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Effective technology of purification of gases of power units in the wet dust scrubber with vortex plate
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The thesis is devoted to perfection of dust suction system with the possibility of utilization of heat of industrial waste gases. The theoretical basis for mathematical modeling of wet dust collectors with vortex foam plate (MPVT) are worked out. With the account of results of modified mathematical model the rational design and operating parameters of industrial dust collector of MPVT are determined.

Experimental investigations of MPVT allows to refined design and regime characteristics of the system which are obtained by means of numerical simulation. A method of experiment planning in addition to mathematical modeling allows obtaining the regression equation for calculation of hydraulic resistance and overall degree of purification for MPVT which can be used for methods of engineering calculation. Automated method of calculation of dust scrubber MPVT is accepted for industrial implementation.

New technical solutions are scientifically based and incorporated to construction of pre-production model of MPVT dust collector. Implementation of proposed MPVT- system for solid fuel boiler provides the positive ecological both discounted revenue effect 6965 UAH and proves that offered MPVT technology is energy-efficient.

Keywords: dust removal, wet vortex apparatus, heat and mass transfer, energy conservation.