

Designing a pair of sunglasses made from hemp

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Triple E International B.V. is a company that makes lightweight furniture. This furniture is mainly being used in hotels, offices and conference rooms. The three E's, referred to in the name of the company, stand for Ergonomics, Economics and Ecology. These three aspects are visible in any product the company sells. The ecological aspect is most obvious due to the raw materials the company uses. The most important product for the company, the lightweight table, is made of hemp fibres.

The company has been making many innovations lately and is always looking for new products and potential markets. This is how the initial idea for sunglasses was established. The goal of this assignment is to design a pair of sunglasses made from the same raw material as the tables, namely hemp fibres. This project researches the possibilities regarding a relatively small, complex product made from this material.

First, the material and its history were researched. The fibre is known for its low weight and can be compared to flax. There are many advantages to this material. All researched aspects had positive outcomes for the environment, agriculture and the properties for the application in products.

Multiple hemp-based materials are researched and tested. A tensile test and a 3-point-flexural-test were conducted. The results from these tests are analysed and combined with properties, other than the mechanical ones, a clear image about all the materials is created. The choice of the material to use has been made in a later stage of the research. The target audience was defined first in the market research. This target audience has been specified as good as possible using multiple demo- and psychographics. Based on this target audience a research was conducted about the trends and aesthetics for the product and the conscious lifestyle.

Every possible part of the product is analysed and described with the advantages and disadvantages regarding quality, production and aesthetics. Multiple inspiring and competing products are reviewed to create a clear image of the market. At the end of this research the unique selling points for this product are drafted. These unique selling points will be the guideline through the upcoming design process.

The production process at the company and the facilities are analysed. This information excludes certain production processes. With this knowledge the right decisions regarding the choice of parts, material and production process can be made.

The sizes of the sunglasses are determined using the boxing system and gathering information from big brands. All the previous research is combined into a design brief. Some of the demands and wishes described in this design brief cannot be quantified. Based on the previous research, the design of the product is established and made into a concept model. During the production of this model, the manufacturability is tested. The result of this project will be presented by photos with description.

Finally, recommendations are made to make a potential future product and market placement successful. Some of these recommendations include a further research on previously discussed topics. Every chapter and the demands and wishes, are discussed during the recommendations chapter.