

Experimental and analytical evaluation of NO_x emissions in bagasse boilers

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Nitrogen oxides (NO_x) have been considered worldwide as one of the acid rain main causes; it must be considered also its fitotoxic effect as well as its importance in the stratospheric ozone formation mechanism. In this way some countries have engaged in this subject monitoring and restricting the emission of this pollutant gases within pre-established emission standards. In Brazil, little emphasis has been given to this subject. There are only a few data about NO_x emissions in sugar cane bagasse boilers in the Brazilian and international technical literature and little has been made regarding research concerning the influence of the combustion system types, the operating parameters (air excess) and the combustible characteristics in the NO_x formation prevention. In this paper, based on data measured in the Monte Alegre sugar mill (Brazil), it is made a comparison between measured data with the calculation according to different models and with available data from technical literature (EPA). It is also evaluated the influence of the boiler operation parameters (excess air variation and boiler load) on emissions values. This data may establish a base to the selection of the appropriate methods for the prevention and control of the NO_x emissions in bagasse boilers. At the same time these results allow to evaluate which of the mathematical models for NO_x emissions calculations present a satisfactory result for this type of fuel and the combustion technologies analyzed.