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Environmental indicators of the combustion of prospective coal water slurry containing petrochemicals

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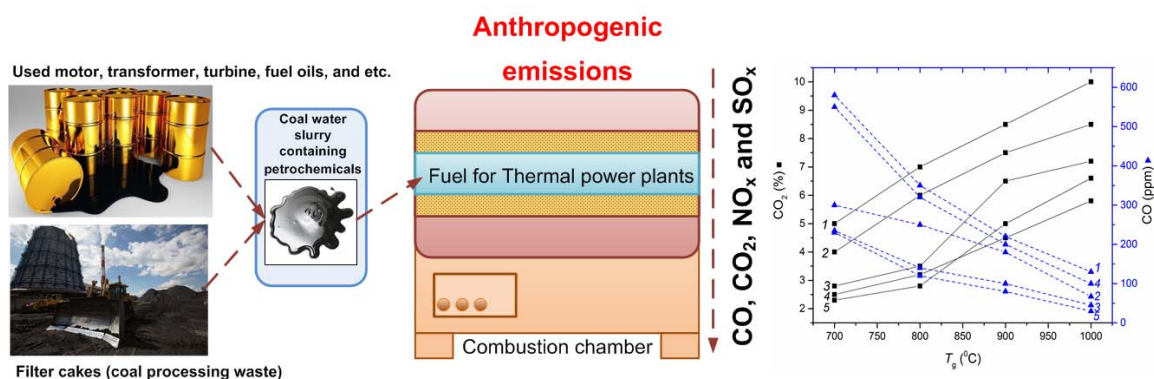
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Graphical abstract



Highlights

- The main coal components of CWSPs are filter cakes (coal processing wastes)
- The proportion of the production of filter cakes and coal reaches 0.1/1
- The most dangerous atmospheric emissions of CWSP are comparable to those of coals
- CWSPs made of filter cakes have environmental and economic benefits
- Using of filter cakes can reduce need for developing new coal deposits

Abstract

Negative environmental impact of coal combustion has been known to humankind for a fairly long time. Sulfur and nitrogen oxides are considered the most dangerous anthropogenic emissions. A possible solution to this problem is replacing coal dust combustion with that of coal water slurry containing petrochemicals (CWSP). Coal processing wastes and used combustible liquids (oils, sludge, resins) are promising in terms of their economic and energy yield characteristics. However, no research has yet been conducted on the environmental indicators of fuels based on CWSP. The present work contains the findings of the research of CO, CO₂, NO_x, SO_x emissions from the combustion of coals and CWSPs produced from coal processing waste (filter cakes). It is demonstrated for the first time that the concentrations of dangerous emissions

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