Investigation of the system of high concentration fuel supply under the pressure for highreaction fuels and energysaving gas burners for boilers.

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Results

The analysis of results of works, which were carried out on the problem of oxidation and self-ignition of coal for improving accuracy of the program of investigation of coal self-ignition, was carried out.

In the result of analysis of conditions of oxidation of coal was installed, that heat station must be oriented for supplying from suppliers low-restored coal, because heat effects from oxidation of this coal under the temperature 100 ^{0}C is about 2500 kJ/kg, that is about 3 – 4 times lower, then of restored coal. The important conclusion about possibility of regulation of maintenance of oxide in gas-air mixture in the bunker and transports systems made. For the aim of forming air-fluidising and transporting medium it is recommended to use flue gases with contents of oxygen about 8 – 12 %. It is proposed the system of controlling pseudo liquid mixture with using the electrochemical sensors, which are forming the electric signal in proportion with O_2 and CO_2. That is replied to the problem of provision of flame and explosion safety of coal dust.

The investigation is aimed for the creation of new kinds of techniques – the development of fuel burners with microflame burning of natural gas in boilers. The advantage of these fuel burners are the low sensitivity to the pressure oscillation in the gas pipelines, the possibility of stable working under the variable gas and air pressure, the higher in comparison with usual burners the coefficient of work regulation – up to 10 (the normal level – 5), the possibility of working under changing of the coefficient of air excess from 1,02 to 10 – 20 (the normal level – 1,02 – 1,33), the possibility of forming of the necessary temperature profile in the furnace space. The analysis of up-to-date fuel-burning technology and of burners construction for gas burning in boilers is carrying out. The methods of mathematic simulation of the working process in fuel burners with micro-flame burning of gas after stabilizer is maid.

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