

Mössbauer Studies on the Firing Process of Celadon

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Samples of celadon prepared under various the firing processes have been studied with X-ray diffraction, Handy NR-3000 colorimeter, oxygen/nitrogen analyzer and Mössbauer spectroscopy measurements. The X-ray diffraction pattern shows SiO₂ peaks without any other structures. The chromaticity (L^* , a^* , b^* values) and Mössbauer analysis results were correlated to the various firing conditions, which are responsible for different celadon coloring. According to the chromaticity results, the color changes from yellow-red to green-yellow with increasing brightness as the amount of LPG increases. Based on an analysis of residual oxygen, residual oxygen decreases from 46 to 43.5 wt% on glaze with plasticity as the inflow of LPG increases. Mössbauer spectra of samples were obtained at room temperature. We confirmed that the concentration of Fe³⁺ ions decrease increasing LPG and that the concentration of Fe²⁺ ions increases gradually with increasing LPG.

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