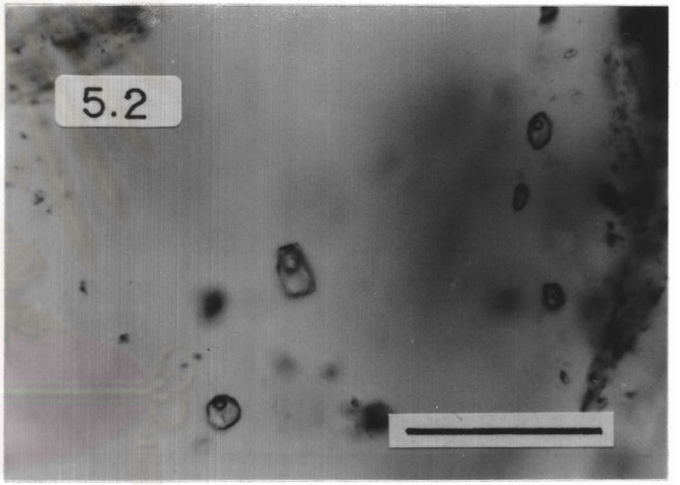
5.2 Result

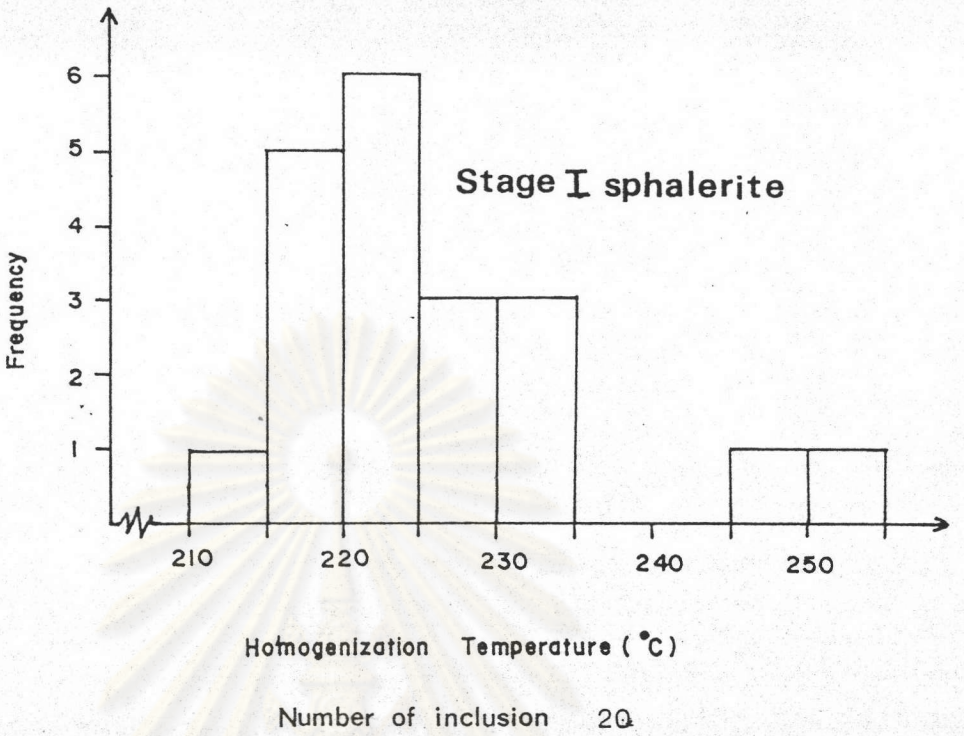
Homogeneization temperature for 20 inclusions in stage I sphalerite and 22 inclusions in stage IV quartz are displayed graphically in Figure 5.3. The filling temperatures of stage I sphalerite vary from 210^{o}-255^{o} C whereas those of stage IV quartz

Figure 5.1 Photomicrograph of fluid inclusions in the stage I sphalerite of the galena-sphalerite-ferroan dolomite mineralization showing simple liquid - rich with approximately constant liquid/vapor ratios. (Bar - scale = 0.06 mm.).

Figure 5.2 Photomicrograph of primary fluid inclusions in the stage IV quartz of the late-stibnite-quartz mineralization showing simple liquid-rich type with approximately constant liquid/vapor ratios. (Bar-scale = 0.06 mm.).







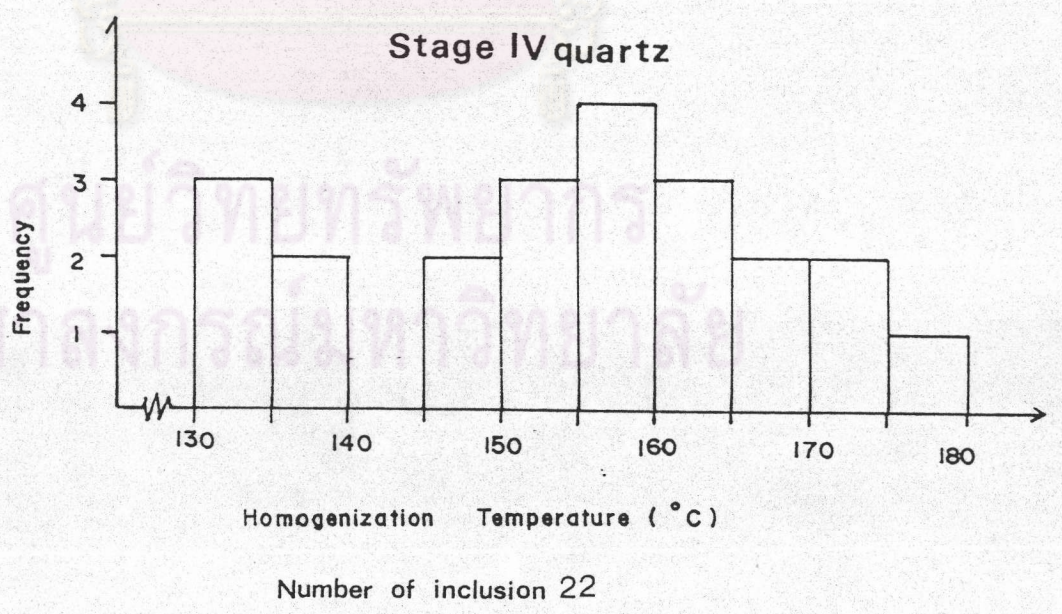


Figure 5.3 Histogram showing homogenization temperature of simple liquid-rich inclusions in the stage I sphalerite and stage IV quartz (see data appendix).

from 130^{o}-190^{o} C. The stage I mineralization seems to show somewhat higher temperatures than those of the stage IV. These temperature ranges are expected in low temperature epithermal system of meteoric water origin.