

Co-carbonization of selected coal blend with industrial by-products as additives

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Because of the short supply of high-quality coking coals in certain areas of the world, many methods of improving the coking characteristics of poorly coking coal have been examined as an alternative to importing more expensive, better quality coals. Co-carbonization, or the addition of coal-derived or petroleum-derived materials to the coal charge prior to carbonization, has been on a commercial basis in many countries. These additives have been used in the both solid and liquid form as binders in coal briquetting or as direct addition to the coal blend. In this study special recipe of coal blend were chosen in order to assess the influence of various additives on coke strength. Five different additives were mixed with coal blend. The selected additive are four coke oven operation by-products; tar, tar sludge, pitch oil, pitch cake and one from petroleum residue oil. Coal blend with 3% of additive were prepared for coking test in 30kg of lab-scale coke oven. A tumbler test method was adopted to examine the effect of additive on coke strength and CO₂ reactivity test were conducted to elucidate the physical and chemical property changes in coke.