

SCG067-P12

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Graphitization in contact metamorphism; Detailed mineralogical examination and suggesting catalysis reaction

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Carbonaceous Materials (CM) are well known to change degree of crystallization depending temperature, pressure, time, precursor materials, hydrothermal and shear stress (Large,1994). In the graphitization, Kerogen is needed 260kcal/mol to transform their structure into graphite's. Extrapolation of the Arrhenius plots suggest that the formation of graphite even at a temperature of even 973K would require some 10^{40} minutes have in all earth history(Bustin,1995). Thus, the other factors except of "Temperature" and "Time" are more important influences for graphitization in the natural metamorphism. This study aims to solve the other important factors for natural graphitization.

Raman spectroscopic measurements and XRD data yielded that a series of graphitization in the contact metamorphism. However, CM of the Biotite zone (673-723K) have two asymmetric peaks, which was interpreted as combination of graphitic carbon(0.3357-0.337nm) and amorphous carbon(0.342nm), HRTEM study revealed Catalytic carbon of Shell like structures and Filament like structures, which coexisted with amorphous carbon heterogeneously.

Such features of shell like and filaments structure with amorphous carbon in just corresponded the same of features by catalytic carbon (Oya,1982; Sevilla,2007,2010).

Then graphitization in contact metamorphism could be interpreted as the product by catalytic activity.

Keywords: Carbonaceous materials, Catalysis, Graphitization, Contact metamorphism, HRTEM, Micro Raman spectroscopy