On the correction necessity of Yu.D. Pchelkin method proposed for carbon materials ablation parameters calculation in oxidation gas flows

© V.V. Gorskiy

Joint stock company Military and industrial corporation JSC MIC Mashinostroyenia, Reutov, Moscow Region, Russia, 143966
Bauman Moscow State Technical University, Moscow, 105005, Russia

The article describes physic mechanical analysis of the engineering technique developed by Yu.D. Pchelkin, which is designed to calculate the carbon materials loss mass parameters, shows the need to introduce certain adjustments into this methodology, which can lead to a significant change in the calculation results, is of great practical importance.

Keywords: *ablation, erosion, heterogeneous oxidation, sublimation*

REFERENCES

[1] Anfimov N.A. *Izvestiya AN SSSR. OTN. Mekhanika i mashinostroenie–Proc. of the USSR Academy of Sciences: Department of Technical Sciences. Mechanical Engineering*, 1964, no. 5, pp. 3–11.

[2] Polejaev Yu.V., Yurevich F.B. *Teplovaya zashchita* [Thermal protection]. Moscow, Energy Publ., 1976, 391 p.

[3] Pchelkin Yu.D. Metodika rascheta ablyatsii uglerodnykh materialov v vozdukheieepriblizheniya [Method for calculating the ablation of carbon materials in the air and its approximation]. *V sb.: Fundamentalnye problemy vysokoskorostnykh techeniy. Mezhdunarodnaya nauchno-tekhnicheskaya konferentsiya. Tez. dokladov* [In: Fundamental problems of high-growth currents. Proc. of International Scientific and Technical Conference]. Zhukovskiy, CAGI Publ., 2004, pp. 56–58.

[4] Pchelkin Yu.D. *Kosmonavtika i raketostroenie — Cosmonautics and Rocket Engineering*, 2014, vol. 2 (75), pp. 19–24.

[5] Glushko V.P, Gurvich L.V, Khuchkuruzov G.A., ed. *Termodinamicheskie svoystva individualnykh veschestv. V 2 tomakh, tom II* [Thermodynamic properties of individual substances. Handbook in 2 vol. Vol. 2]. Moscow, Academy of Sciences of the USSR Publ., 1962, 916 p.

[6] Glushko V.P., Gurvich L.V., Bergman G.A., ed., *Termodinamicheskie svoystva individualnykh veshchestv* [Thermodynamic properties of individual substances]. In 4 volumes. Moscow, Nauka Publ., 1979, vol. II, book 2, 341 p.

Gorskiy V.V., Dr. Sc. (Eng.), Professor, Senior Research Scientist of Joint stock company Military and industrial corporation JSC MIC Mashinostroyenia. Since 1992 he has been teaching at the Bauman Moscow State Technical University. Author of over 150 scientific publications. Research interests include heat exchange and thermal protection. e-mail: gorsknat@yandex.ru