

(2)在煤炭直接液化过程中消耗的氢气,有 51.11% 生产了高附加值的液态烃和油品,20.70% 的氢气与原料煤中的氧反应生成了水;

(3)由于原料煤的硫含量低,为了保持催化剂的反应活性,需要额外补充硫,外补硫占总硫的 92.96%,在生成的硫化物中  $H_2S$  占 73.53%;

(4)煤炭直接液化原料煤带入的氮有 50% 生成了氨,有 21.28% 留在了液化油中,有 28.72% 进入了残渣;

(5)煤直接液化的原料煤带入的氧有 11.58% 生成了  $CO_x$ ,有 77.83% 与氢气反应生成了水,有 10.02% 留在了液化油中。

## Element balance analysis on direct coal liquefaction process

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**Abstract:** Element balance on direct coal liquefaction process has been analyzed based on the composition of feed and products. The distribution of C, H, N, S, O in different products also have been analyzed. This analysis is helpful for deep understanding and process optimization of direct coal liquefaction.

**Key words:** coal; direct liquefaction; element; balance

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## Retrofit of coal slurry processing system in Xiaohogou coal preparation plant

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**Abstract:** In order to resolve the problems existed in coal slurry processing system of Xiaohogou coal preparation plant, take some technical transformation such as adding concentration equipments, direct press technique is replaced by coal slurry flotation, clean coal press and tailings pressure filtration technique. Realize the closed water circuit and clean water wash coal in washery after transformation, medium consumption is reduced by 8.94 kg/t, clean coal recovery is improved by 15.40% and the plant yearly profit increase 33 million.

**Key words:** coal slurry; closed cycle; medium consumption; product entrained dense medium

## 神华煤制油项目实现盈利

神华集团总经理张玉卓 2011 年 5 月 14 日在煤矿瓦斯治理及安全论坛上表示,神华集团在世界上率先建成的煤直接液化项目已实现盈利,今年一季度生产成品油 21.6 万 t,利润超亿元。

作为石油替代能源的一个重要途径,煤制油与甲醇和二甲醚是煤基替代液体燃料的重要产品。

神华集团 2008 年底在内蒙古自治区建成了 100 万 t/a 煤直接液化技术示范项目,这是世界上第一套煤炭直接液化的大型工业生产装置。

据介绍,该项目去年最长连续运转 2071 h,共运行 5000 h,生产油品 45 万 t。

该项目投运至今已累计运行 1 万 h。至 2011 年初,该项目基本实现了安、稳、长、满、优的运行目标,一季度生产成品油 21.6 万 t,利润超亿元。

据悉,以中国目前的油价水平计算,神华集团的煤直接液化项目实现盈亏平衡的油价是每桶 85 美元。

神华集团此前曾表示,待煤制油及煤化工项目成熟,即盈利后考虑注入上市公司神华能源。