

STIMULATED DIFFUSION COMBUSTION OF MAGNESIUM POWDER IN NITROGEN ATMOSPHERE

V. M. Shmelev, V. G. Krupkin, V. M. Nikolaev, and S. V. Finyakov

N. N. Semenov Federal Research Center for Chemical Physics of the Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation

Abstract: The idea of organizing stable diffusion burning of a metal powder in a nitrogen atmosphere at pressures less than 100 atm by using a promoter additive was considered. It was shown that the stable burning of magnesium powder with the 80-micron particle size is possible at pressures exceeding a certain critical value if the nitrocellulose promoter in the amount from 2% to 10% by weight was added. Various burning regimes were observed, and the dependences of the burning rate on the sample diameter and pressure were obtained. It was shown that the degree of magnesium conversion to nitride exceeded 60%.

Keywords: metal burning; magnesium; magnesium nitride; diffusion burning

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Contributors

Shmelev Vladimir M. (b. 1940) — Doctor of Science in physics and mathematics, head of laboratory, N. N. Semenov Federal Research Center for Chemical Physics of the Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; shmelev.05@mail.ru

Krupkin Vladimir G. (b. 1949) — Doctor of Science in physics and mathematics, chief research scientist, N. N. Semenov Federal Research Center for Chemical Physics of the Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; krupkin49@mail.ru

Nikolaev Vladimir M. (b. 1975) — Candidate of Science in physics and mathematics, leading research scientist, N. N. Semenov Federal Research Center for Chemical Physics of the Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; vm-nikolaev@mail.ru

Finyakov Sergey V. (b. 1948) — Doctor of Science in physics and mathematics, chief research scientist, N. N. Semenov Federal Research Center for Chemical Physics of the Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; sv-finiakov@mail.ru