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The evolution of morphology and kinetics during the foaming process of aluminium foams

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Abstract: Aluminium foams were produced by powder metallurgical method that was developed and patented by Fraunhofer-Institute for Advanced Materials (in Bremen) and it is known as Fraunhofer-Process. The process consists of mixing aluminium and foaming agent powders and subsequent pressing them (hot extrusion or hot pressing) to a dense semi-finished product, as called the foamable precursor material. This precursor material is then heated up to its melting point inside a "laser expandometer", which allow both control of the expansion (in volume) and temperature, throughout the entire process. The expansion of foamable precursor material and its temperature, which characterise the kinetics, were monitored during the entire foaming process by means of a laser sensor and a thermocouple, respectively. The evolution of morphology (shape and size of the cellular pores) and microstructure during the foaming process was discussed. The scope of this work is to discuss the phenomena, which occur during the foam formation metal, i.e. how the foam emerges from the liquid, how it changes with time and what mechanisms are responsible for its formation.

Document Type: Proceedings Paper**Language:** English**Author Keywords:** aluminium foam; kinetics; powder compact method

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Karsu ND, Yuksel S, Guden M [Foaming behavior of Ti6Al4V particle-added aluminum powder compacts](#) JOURNAL OF MATERIALS SCIENCE 44 6 1494-1505 MAR 2009

Braga ND, Ferreira NG, Cairo CAA [Porous titanium production and porosity control by powder metallurgy \(P/M\)](#) QUIMICA NOVA 30 2 450-457 MAR-APR 2007

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