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## PHYSICAL-MECHANICAL PROPERTIES OF NEW GREEN BUILDING MATERIALS BASED ON GLASS WASTE

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### Abstract

Recently several innovative suggestions on how industrial wastes can be utilised in new products have been presented in literature, e.g. as filler or additives in concrete, incorporated in ceramic materials to produce glass-ceramics and pavement construction. In this work, metallurgical materials from secondary aluminium scrap processing and glass waste derived from treatments of packaging and fluorescent lamps were considered for fabrication of new ceramic materials using powder technology and sintering process.

The effect of composition and heat treatment temperature, on the sintering process and then final properties, were evaluated. The results showed that, with the proper firing temperature, lightweight ceramic materials containing high amount of glass waste and an innovative product resulting from the processing of secondary aluminum (ArgAlum®) can be produced. The low water absorption (< 1%), low density (< 2 g/cm<sup>3</sup>) and the good flexural strength (16-20 MPa) associated to relatively low sintering temperatures obtained with the addition of ArgAlum®-can be considered as promising initial results to obtain new green building materials.

*Key words:* by-product, ceramic material, low density materials, glass recycling, waste

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