PLANT DESIGN OF CERAMIC TILE FROM LAPINDO MUD AS SUBSTITUTE AS CLAY WITH WET-DRY PROCESESS

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Abstrak
Clay is generally used as raw material for ceramics because it contains SiO$_2$ high. Whereas according to research, there SiO$_2$ content of Lapindo mud untapped by 54.92%. See the potential need to be established ceramics factory from the Lapindo mud in lieu of clay in the area Gempol, East Java. Manufacture of ceramic floor from Lapindo mud through 5 stages. The first stage of the body preparation with the aim minimize diameter feldspar and mixing with Lapindo mud and water glass additives in conditions of 1 atm and 25 $^\circ$C for a slurry that will be a powder spray. The second stage is pressing for printing ceramic floor with operating conditions 220 atm and 40 $^\circ$C. The third stage is glazing to provide a layer of colored glasses on ceramic raw. The fourth stage is firing which consists of pre-heating, firing, and cooling in conditions 400-1100$^\circ$C ;1100-1200$^\circ$C ;900-90$^\circ$C in order to burn the compounds contained ceramic forming process called vitrification. The fifth stage of the grading which is the process of printing and packaging ceramic floor. Ceramics factory works continuously and operates for 330 days/year with a production capacity of 9,919,100 million m$^3$/year. Feldspar and Lapindo mud required is 510,984 kg/day. Utility requirement is fuel by 5,463,962 kg/day. While for water sanitation and water processes respectively 17.6 and 482,571 m$^3$/day. waste generated from this industry are used oil, waste and CO$_2$ gas Cl$_2$. 