



The Be.e

Bio-Based
Electric Scooter
by Van.Eko

Vaniek Colenbrander

The Be.e e-scooter



Compelling Design



Designed in Amsterdam
Unique natural material innovation
Biobased Monocoque technology

Quality & Reliability



Assembled and manufactured in Amsterdam
Comfortable & robust driving experience
High quality components

Zero Compromises

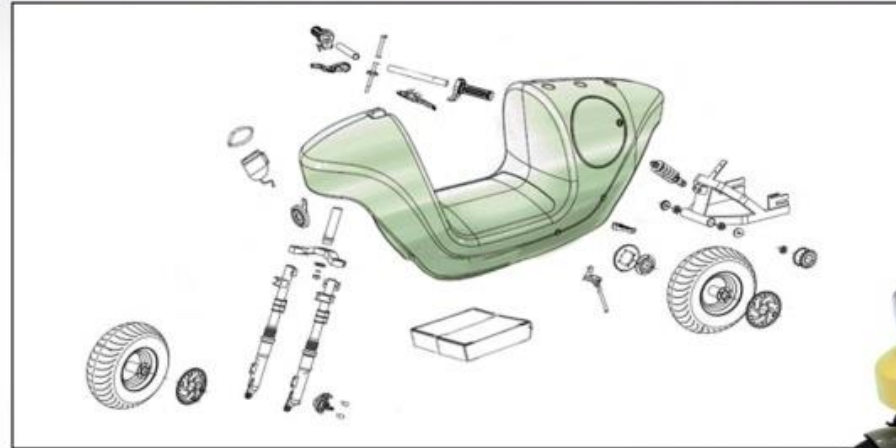


Frame entirely out of Hemp Fibre
0% CO2 and 0% PM Emissions
High Range (80km) & fast Charging (4hr)

Advantages



Conventionele scooter
Frame + Kappen
100+ onderdelen

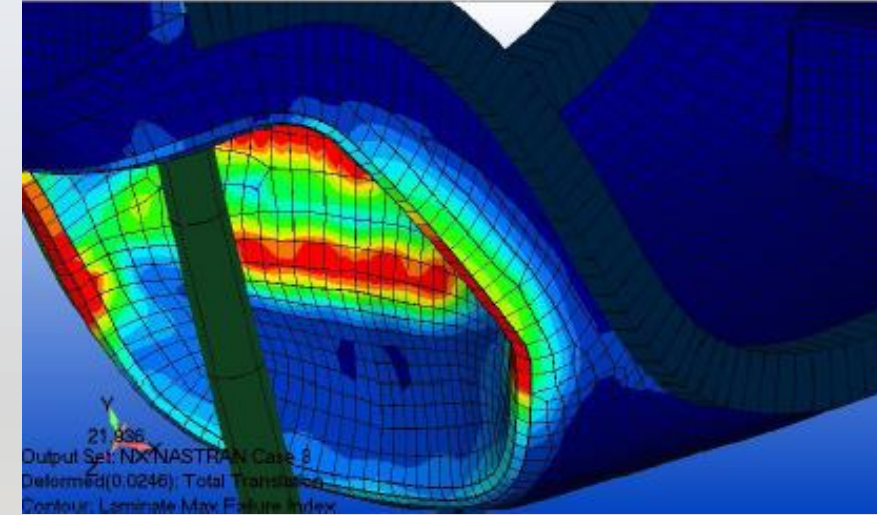
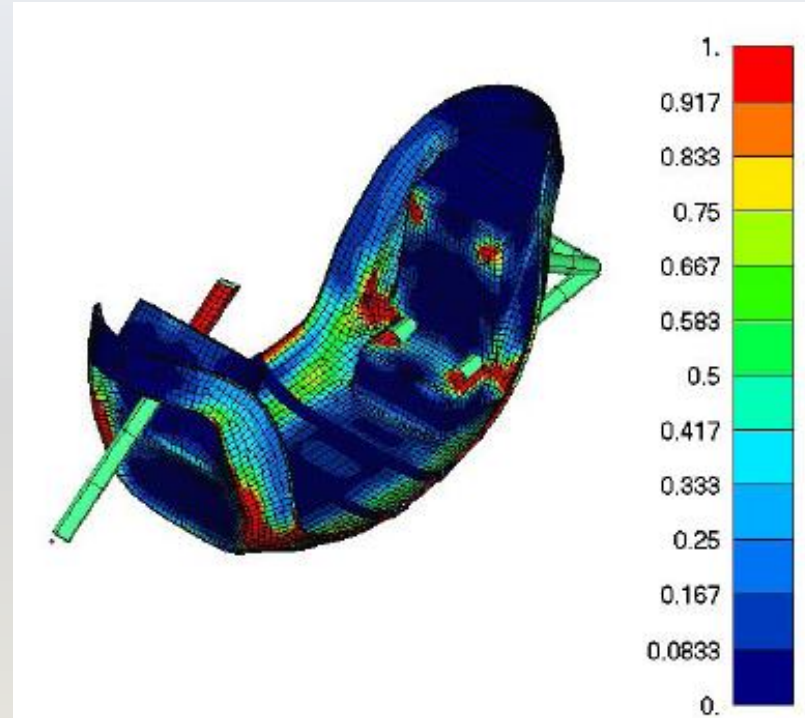


Bio-based scooter
Monococue
1 onderdeel



- Ⓜ Low part count
- Ⓜ Low tooling investment
- Ⓜ Super Robust + Strong
- Ⓜ Long life, low degradation
- Ⓜ Light Weight vs. High stiffness

R&D



Requirement 3: The frame of the scooter must be able to withstand the impact forces caused by the collision against a wall at 10 km/h with a person loaded on the scooter.

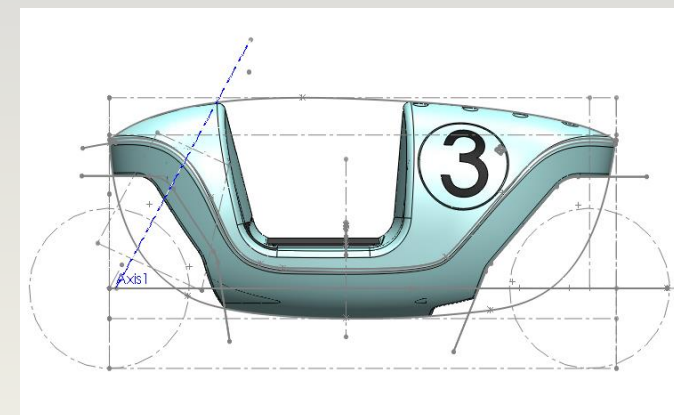
Material Sample testing

- ⌚ Define Compound properties
- ⌚ Strength & stiffness testing
- ⌚ Durability & fatigue testing

CAD modelling and simulation

- ⌚ Define load cases
- ⌚ FEM analysis of material behaviour
- ⌚ Design optimisation and material selection.

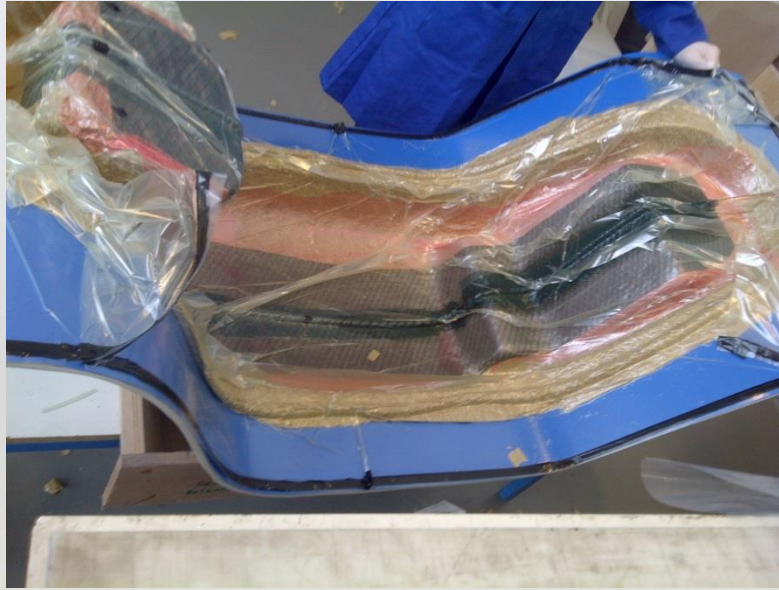
Concept Development



Final Design



Production



- Ⓢ Fibre Lay-up
- Ⓢ Vacuum bagging and mold preparation.
- Ⓢ Resin infusion by vacuum injection.





Live Today, Care about Tomorrow

de
zeen



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Silence | Power | Style

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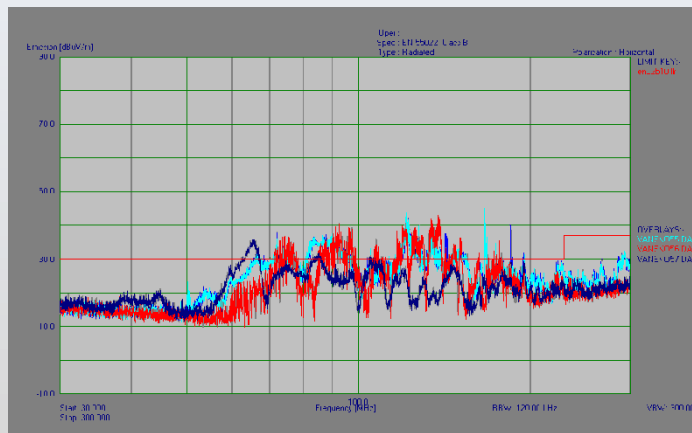


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Winning is also...



Sustainability and Bioplastics

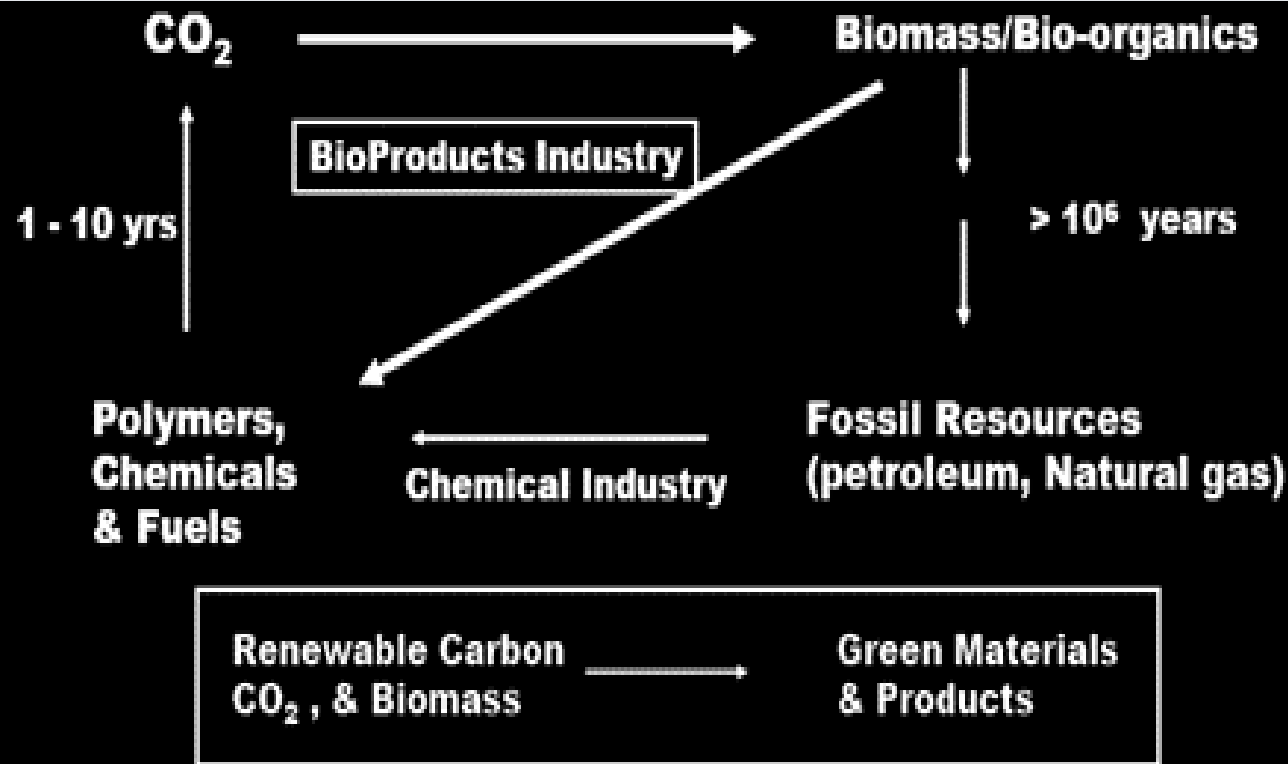


Figure 1. Global carbon cycle – sustainability driver



- ☉ Hemp is a Renewable resource powered by the sun.
- ☉ Hemp acts as a Carbon sink
- ☉ Hemp has a fast growth rate.
- ☉ Hemp fibres are the strongest fibre (by weight)



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