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Waste to fuel home energy recovery unit

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The paper describes the newly developed home energy recovery unit (HERU) that transform municipal waste to fuel that can be used to heat homes. The concept's goal of HERU is to convert hazardous substances of municipal waste to inert components (biomass) that can be further used in various industries. The pyrolysis principles, the state-of-the-art thermal treatments of waste management, the types of treated waste and the properties of the post-pyrolysis products are reviewed in the paper. Moreover, the paper includes the experimental findings of an innovative pyrolysis reactor design, with regards to its performance, in terms of the temperature distribution inside the reaction chamber and the power consumption of the chamber, as well as the thermo-chemical characterization of the bio-chars and pyro-oils obtained from the process.

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