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PIEZORESISTIVE BEHAVIOR OF CARBON/CARBON COMPOSITE BASED ON EXPANDED GRAPHITE AND POLYFURFURYL ALCOHOL

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The paper presents the results of research on changes in the resistivity of a carbon-carbon composite based on expanded graphite with polyfurfuryl alcohol depending on the pressure force.

A special test stand was created in order to evaluate the influence of the compressive stresses on the resistivity of the tested samples.

The paper presents the effect of polyfurfuryl alcohol and the carbonization process on the piezoelectric properties of a carbon-carbon composite based on expanded graphite. Four types of samples obtained on the basis of expanded graphite were tested:

- 1) compressed expanded graphite not subjected to any modification,
- 2) compressed expanded graphite mixed with polyfurfuryl alcohol subjected to the cross-linking process,
- 3) compressed expanded graphite subjected to the carbonization process at the temperature of 800 °C,
- 4) compressed expanded graphite mixed with polyfurfuryl alcohol subjected to the carbonization process at the temperature of 800 °C.

Based on the conducted research, the influence of specific modifications on the piezoelectric properties of the tested samples was determined. The experimental investigation has been conducted to assess electrical response as a function of time under constant stress. The results showed that the electrical resistivity decreased significantly with time under high mechanical stress.