Project Summary

Goal

The goal of this project is to determine feasibility of using Dyneema® (a high performance synthetic fibre) production residuals in products. At this time residuals are incinerated or landfilled which is a waste of the inherent energy (invested into the creation) of the material. This project is a first step in determining feasibility of material life in a circular economy and the potential value products has guided the direction of this project.

Methods

This project follows two main frameworks that have guided the design process. Firstly, the principles of circular product design guide the development of materials and products to a successful implementation into a circular economy. Secondly, there is the Material Driven Design method (Karana et al., 2015) (below) guided the material exploration and experience-driven application.

This project evaluates the use of this method in circular product design.

Outcomes

The material landscape provides a plethora of (re-)processing possibilities. A selection was explored in order to determine feasibility of implementation within current technological and economic bounds. This offered insights into the readiness of these producers to work in collaboration with DSM Dyneema in a circular value chain.

Compression molded fibres were applied a suitcase where the aesthetics and properties of the new materials aligned will with the material experience vision and circular demands.