# 2020 Project - <u>Understanding Carbon Fibre Pre-Treatment Processes</u>

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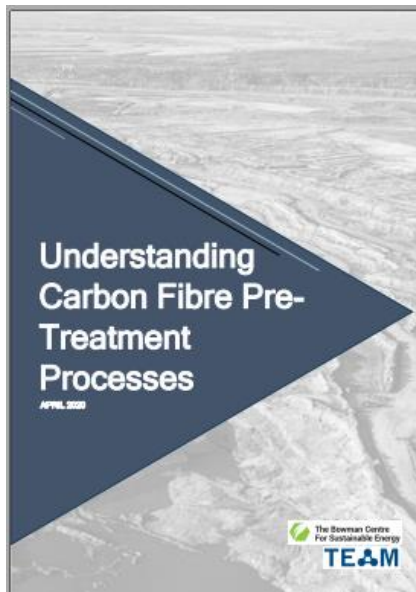
Abstract: This project focused on identifying how best to process pitch derived from Alberta oil sands bitumen into a precursor to manufacture carbon fibre and targeting high volume markets. Scope included designing a lab research program to test the concepts to be studied. Specifically, increase mesophase content in pitch.

Mesophase content is key to tensile mechanical properties required during processing and for final application. For example, minimum filament strength exiting the spinneret required to survive the processing steps to produce carbon fibres. Different grades may need varying mesophase content, so a survey of some typical end-use market applications was included.

The project focused on changes in chemistry of the feedstock and intermediate products as the feedstock is converted from pitch to a carbon fibre precursor. Avoiding petroleum coke formation during the pre-treatment process is a key challenge. Engineering process steps involved including energy and material inputs along with process economics were investigated. Consideration was given to mechanical equipment design, material selection and installed capital equipment costs as these factors are key to understanding the competitive positioning of a pitch derived precursor with conventional carbon fibre feedstocks.

To discuss this project or obtain a copy of the final report (a fee is required) please contact contact@bowmancentre.com