

## LAYERS SEPARATION OF THERMAL EXPANDED GRAPHITE UNDER COMPRESSION: NUMERICAL SIMULATION

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The described methods for pressing composite materials using waste thermally expanded graphite show that the resulting material has a significantly anisotropic structure [1]. The layered structure is determined by graphite flakes redistributed perpendicular to the pressing force

The work [2] describes a series of experiments with such a material, one of the results is as follows: when the sample is compressed in a direction collinear to the induced layering, destruction occurs by delamination of graphite flakes.

We have carried out numerical modeling of the process of deformation and destruction of a model graphite sample. The modified Wilkins method was used [3]. The material constants varied over a wide range – from the parameters of technical graphite to  $\alpha$ -C single crystal [4].

One of the simulation results is shown in Fig. 1. The scenario of delamination (layers separation) of thermally expanded graphite when the sample is compressed along the layering is numerically reproduced.

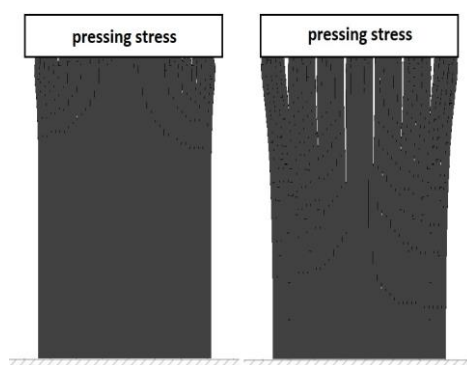


Fig.1. Layers separation of graphite under load. On the left is the initial stage of layers peeling off, on the right is the advanced stage of the process.

The results obtained show the applicability of the method for calculating problems of this kind. Varying the conditions at the boundary between layers provides new tools for modeling the properties of newly created materials.

### REFERENCES

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