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ENERGY ASSESSMENT OF BRICK KILNS AND QUALITY OF BURNT CLAY BRICKS IN MAHARASHTRA - A REVIEW

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Abstract

Brick is one of the major materials used for the construction of buildings. India is the second largest producer of burnt clay brick, accounting for more than 10 percent of global production. India is estimated to have more than 1,00,000 brick kilns, producing about 150-200 billion bricks annually, employing about 10 million workers and consuming 25-35 million tons of coal annually. Indian brick industry is largest consumer of coal after power plant and steel industry. Brick manufacturing is characterized by traditional firing technologies, high dependency on human labor and low mechanization rate. However the quality of the bricks is observed to have a large variation in various regions of the country. This paper attempts to give an overview of the energy consumption in the various processes of brick manufacturing, the gas emissions and compares the quality variations of the bricks in various districts in the state of Maharashtra.

Keywords: Brick, IRA, Kiln, Energy, Emission

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ENERGY FROM INDUSTRIAL WASTE AS A SUBSTITUTE FOR FUEL-COAL & UTILIZATION OF POLLUTANT: CO₂ PRODUCED FOR ALGAE FORMATION

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Abstract

The three primary sources which accounts for major portion of the energy needs are: Coal, Oil and Natural gas, which are considered as conventional energy sources. These sources are depleting at faster rate. Hence, non-conventional energy sources needs to be considered on large scale. The stress in this industrial based research project has been given on utilization of different type of waste like Tar, Sugarcane & Baggase, Cotton stalk, Coconut leaves, Groundnut husk, Plastic Waste, Paper mill waste etc. as a source of energy.

Utilization of such waste by combustion produces large amount of CO₂ which has to be utilized effectively. If this process modification is not implemented, it will create severe CO₂ pollution problem and the use of solid waste in this manner will be highly objectionable by Pollution Control Board.

Hence, a novel approach has been suggested in this industrial based research project as under:- CO₂ sequestration has to be done and CO₂ thus stored can be utilized effectively for cultivation of algae which in turn can be converted to bio-fuels. It has been observed that algae growth obtained in a Photo Bio-Reactor (PBR) is about double than the conventional open system. All these aspects have been analyzed critically in this paper for typical Cement Manufacturing Unit wherein fuel utilized-coal has been partially substituted by solid/liquid industrial waste. Further, use of hydrogen as a fuel-an alternative clean fuel of tomorrow has also been highlighted in this research project.

Keywords- Industrial Waste, Non-conventional energy sources, CO₂, Algae, Coal.
