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M. HARTMAN, O. TRNKA, K. SVOBODA	Potential of Calcium Oxide for Removal of Hydrogen Sulphide and Carbonyl Sulphide from Coal Gas	5
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Abstract

The effectiveness of calcium oxide in removal of hydrogen sulphide and carbonyl sulphide from coal gas is estimated by thermochemical computations. The influences of temperature, total pressure and partial pressures of carbon dioxide and water vapour on the equilibrium concentrations of H₂S and COS are explored. The results, based on simplified, but sound theoretical considerations, are presented in algebraic, graphical and tabular form.

Z. KOŘÍNEK	Carbon Fibres	19
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Abstract

Compared to other fibers with a low density (polymeric and ceramic) the carbon fibers have higher specific tensile strength and specific modulus of elasticity. The paper shows the major carbon fibers producers and production capacity in 1999 year and accomplished properties. Carbon fibers are now manufactured either from PAN copolymer or from coal-tar mesophase pitches. Very high modulus carbon fibers manufactured from mesophase pitches have tensile strength comparable to tensile strength of standard carbon fibers made from PAN. Price list is set for 1999 year.

V.J. MINKOVA et al	Preparation and Characterization of Activated Carbons Obtained from Carbonaceous Material	25
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Abstract

An original method for production of high qualitative carbon adsorbent based on steam pyrolysis of modified with different reagents carbon containing material (apricot stones) was developed. The processes of porous structure formation and surface changes of solid residue obtained from apricot stones in a stream of water vapour were investigated. The alterations in surface properties of the activated carbon with the time of retention of pyrolysis at the final temperature and by the result of the oxidative modification by treatment with 10 % nitric acid were investigated.

P. OLŠOVEC, V. STARÝ, Z. KOŘÍNEK, P. GLOGAR	Structure and Mechanical Properties of Unidirectional Carbon-Carbon Composites	33
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Abstract

In order to acquire the knowledge necessary for improvement of the mechanical properties and to increase the application range we investigated the relationship between the structure and ultimate properties of carbon- carbon (C/C) composites. Most of these properties are strongly influenced by mutual interaction between fibres and matrix. Direct structural characterisation of the C/C composites by microscopic techniques is difficult due to the small optical contrast between the fibre and matrix phases. However, by applying the image analysis methods large data files were obtained, and statistically valid correlations between structural parameters and impact strength were found.

J. PECHOČ	Brown Coal Separation in the Fluidized Bed.	37
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Abstract

This paper includes review of sources and basic ideas regarding use of the fluidized bed for the dry preparation of raw materials, with a special focus on preparation of Czech brown coals.

P. STRAKA, BUCHTELE J., J. NÁHUNKOVÁ	Chemical Structure of Maceral Fractions of Coal	47
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Abstract

Models of minimum-energy structures of liptinite, vitrinite and inertinite fractions of Czech hard coals were created and energies of models calculated. The models were constructed on the basis of structural parameters obtained from solid-state NMR, DRIFT spectrometry and X-ray photoelectron spectrometry. It was found that cluster size is 3-5 rings, number of attachments per cluster was 4-5. Further, oxygen, nitrogen and sulfur functionalities were quantified. 52-60% from total oxygen was in ethers bound, 39-47 % in hydroxyl groups and only 1 % in carbonyl groups. Nitrogen occurred in the form of pyrrol, pyridine, quaternary and oxidized (N-O).

K. SVOBODA, M. HARTMAN, J. ČERMÁK	Combustion Processes - Solid and Liquid Charring Fuels. Structural Changes, Heterogeneous Reactions and Emissions	55
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Abstract

In combustion of solid and some liquid, charring fuels, homogeneous and heterogeneous reactions describing phenomena in fuel/char particle and in adjacent surroundings are generally needed for complete and realistic modelling of burning. Rank of coal (solid or liquid fuel), heating rate, size of particles and reaction conditions (temperature, gas concentrations, pressure) effect behaviour, structural changes and reactivity of coal (fuel) particles during drying, devolatilization, gas phase oxidation of volatiles and char combustion. At relatively lower temperatures of combustion the catalytic effects of ash, CaO and other solids on combustion rate of volatiles and transformation of N-precursors to nitrogen oxides are usually significant. The rate of burning or gasification of a solid fuel depends mostly on volatile or fixed carbon content. Development of pore structure, ash effects and reactivity of a char play an important role in combustion.

W.A. ZMUDA, E. KOMAROVSKA - CZEPIRSKA, L. CZEPIRSKY	Laboratory Preparation of Carbonaceous Adsorbents from Waste Materials	81
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Abstract

Results of studies on the possibility of producing sorptional materials from organic waste materials have been presented in the paper. The method of waste preparation to obtain appropriate granulate size has been described and the results of basic studies of properties of received granulates have been presented.