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**Final Assignment: Part one**

# “One’s Trash is another’s Treasure”

Fashion is said to be the second most polluting industry after the oil industry, it is also called the second most water usage industry after the agriculture industry. This fact pretty much simplifies what measures have to be taken to conserve our valuable resources and ecosystems. As a textile student, I focus on the concept of sustainability to an extent that I always incorporate material in my work which is recycled. The world is currently facing the Covid-19 pandemic, which has encouraged all the artists, designers and local people to think of alternative ways to keep art, design and life going, but in a healthy or more organic way. Being a thesis student, I have used the material **‘Cork’** in my fabrication to portray certain aspects, which turned out quite well. Cork is extracted from the Cork Oak trees, which are mainly harvested in Portugal, landscape of Portugal produces approximately half of cork harvested annually worldwide. It is this fact that makes cork a fantastic renewable resource and CO2 sink, because the trees are never cut down. Cork is extracted from the cork oak trees without harming the tree or being detrimental to its normal development, it is the very outer layer of it which can be wasted but if used wisely can act as a great substitute to many environmental damaging materials like animal leather. The process of extracting the cork out of the tree is called ‘uncorking’, which means removing the outer layer, after the extraction has taken place the oak tree simply develops a new layer with the same thickness and properties. This process of uncorking is repeated every nine years. Nowadays more mechanized way of uncorking is introduced, to ensure the safety of trees, labor and discourage injuries.



Cork is a plant tissue, a unit of microcells which is surrounded by gas that is typical air from the surroundings when trees conduct photosynthesis, and covered mostly by suberin and lignin. Suberin is a natural, highly hydrophobic wax, while lignin is responsible for imparting rigidity, impermeability and resistance to it. As said nature has the best solutions, to this day there is no such man-made material made in the laboratory which has such diverse properties. The bark is extracted mainly in summer, that's when the outer layer of trees generally expands and its easier to be removed by the specialists, which cut it in large boards maintaining the curvature of the trees.



# Process

The unprocessed barks are left in the sun for up to a year allowing to mature and stiffen for them to be ready to make products. Cork which is removed from the higher branches is not suitable for cork production, so this cork bark is used to make expanded cork, where the resin acts as a vital part of the process. The process starts of by boiling of the cork in order to flat, soften, sterilize and make its boards for further production. After this step, the boards are sorted according to their qualities, where the high-quality boards are left to for stopper production and the rest is passed through a crusher to make granulated cork that can be used for decorative cork products. The high-quality cork boards are cut into strips, with cork stopper thickness and natural wine corks being punched out of the strip. The cut-offs are than passed on the process being crushed and to make cork granules.



The cork granules are then sorted from size, generally from 0.2mm up to 12mm and also by density, the outside edge of the bark is brittle and woody that is with high density whilst the edge of the bark that is nearer the tree is much softer and elastic that is low density. This means that the low-density cork granules are much more valuable there will be a range of densities available that have different end uses, from 60 kg/m<sup>3</sup> right up to 250 kg/m<sup>3</sup>. These granules are then processed to make agglomerated cork products.

# CORKLINK

## Cork Production Process



BARK IS REMOVED FROM CORK OAK TREE



EXPANDED CORK



CORK BOARDS ARE SEASONED



STRIPS ARE PUNCHED OUT TO MAKE NATURAL CORK STOPPERS



CORK IS PROCESSED TO PRODUCE RECTANGULAR BOARDS + STRIPS



NATURAL CORK STOPPERS

+



Offcuts



OFFCUTS ARE MIXED WITH LOW QUALITY CORK BOARDS AND GRANULATED



AGGLOMERATED CORK PRODUCTS ARE PRODUCED



CORK GRANULES ARE SORTED BY SIZE & DENSITY

# Uses

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- Talking about cork material being used as a substitute for animal leather.
- As a textile, it stands out thanks to its high-durability and a unique look.
- Due to its features such as being scratch-resistant, stain resistant, and easy to maintain makes it an excellent material.
- The cork oak tree which is required to make fashion products other than wine stoppers must be 25 years old, the first harvest is not usable.
- The second one, done after 9 years, can be then used for the fashion purposes.

# Cork yarn

**Cork yarn** is also being used to weave beautiful crafty products, where cork is used as a substrate with cotton to make yarns which have natural, comfortable and warm feeling, hypoallergenic with high friction resistance and good resilience.



# Qualities of cork

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- **Lightness:** Cork is a compact structure with almost 36 million cells per cm<sup>3</sup>, filled with nitrogen and oxygen, which make up for, 89% of its volume. In cork 90% of the cell volume remains empty, that's why it floats.
- **Elasticity:** Thanks to the flexibility of the membranes , the cells in cork function as microscopic air cushions that regain their original shape once they have been compressed. This is elastic return feature of cork.
- **Impermeability:** Corks impermeability is mostly due to a high percentage of fatty substances, like suberin or cerin , present in cork membranes.
- **Isolation:** Suberin gives cork impermeable properties that allow the cells to fill with air and assume a very strong insulating and protective power.
- **Durability:** Cork is a very durable material with an exceptional capacity for the conservation and maintenance of its initial properties. It can therefore be, a non-alterable, or non-perishable material.



**NEW**



**1 YEAR OLD**

# Color range in cork

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# Textile Innovation

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**Cork-A-Tex**, is funded by the European Union, is an agriculture-textile company specializing in cork and award winners of the 2019 Tec textile Innovation Award. Cork finishes on fabrics are just the surface of their tech. Cork-A-Tex creates a yarn, which is a signature for the textile manufacturer, composed of cotton fibers, sustainable textile materials, and cork waste.



<https://www.cork-a-tex.com/products-technical-information/>



# Famous brands making products with cork

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## ➤ Jimmy Chou

2017 Spring-Summer collection of this powerhouse features plenty of pairs of shoes made partly from cork. Combination of white leather and light cork.



➤ **Calvin Klein**

If Calvin Klein dares to make cork leather tote, you know it must be good. Out of all high-end designers, Calvin Klein made the biggest use of cork leather. He made totes, clutches, shoulder bags and many other products from this material.



➤ **Christian Louboutin –**

Once you see the famous red sole, you know the shoes are special.

That's why the French designer did a big favor to the cork leather community when he designed heels with the fabric.



➤ **Tory Burch** –

It seems like the American designer likes to use elephants in her collections. Combining those majestic animals with cork leather gives a great clutch that makes a statement.



# Assignment Part-2

Any type of wood,  
which is no longer in use.



Discarded vehicle  
number plate

Old keys folded to  
make hoops, to hang keys

# References

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## Theory Reference links:

<https://goblackwood.co.uk/cork-leather/>

<https://www.corkor.com/blogs/corkor/what-is-cork>

<https://www.corklink.com/index.php/how-cork-products-are-made-from-tree-bark-to-stopper/>

<https://www.forbes.com/sites/cassellferere/2020/10/15/cork-made-in-portugal-why-the-world-needs-a-new-textile-material/?sh=1d3dcf1760c8>

<https://www.cork-a-tex.com/>

## Cork Process Video Links

<https://www.youtube.com/watch?v=iRGVt6ujZgc>

[https://www.youtube.com/watch?v=R-YWAcmGj\\_s](https://www.youtube.com/watch?v=R-YWAcmGj_s)

## Cork Brand Research link:

<https://www.youtube.com/watch?v=xXVoPcrxNVw>

<https://queork.com/>

[https://www.corkfashion.com/corkfashion\\_en/](https://www.corkfashion.com/corkfashion_en/)