# PSEUDOIDEAL DETONATION MODE IN THE COMPOSITIONS ON THE BASIS OF AMMONIUM PERCHLORATE WITH NANOALUMINUM

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**Abstract:** Presented are new experimental data on detonation of ammonium perchlorate (AP) based mechanoactivated compositions with nanoscale aluminum (100 nm). Experimental dependences of detonation velocity vs. reciprocal charge diameter at relative charge density varied from 0.6 to 0.9 have confirmed the previously stated inference on the existence of the so-called "pseudoideal" detonation mode in the AP-based compositions with nAl. Detonation velocity rise occurs when charge diameter is increased from 10 to 17 mm, the velocity remains virtually unchanged if the diameter is ranged from 17 to 40 mm, and when $d > 40$ mm, $D(1/d)$-dependence increases again. The obtained data suggest the staged decomposition within the detonation process in the nanoaluminum-based compositions.

**Keywords:** detonation velocity; ammonium perchlorate; nanoaluminum; mechanoactivation

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