Executive Summary

Life Cycle Assessment of Navicork

Costumer:

Amorim Cork Composites, S.A.

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EXECUTIVE SUMMARY

(RCT137/24)

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Product Description

Navicork FD01 is a cork composite solution developed for deck coverings in marine vessels, made from high and medium density cork with a binder, produced by Amorim Cork Composites.

Figure 1: Navicork FD01 illustration.

Table 1: Technical product information.

	Navicork 6 mm	Navicork 8 mm	Observations
Dimensions (m x m)	3 x 0,9	3 x 0,9	
Thickness (mm)	6	8	
Weight (kg/m²)	3	4	
Specific Weight (kg/m³)	500	500	as per ISO 7322
Compressibility @ 0.7MPa (%)	<20	<20	as per ISO 7322
Thermal Conductivity (W/mK)	0,0079	0,0079	as per ISO 8302

Goals

The goals of this study were the following:

- To quantify the environmental impacts of Navicork [6 mm and 8 mm] (according to the requirements of the standards EN ISO 14040, EN ISO 14044 and EN 15804);
  To identify the inventory elements and process stages with the greatest contribution to the different impact categories.

Declared Unit

The declared unit adopted to develop this study was 1 m^2 of Navicork [6 mm and 8 mm] (packaging included).
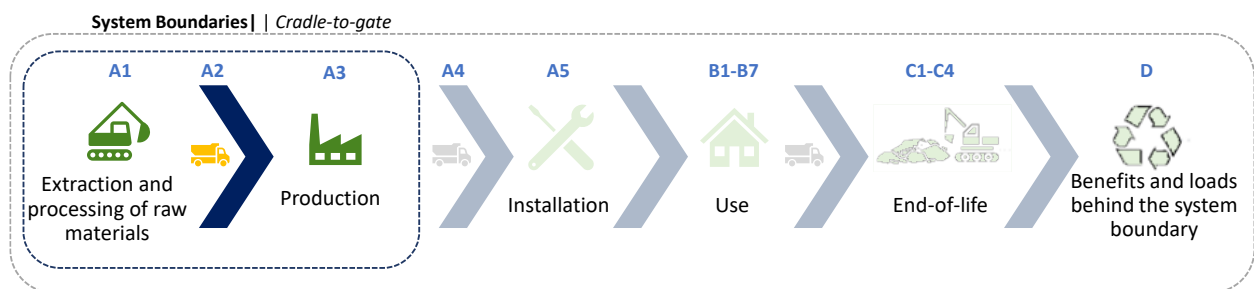
System Boundaries

Figure 2: Life-cycle model (cradle-to-gate) of Navicork [6 mm and 8 mm].

Life Cycle Impact Assessment Methods (LCIA)

The environmental impact assessment was carried out using the EN 15804:2012+A2:2019/AC:2021 reference package based on EF 3.1 (considering core environmental impact indicators).

Main Results

- **Navicork Environmental Impacts**

Table 2: Environmental impacts for Navicork product stage.

	Product Stage [A1-A3]	
	1 m^2 Navicork 6 mm	1 m^2 Navicork 8 mm
GWP|T (kg CO_2 eq.)	-9,69E-01	-6,88E-01
GWP|F (kg CO_2 eq.)	3,86E+00	5,75E+00
GWP|B (kg CO_2 eq.)	-4,84E+00	-6,45E+00
GWP|L (kg CO_2 eq.)	1,27E-02	1,69E-02

	Product Stage [A1-A3]	
	1 m² Navicork 6 mm	1 m² Navicork 8 mm
ODP (kg CFC-11 eq.)	1,50E-07	2,13E-07
AP (mol H+ eq.)	2,15E-02	3,08E-02
EP|Fw (kg P eq.)	8,76E-04	1,17E-03
EP|M (kg N eq.)	1,95E-02	2,70E-02
EP|T (mol N eq.)	6,27E-02	9,37E-02
POCP (kg NMVOC eq.)	5,90E-02	8,21E-02
ADP|MM (kg Sb eq.)	1,13E-05	1,50E-05
ADP|F (MJ)	7,22E+01	1,04E+02
WDP (m³ world eq. deprived)	2,77E+00	3,69E+00

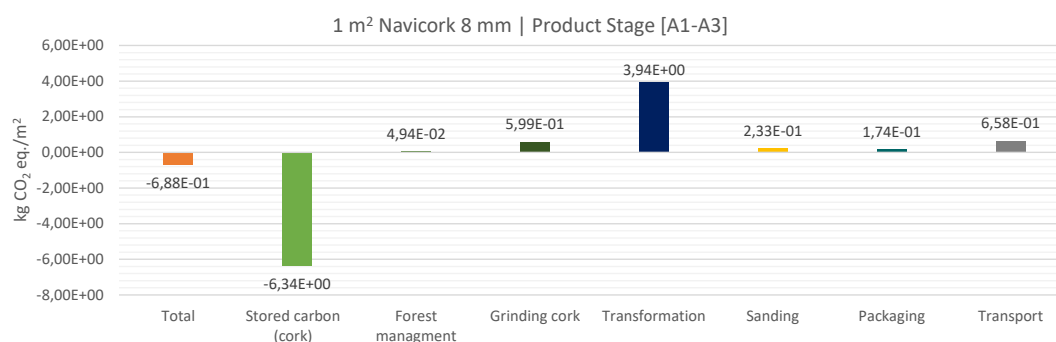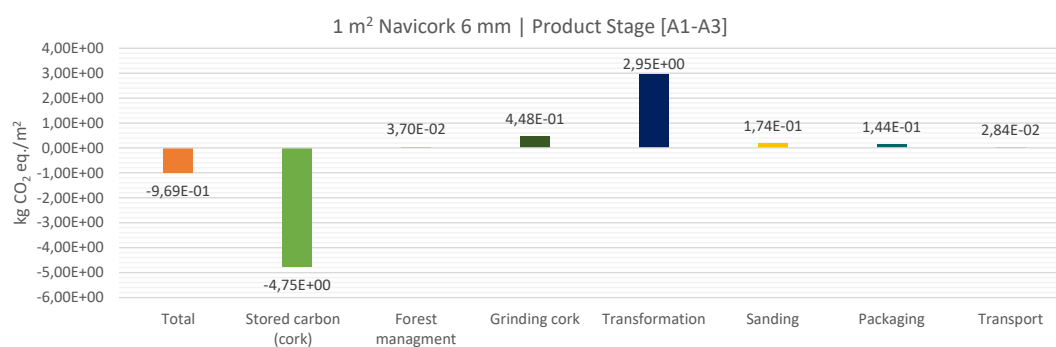- ## Partial Carbon Footprint – per Process Stage

Figure 3: Partial Carbon footprint for Navicork (6 mm and 8 mm) product stage – per process stage.

Conclusions

The main conclusions of this study are:

- Partial Carbon Footprint for the product stage of Navicork (6 mm and 8 mm) is -0,97 kg CO_2 eq./m^2 for Navicork 6 mm and -0,69 kg CO_2 eq./m^2 for Navicork 8 mm (considering carbon stored);

- Cork used in the production of Top Layer NRT94 contributes with a negative impact (benefit) to partial carbon footprint -4,75 kg CO_2 eq./m^2 for Navicork 6 mm and -6,34 kg CO_2 eq./m^2 for Navicork 8 mm), due to the storage of carbon throughout its life cycle, until its final disposal;

- Inventory element that most contributes to the partial carbon footprint (GWP100 | total) of Navicork (6 mm and 8 mm) are binder, cork granulates, electricity, waste and emissions;

- Process stage that most contributes to the partial carbon footprint (GWP100 | total) of Navicork (6 mm and 8 mm) is the Transformation process (Component mixing process, Agglomeration, Pressing).

Coimbra, 22 July 2024,

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