

Master Thesis Brief Description

Thesis Title	Experimental study on the optimisation of the combustion process in a small scale pellet boiler
Programme of Studies	MSc in Energy Systems and the Built Environment
Course	MES 580 Master Thesis
Area of Study	Sustainable Energy Technologies – Biofuels Assessment
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Supervisory Committee	Dr. Christos Anastasiou, Ass. Professor, Civil Engineering Department Dr. Charalampos Chasos, Lecturer, Mechanical Engineering Department
Semester	Spring Semester 2016
Short Description	The main objective of this work was the analysis of the combustion emissions produced by a domestic pellets boiler, using pellets delivered by olive crude cake, by testing and examining the conformance of the tested boiler to the European standard EN 303-5: 2012. Based on the performed tests the experimental results demonstrated that the measurement of gaseous emissions, including oxygen (O ₂), carbon dioxide (CO ₂) and carbon monoxide (CO) were not within the acceptable emission limits of the aforementioned standard, although the biofuel per se satisfied the requirements of the 17225 standards series. More to the point, the experiments revealed that the air excess present during the test can be attributed as the possible condition that influenced and raised the emission levels.