



# **Proceedings of the 12<sup>th</sup> Annual Conference of Society for Structural Integrity and Life (DIVK12)**

**Belgrade, Serbia, 2024**

Edited by:

**SIMON SEDMAK  
BRANISLAV ĐORĐEVIĆ  
ANA PETROVIĆ  
ZORAN RADAKOVIĆ  
ALEKSANDAR SEDMAK**



Title

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Editors

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BRANISLAV ĐORĐEVIĆ

ANA PETROVIĆ

ZORAN RADAKOVIĆ

ALEKSANDAR SEDMAK

Coordinator

Aleksandar Sedmak

Design

Simon Sedmak, Branislav Đorđević

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Faculty of Mechanical Engineering, University of Belgrade, Serbia

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## Experimental investigations of tensile properties of ultra-high strength steel S1100QL at room and elevated temperature

Đorđe Ivković<sup>1,\*</sup>, Dušan Arsić<sup>1</sup>, Srblislav Aleksandrović<sup>1</sup>, Vukić Lazić<sup>1</sup>, Anđela Ivković<sup>1</sup>

<sup>1</sup>University of Kragujevac, Faculty of Engineering, Sestre Janjić 6, 3400 Kragujevac, Serbia

\*corresponding author: djordje.ivkovic@fink.rs

### Abstract

The aim of this paper was to present experimental study into the influence of elevated temperatures on mechanical properties of Ultra-High-Strength Steel (UHSS) S1100QL. This steel belongs to the group of structural steels and it is primarily used for designing various types of lifts and cranes with the goal to decrease mass of the structures with simultaneous increase of load capacity. The goal of this study was to determine the highest temperature to which still holds its mechanical properties. During the first part of testing tensile tests were conducted on room and seven other elevated temperatures (from 100°C to 700°C). Obtained results showed that between 400°C and 500°C properties begin to drop. This phenomenon is further investigated by conducting several more tests at temperatures of 425°C, 450°C and 475°C to determine the exact temperature value where mechanical properties drop.

**Keywords:** Elevated temperature; S1100QL; UHSS; tensile testing