

# Studying of the combustion mechanism of nanothermite composites

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Thermite is a combustible mixture of metal and oxide of a less active metal. In case of nanoscale components the properties of the thermite mixtures are significantly changes. The deflagration speed in some cases is up to 2 km/s. In thin channels is observed stable propagation of combustion waves, sensitivity to friction and electrostatic discharge increases. The significant change in these characteristics is usually associated with a qualitative change in the combustion mechanism for nanothermites. The significant changing of these characteristics is usually believed to be linked with a qualitative changing in the combustion mechanism for nanothermites. However, at the present time there is no unified opinion on the combustion mechanism of nanothermite mixtures. In this paper, we present the results of the experiments on the determination of the combustion waves parameters for the CuO/Al nanothermite mixture are recovered by the dynamic x-ray method by means of the synchrotron radiation. This work was supported by the Russian Foundation for Basic Research (grant No. 17-33-50202).