

## **Producing Moderate Heat Portland Cement from Pb/Zn Mine Tailing**

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The paper studied the utilization of Lead/Zinc mine tailings for production of moderate heat Portland cement. Lead/Zinc mine tailings, Limestone, shale, and ironstone were mixed of six different compositions. The grounded materials were burned at 1350°C, 1400°C and 1450°C for 30min respectively. The clinkers were cooled, crushed, and ground. The contents of free CaO were measured and all of the samples were less than 1.0% when burned at 1450°C. X-ray diffraction and optical microscopy were applied to analyze the mineral compositions and lithofacies in the clinkers, and main phases determined in all clinkers were: alite,  $\beta$ -belite, cubic aluminate, and ferrite. The compressive strengths after 3, 7, and 28 days of the four clinkers with 5% gypsum were measured. The hydration heats of cements after 3, and 7 days were determined. It was concluded that Lead/Zinc mine tailings could be used to produce moderate heat Portland cement.