Dynamic fragmentation of alumina by plasma spraying and of carbon and silicon carbide composite based

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Cylindrical specimens made of alumina by plasma spraying Al_2O_3 PS (UrFU, Ekaterinburg) [1] and siliconised graphite SG-P0.5 (NII-Igrafit, Moscow) under dynamic (DL) and quasi-static (QSL) loading conditions in the fragment preservation mode were tested. In order to determine statistical regularities of fracture and fragmentation processes of composites and ceramics. QSL and DL of specimens were carried out on a Shimadzu AGX-Plus machine and on a Hopkinson's split bar unit RSG-25. Fragmentation statistics were analyzed using the weighting method and the photography method [2]. It is shown that the type of $N(m)$ distributions changes when the loading mode is changed (QSL, DL), which corresponds to different scenarios of fracture surface formation and fragment shape. The present research was supported by the Russian Science Foundation (project No. 21-79-30041, https://rscf.ru/en/project/21-79-30041/).

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[2] Bannikova I A 2017 *Industrial Laboratory. Diagnostics of Materials* **83** 42–44