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# Comparing Composition and Bulk-Rock Characteristics of Raw Material for Decorative Stone in Suoi Giang Area (Yen Bai) and Sa Nghia Area (Kon Tum)

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## abstract

Among the decorative stones produced in recent years, products from Suoi Giang (Yen Bai) and Sa Nghia (Kon Tum) areas are highly valued in the market because of their beautiful colors and patterns. The decorative stones in both areas are mainly represented by metacarbonate rocks with the major mineral composition of the carbonate minerals (calcite, dolomite) and mafic silicate minerals (olivine, pyroxene-diopside) and their derived products (serpentine group minerals - mainly chrysotile), in addition to other minerals such as tremolite, chlorite, mica. Although rocks from both localities seem to be products derived from the metasomatic processes triggered by action of the hydrothermal solutions to the surrounding carbonate-rich rocks of Cha Pa Formation (Suoi Giang) and Kham Duc Formation (Sa Nghia), significant difference in bulk-rock composition was noticed between them. The results of chemical analysis indicated that in materials from Suoi Giang area, the SiO<sub>2</sub> content ranged from 5.10 to 40.56 wt%. In the rocks enriched in serpentine and chlorite, SiO<sub>2</sub> content varied to a lesser extent (5.1- 12.14 wt.%). The content of Al<sub>2</sub>O<sub>3</sub> is quite low (0.61-2.43 wt.%); the rocks show low iron (0.47-2.21 wt.%) and high magnesium content (13.10- 40.71 wt.%). Total alkalis concentration is low (0.51-1.03 wt.%), the sodium content is often by 2-5 times higher than those of potassium. In the Sa Nghia area, the rocks are rich in silica: SiO<sub>2</sub> content varied from 5.30 to 51.68 wt.%, with 28.92 wt% on average. The rocks' contents of MgO and CaO are highly fluctuated, CaO are ranging from 3.55 to 25.87 wt.%, with averaged 14.05 wt.%; MgO from 18.58 to 40.53 wt.%, averaged 29.21 wt.%. Low alkalis content (0.80-0.99 wt.%), where K and Na do not have clear predominance over each other. The contents of Ti and Mn are quite low (0.03-0.16 wt.%).

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Keywords: decorative stone, metacarbonate, serpentine, calcite, olivine

