

Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2020-47
Project Title:	Liquefaction of organic construction waste
Principal Investigator:	Dr Lui Yuk Yu Matthew, Department of Chemistry, Hong Kong Baptist University
Total Approved Grant:	\$478,100
Duration:	2/1/2022 to 1/4/2023
Project Status/Remarks:	Completed
Project Scope:	Hydrothermal liquefaction (HTL) is an emerging technology for the conversion of biomass and plastic waste into renewable fuels and chemicals. The objective of this project is to study the valorisation of mixtures of organic construction waste, such as wood waste, plastic waste and paper waste, by HTL. Successful implementation of this project could launch a process that not only reduces the accumulation of construction waste in Hong Kong, but also the dependence on fossil fuel resources.
Summary of the Findings/Outcomes:	The majority of construction waste found in landfills belongs to the non-inert category, primarily composed of organic substances like wood and rubber. However, the recycling of this type of organic waste is currently insufficient. In this project, we utilized hydrothermal liquefaction, an emerging technology that aims to transform the organic components of construction waste into valuable chemicals. Notably, the hydrothermal liquefaction of timber, the main constituent of non-inert construction waste, yielded good results in terms of both quantity and quality of the products obtained. Moreover, the liquefaction of rubber yielded intriguing findings, as it demonstrated the ability to generate essential commodity chemicals, including benzoic acid.