Energy saving

Power engineering

The article is dedicated to the problem of locating the origin of the single-phase ground fault in the distribution networks with an insulated neutral. The latest developments and solution approaches to the problem were reviewed. The complexity of the large-scale implementation of the developments is identified, and the alternative to resolve it is suggested herein.

Scitntific and technical progress and efficiency of production

The article is concerned with the preliminary studies and comparative analysis of the current transformer cores of amorphous alloy and electrical steel operating within the ranges of low and maximum calibrated current ratios in the solid-state tripping device units for circuit breakers.

This article describes a mathematical model for calculating the quantitative characteristics of the combustion of a pulverized coke particle and influence of water vapour within the furnace volume on the combustion process. To test the proposed model there are calculated the dynamics and total time τ_c for combustion of the coke particles of the original size from 50-300 microns under different oxygen content in the combustion chamber. The close agreement between the calculated τ_c and experimental data is observed. Further, the heating value of coke combustible matter obtained by calculation is in good agreement with the table value. It is found that the increase in water vapour content within the furnace volume has an insignificant effect on the dynamics of combustion of coke particles, but reduces their temperature and heating value. The developed model can be used in coal-fired heat power industry for analysing the combustion peculiarities of pulverized coal fuel depending on the conditions of the burning process.

Bottom ash and slag waste from TPP are stored in ash dumps that occupy large areas of fertile lands. One of the approaches of its use is to produce binding fillers in the construction material industry. It is shown the efficiency of using the mechanical activation method in resolving this problem. The technology of preparing a cement mixture with the addition of up to 30% of mechanically activated ash in the mixture without reducing the characteristics of the obtained set cement is given herein.

Philosophy beginning with the ancient Greeks is literally "a love of wisdom" and deals with the most general issues of reality. The Wikipedia dictionary determines philosophy as a science, which studies everything. Logic and critical analysis are the pillars of philosophic thinking. 'So, why don't we use these attributes of philosophy to analyze the situation around relay protection,' – Dr. Vladimir Gurevich raises this question, and it appears that such analysis may result in counterintuitive findings.

Keywords: *philosophy, relay protection, protective relays, emergency mode, digital protective relays.*