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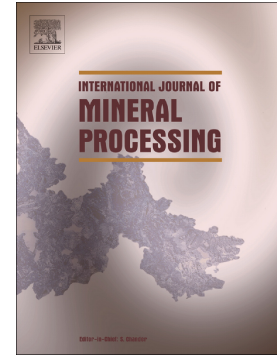
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# A technological review of developments in chemical-related desulfurization of coal in the past decade

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**Abstract:** Coal desulfurization prior to combustion, coking or gasification is benefit for both the upgrading of quality of commercial coal and the protection of the environment. The sulfur in coking coals usually makes coke unqualified while that in power coals creates several environmental problems, such as acid rain and air pollution. The sulfur forms in coal are primarily divided into two types, i.e. inorganic sulfur and organic sulfur. In most cases, inorganic sulfur is relatively easier to remove than organic sulfur by gravity separation after liberation pretreatments. The primary desulfurization methods include physical, physico-chemical, chemical, and microbial desulfurization. Among the above-mentioned desulfurization methods, chemical-related desulfurization is considered to be the most effective methods for both inorganic and organic sulfur, which is essential to be reviewed. This review is to highlight the developments in coal chemical-related desulfurization, including acid/alkaline leaching, H<sub>2</sub>O<sub>2</sub> oxidation, electrochemical reduction, solvent extraction, pyrolysis, air oxidation, microwave/ultrasonic assisted desulfurization in the past

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