Development of mechanoluminescent thin films for real time stress detectors

Project No: 1.1.1.1/20/A/138

Duration: 01.04.2021. – 13.10.2023.

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Project partner: Sidrabe Vacuum Ltd, B.A.Sc. Matiss Piesins.

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About project implementation (01.07.2023 – 31.07.2023)

During the research period of Project No. 1.1.1.1/20/A/138 " Development of mechanoluminescent thin films for real-time stress detectors", the adaptation of laboratory equipment for a modified technological process was continued.

Modification of technological process and equipment to allow for sample handling under controlled levels of oxygen and water vapor was ongoing. This would avoid problems with the aluminate-based materials being very sensitive to the presence of oxygen and water vapor when heated over 200 °C. The presence of these substances negatively affects both the structure and material purity during coating deposition which needs to be performed at temperatures up to 400 °C.

Experimental coated samples were prepared by processing under controlled levels of oxygen and water vapor, as well as by additional cleaning and heating of the substrate before the technological process. The prepared material samples were submitted to LU CFI for material parameter data analysis.