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PII: S0924-0136(16)30332-6
DOI: http://dx.doi.org/doi:10.1016/j.jmatprotec.2016.09.010
Reference: PROTEC 14959

To appear in: *Journal of Materials Processing Technology*

Received date: 18-4-2016
Revised date: 15-9-2016
Accepted date: 15-9-2016

Please cite this article as: Sytschev, A.E., Vrel, Dominique, Boyarchenko, O.D., Roshchupkin, D.V., Sachkova, N.V., Combustion Synthesis in Bi-Layered (Ti−Al)/(Ni−Al) System.Journal of Materials Processing Technology http://dx.doi.org/10.1016/j.jmatprotec.2016.09.010

Combustion Synthesis in Bi-Layered (Ti–Al) / (Ni–Al) System

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ABSTRACT

We investigated the peculiarities of the combustion wave propagation as well as the structure and phase formation in bi-layered metal powder compacts of (Ti–Al)/(Ni–Al), with a special emphasis on the use of infrared thermography to monitor the reaction front propagation. The location of the combustion wave front along the direction of propagation at different times was determined to calculate the front velocity. The data of SEM analysis demonstrated the welding of two layers during combustion with the formation of a transition layer with a thickness of about 200 μm and a sharp diffusion barrier for Ti in the Ni-Al layer.