

Magnesium phosphate solid binder-based heat-resistant composite nanomaterials. / N. S. Apanasievich, K. N. Lapko, A. N. Kuldash, A. A. Sokol, V. A. Lomonosov, A. I. Lesnikovich, A. O. Plyushch, P. P. Kuzhir, S. A. Maksimenko. / Nano Studies. – 2015. – # 12. – pp. 197-204. – rus.

Magnesium phosphate solid binder-based heat-resistant composite materials (HPM) containing multilayered carbon nanotubes (MCNT) are investigated. For the system under study, the optimal content of solids phosphate binder is 15 – 20 wt. %. The oxidation process of MCNT contained in a phosphate composition starts by 150 – 200 °C higher than that of individual nanotubes. Below 800 °C, heat treatment of HPM-based composite containing MCNT leads to 2-fold increase in strength. Strength and electrical conductivity of HPM-based composites containing MCNT are higher than that of liquid aluminum-phosphate binder (APB) based composites. Fig. 10, Ref. 8.

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