Recent development in structural applications of aluminum foams

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ABSTRACT

The recent development of structural components made from aluminium foams and reinforced aluminium foams will be presented. The basic concept for the design and manufacturing of lightweight load-bearing aluminium foam panels will be introduced. The concept is based on the utilization of reinforcing or structural elements within surface skin or even in foam volume (gradient structure), such as metallic or ceramic parts, tubes, profiles, wires or woven fibres with grids of various mesh size. One of the attractions of the process is that the composites are prepared in one technological operation (during foaming) what significantly reduces manufacturing costs. Further the basic mechanical properties of aluminium foams and reinforced aluminium foams will be presented with respect to type and size of reinforcement obtained under various loading conditions. Finally, the potential applications of aluminium foams will be shortly discussed.

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BIOGRAPHY

Dr. Kováčik has his expertise in metallic foams. He is involved in investigation of foams mechanical and physical properties, and their modelling as well. Further he is interested in metal matrix composites, focused on physical and mechanical properties of copper – graphite materials. He deals also with powder metallurgical preparation of Ti and Ti composites via warm powder method and using of concentrated solar power for their sintering and also for their nitridation.

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