THE STUDY ON GASIFICATION PRODUCTS' COMPOSITION OF DIFFERENT COALS

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The gasification products which consist of three-phase(gas - liquid – solid) have significant influence on the migration of coal elements and the viscosity change of coal ash on the water-wall.
Multiple condense-phase products must be specified when they are calculated via the traditional Lagrange multiplier method. However, the Gasification products are varies and have different combinations because multiple elements exist in the ash, and the calculation method of permutation and combination would lead large calculation amount. This article proves an optimized calculation method combined by genetic algorithm and the lagrange multiplier (on the hypothesis of 21 gas-phase products and 45 condensed-phase products at most).
There is certain disparity from the practical three-phase composition to ideal calculation value. This thesis compares the actual gas composition and ash composition (XRD) in HT-L gasifier with the ideal calculation value in cases of Shen Mu bituminous coal and Jin Cheng anthracite coal, and also gets data relevance and predication on gasification products' composition and viscosity by using neural network method in order to apply the correlation model to some new coal types and cases.
Key words: gasification products, lagrange multiplier, genetic algorithm, neural network

References

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