Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION X
New Frontiers in Multifunctional Material Science and Processing

Serbian Ceramic Society
Institute of Technical Sciences of SASA
Institute for Testing of Materials
Institute of Chemistry Technology and Metallurgy
Institute for Technology of Nuclear and Other Raw Mineral Materials

PROGRAM AND THE BOOK OF ABSTRACTS

Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 26-27. September 2022.

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Laser sintered polyamide specimens - fabrication and tensile testing conditions on different geometries

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This work presents the fabrication and tensile testing of polyamide specimens fabricated by selective laser sintering (SLS). Two geometries are considered: SENT (Single Edge Notched Tension) and PRNT (Pipe Ring Notched Tension) specimens. Experimental testing of these specimens is a step in development of a new method for testing of properties of the pipeline materials. The samples were produced by SLS (Selective Laser Sintering) additive production technique. The samples were made from polyamide PA12 on EOS Formiga P100 machine (fabrication parameters: laser power 30 W, print layer height 0.1 mm, scanning speed 1.6-5 m/s, operating temperature 170ºC). Testing was performed in the displacement control on a universal tensile testing machine Shimadzu AGS - X. On this machine, the values of force as well as the values of stress and strain were obtained directly from the Trapezium X software. Special attention in this work is devoted to two important aspects: fixing of the ring specimen for testing and influence of friction between the specimen and the tool. The results obtained on the examined specimens indicate that this study is a valuable contribution for further development and verification of the new fracture resistance testing procedure for different pipeline materials.

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