THE INFLUENCE OF AMMONIUM PERCHLORATE ON THE ACTIVITY OF ALUMINUM POWDERS OF DIFFERENT PARTICLE SIZE

VALERIY MEDVEDEV[1], ALEXANDER RESHETOV[2], SERGEY ZMANOVSKIY[3],
ALEXANDER ILYIN[1]*, LIUDMILA ROOT[1], ANDREI MOSTOVSHCHIKOV[1] AND EGOR FORAT[1]*

[1]*National Research Tomsk Polytechnic University, Russia*
[2]*Tyumen Oil and Gas State University, Russia*
[3]*«SUAL-PM» Ltd., Russia*
medvedev@tpu.ru

The thermal decomposition of ammonium perchlorate in freely poured mixtures with aluminum nanopowder and micron powders of different particle size, as well as the influence of ammonium perchlorate thermal decomposition products on the activity parameters of aluminum powders were investigated in the paper. It was found that ammonium perchlorate had decomposed at heating in the studied mixtures with aluminum powders at a lower temperature than the aluminum began to oxidize. At the same time, the ammonium perchlorate thermal decomposition products reduced the activity parameters of all investigated aluminum powders.

Keywords: *ammonium perchlorate, aluminum powder, micron powderd, nanopowder, activity parameters, freely poured mixture, thermal decomposition.*