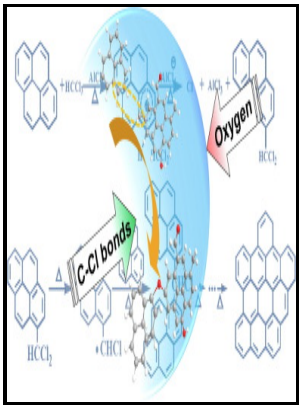
Modification of coal-tar pitch for use as a precursor for matrix carbon in carbon-carbon composites

- - Densification Behavior and Performances of C/C Composites Derived from Various Carbon Matrix Precursors



Description: -
-Modification of coal-tar pitch for use as a precursor for matrix carbon in carbon-carbon composites
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Notes: Thesis (M.Phil.) - Loughborough University, 1998.
This edition was published in 1998

Tags: #Experimental #study, #modeling #and #optimization #to #improve #heat #resistance #of #modified #resole

Characterization and Damage Evaluation of Coal Tar Pitch Carbon Matrix Used in Carbon/Carbon Composites

This pitch is then converted to mesophase pitch inside the preform using various temperature-pressure cycles. This difference can be explained, on the one hand, by the different sizes of the analyzed areas of the samples determined by the two techniques. Characteristics of Products of Thermal Decomposition of Heavy Oil Asphaltenes under Supercritical Conditions.

High performance carbon

Structural evolutions of small aromatic mixtures under extreme temperature conditions: Insights from ReaxFF molecular dynamics investigations. Strategies for the determination of trace and toxic elements in pitch: Evaluation of combustion and wet digestion methods for sample preparation.

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The pitch employed for impregnating the reinforcing structure in accordance with the invention is a particular fraction which is defined as being insoluble in cyclohexane and soluble in pyridine. The simplest of the three-dimensional structures is the three-directional 3D structure which generally has reinforcing elements which are mutually orthogonal. The carbonized composite is then impregnated several times with pitch by covering the composite with hot pitch under pressure.

Densification Behavior and Performances of C/C Composites Derived from Various Carbon Matrix Precursors

The use of mesophase pitch brings up one last factor which is pertinent to the understanding of the shortcomings of some existing liquid densification techniques for carbon matrix composites. In the preferred embodiment, when the monomer is impregnated into the preform it is necessary that a catalyst be present in the preform along with the monomer. Although this invention only addresses liquid phase impregnation, it should be stated that all gas phase infiltration techniques known to date suffer from the same drawbacks as just stated for liquid phase infiltration.

Study of the Carbonization and Graphitization of Coal Tar Pitch Modified with SiC Nanoparticles.

The first is vapor-phase-based and involves placing the rigid-preform in an oven containing gases which decompose at high temperatures inside the preform to form carbon matrices. The solid was then ground by mortar and pestle to obtain the dried prepolymer powder.

Comparative studies of the modification of coal

Accordingly, it is an object of the present invention to provide a high-temperature fiber-reinforced composite with essentially uniform density and an insignificant amount of closed porosity. Modifications and additions to these embodiments will be apparent to those skilled in the art upon a reading of the foregoing description.

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