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SUITABLE SOFTWARE FOR THE STUDY OF COMBUSTION PROCESSES IN BOILERS

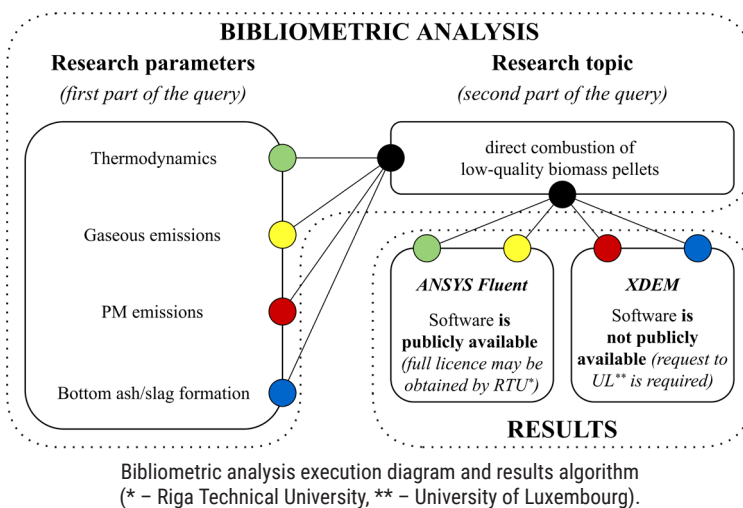
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Abstract – Diversification of energy resources is a current objective that several countries want to achieve, including in northern Europe. Demand for wood fuels is increasing in Latvia, reflected in consumer expenditure. Using low-quality biomass (LQB) to produce fuel pellets for stabilisation and diversification is possible. LQB pellets can theoretically and practically be used in low-capacity solid fuel boilers to provide different types of individual heating systems with an alternative energy source. Before starting mass production of LQB fuel pellets, it is necessary to clarify the properties of the raw materials. Any fuel study shall be divided into two phases: determination of the parameters of the fuel or raw material (calorific values, moisture content, and ash content) and analysis of the combustion process. The combustion process can be studied in two ways: experimentally and by mathematical modelling. Knowing the parameters that would need to be clarified during the study of the LQB fuel pellets combustion process (thermodynamics, gaseous emissions, PM emissions, bottom ash, and slag), the authors have set the goal of clarifying the software applied to mathematical modelling of these parameters. A bibliometric analysis method was chosen to identify the software. The bibliometric analysis was carried out in the *Scopus* database. As a result, two software were identified: *ANSYS Fluent* software is suitable for modelling thermodynamic processes and gaseous emission streams. At the same time, *XDEM* software is ideal for modelling particle streams and ash/slag generation. This software will be used in future studies.

Keywords – Bibliometric analysis; biomass pellets; combustion process; modelling; software



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