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Investigation of optimum fluidization velocity of CaCO3 and Coal mixture using fluidized bed

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This paper investigates the experimental study to develop fluidizing behavior of CaCO3 and coal micro size particles in a fluidized bed. The tests were carried out at natural conditions. The grain size distributions of the materials were conducted with the help of sieve shaker.The objective of the study to analyze the optimum superficial velocity versus pressure drop and bed height using air flow in a fluidized bed. The minimum fluidization velocity was obtained at pressure drop of 38 mmH2O, at 50:50 of Coal and CaCO3 that was 0.0576 m/sec compared to 0.0767m/sec at pressure drop of 30 mmH2O, 25:75 of coal and CaCO3. Hence, different ratios of the material influenced over the fluidization velocity, pressure drop and bed height. It was observed that investigation of well mixing can be helpful in gasification of CaCO3 and coal.

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