

Mineralogical indicators of very low-grade metamorphism: examples from China

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Very low-low grade metamorphic rocks from various locations in Xijiang, Zhejiang, Sanjiang, Beijing, Guangdong, Anhui and Gansu regions in China have been studied. Crystallinity of illite, crystallinity of chlorite, reflection index of vitrinite, characteristics of Raman spectrum of organic materials and so on have been found as mineralogical indicators for identifying degree of metamorphism as shown in the following table.

<u>Zone</u>	<u>IC (•2•)</u>	<u>ChC(•2•)</u>	<u>Ro</u>	<u>WHH (mm)</u>
A	0.500-0.400	>0.280	>2.5	1.35-1.10
B	0.400-0.300	0.280-0.250	2.5-3.5	1.10-1.00
C	0.300-0.215	0.250-0.210	3.50-5.00	1.00-0.90
D	0.215-0.165	0.210-0.160	>5.00	<0.90

In which, zone A refers to higher diagenesis zone corresponding to a temperature range of 170-200C, zone B to lower very-low grade metamorphic zone within 200-250C, zone C to higher very-low grade metamorphic zone within 250-350C, and zone D to lower low grade metamorphic zone corresponding to temperature >350C; IC refers to crystallinity of illite, ChC to crystallinity of chlorite, Ro to reflection index of vitrinite, and WHH to pulse width at half height of

Raman spectrum for organic materials(wavelength, 1600).