

Clothes-minded, not closed-minded

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Introduction

It is no secret that there are predominant issues surrounding fast fashion.

There is currently a large amount of pressure on fashion companies to become more sustainable, however it is very difficult to veer from the deep-rooted basis of which they have built their businesses upon; competing to quickly and cheaply produce clothes in order to keep up to date with the trends.

This however, has led to an attitude of disposability when it comes to clothes, drastically increasing the amount of textile waste that is created.

Research objective:

To investigate all cellulose composites as possible green composite materials to combat the textile waste produced at the hands of fast fashion.

Methology

Understand the process of creating an ACC.

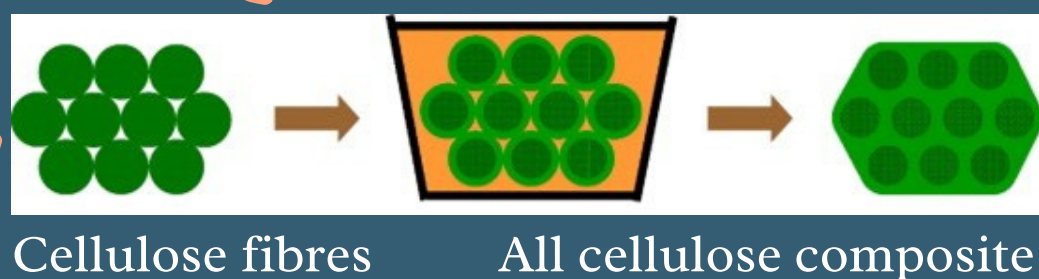
Highlight the properties of this ACC material, and identify possible uses for it.

Financially break down the possibility of scaling up and product pricing, in order to determine industrial viability.

Due to it's high tensile strength, and similarity to plastic, the focus of this project revolved around the replication of plastic products, including strawberry containers, as well as clothing hangers, in order to keep circularity within the fashion industry.

Scientific Background

Partial dissolution



Process of creating an ACC

(Soykeabkaew, 2008)

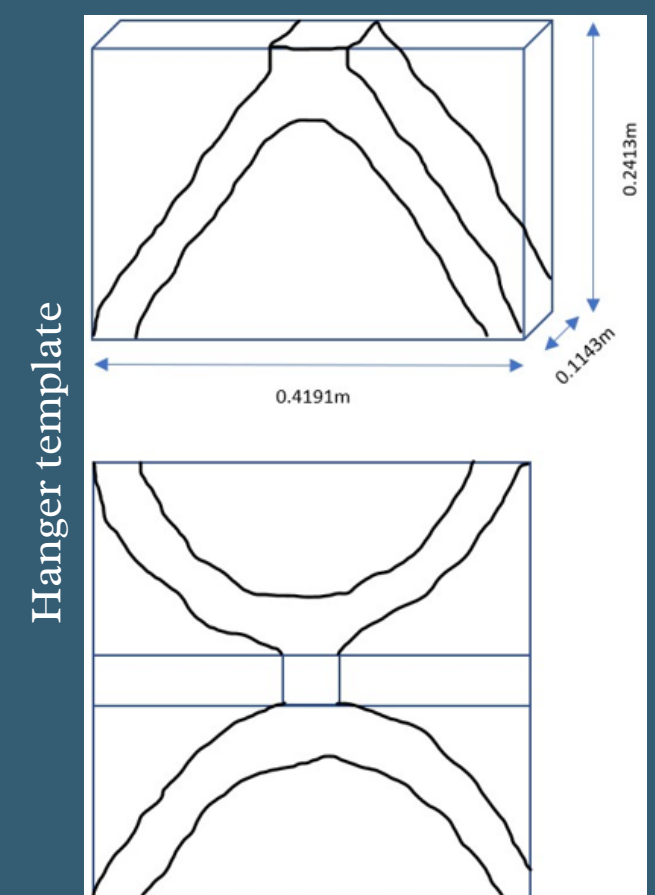
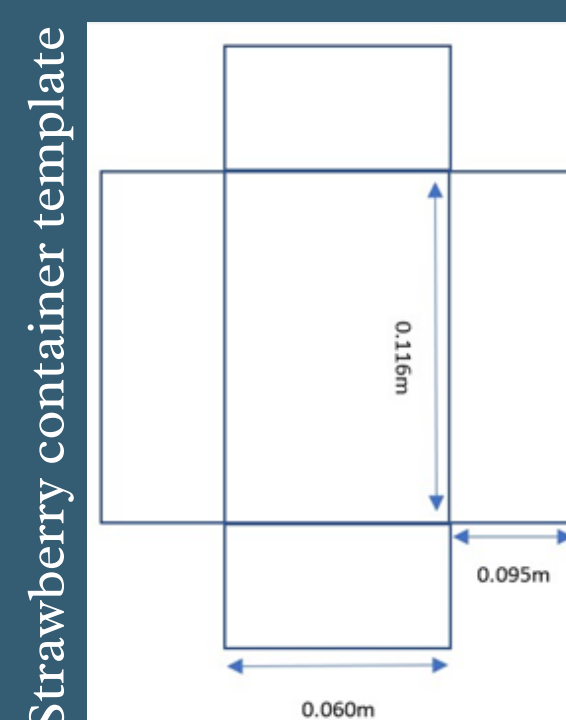
- 1 Cellulose has been found to be the most abundant organic polymer on the earth.
- 2 Many textiles are formed using cellulosic materials: cotton, viscose, hemp, flax.
- 3 The cellulose fibres taken from the discarded clothes are partially dissolved using ionic liquid.
- 4 The ionic liquid is then removed, and a matrix is formed on regeneration.

Creating an All-Cellulose-Composite

Next steps...

The next step involves going into the labs to create a sample product, this will allow a fundamental idea to become one step closer to becoming a sustainable, biodegradable, viable alternative to plastic, formed from textile

waste.



Approximate measurements of:
- 116mm x 95mm x 60 mm for the strawberry container
- 16.5" x 4.5" x 9.5" for the hanger
Assuming ionic liquid can be recycled 20x.

Ranging from 2 layered ACC's to 5 layered ACC's:
strawberry containers can be produced between £0.02-£0.24 each, while hangers can be produced between £0.07-£0.78 each.