

### Hypercoal 对不同炼焦煤炭化改质作用的显微镜研究

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### Modification performance of Hypercoal as an additive on co-carbonization of coal

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**摘要** Hypercoal(HPC)被作为一种添加剂加入到两种性质不同的炼焦煤中,以探讨其对炼焦煤炭化的改质作用。通过偏光显微镜以及扫描电镜观测炭化产物的组织结构变化。结果表明,添加剂的用量以及粒径对炼焦煤炭化改质作用的大小与原料煤的煤质有关,对焦煤改质时要求添加剂颗粒的粒径较大;而对弱黏结性煤改质时,添加剂粒径较小且添加量较多更有利于黏结和熔融作用。通过添加HPC可改善焦煤因过度膨胀造成的不均匀孔隙结构,而且孔的数量与孔径减小,孔壁增厚;添加剂在炭化过程中产生的胶质体促进了弱黏结性煤的黏结和熔融,改善了炭化产物的结构。实验还考察了原料中水分、成型压力等因素对炭化产物结构的影响。结果表明,煤中水分会在炭化产物中产生特殊的孔隙结构,而成型压力对炭化改质作用则因原料煤质不同而不同。

**关键词:** Hypercoal 添加剂 共炭化 改质

**Abstract:** Modification performance of Hypercoal (HPC) extracted from brown coal as an additive on the structure of carbonization products through co-carbonization with two different coals was examined. The dimension and texture changes of products were observed using polarization microscope and scanning electron microscope. The results show that the pore structure of carbonization products from caking coal is improved by adding additive with larger size, however smaller particles and more additive amount are favorable for weakly caking coal. As a good candidate of binding substance with high thermoplasticity, HPC particles were found to have a tendency to be well dispersed and further excellent adhesion between coal particles. Excessive expansion of product from caking coal can be inhibited in appropriate conditions. The number and diameter of pore are reduced and pore walls are thickened by adding HPC. Fluidity and fusibility of weakly caking coal are accelerated by the colloid in additive, which would lead to mechanical properties of products improved. Moreover, more factors affecting the product structure via single-carbonization and co-carbonization were taken into account, including moisture in coal and molding pressure of artifact. Special pore structure is formed in the products owing to moisture, and the influence of molding pressure on products is different with coal properties.

**Key words:** Hypercoal (HPC) additive co-carbonization modification

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