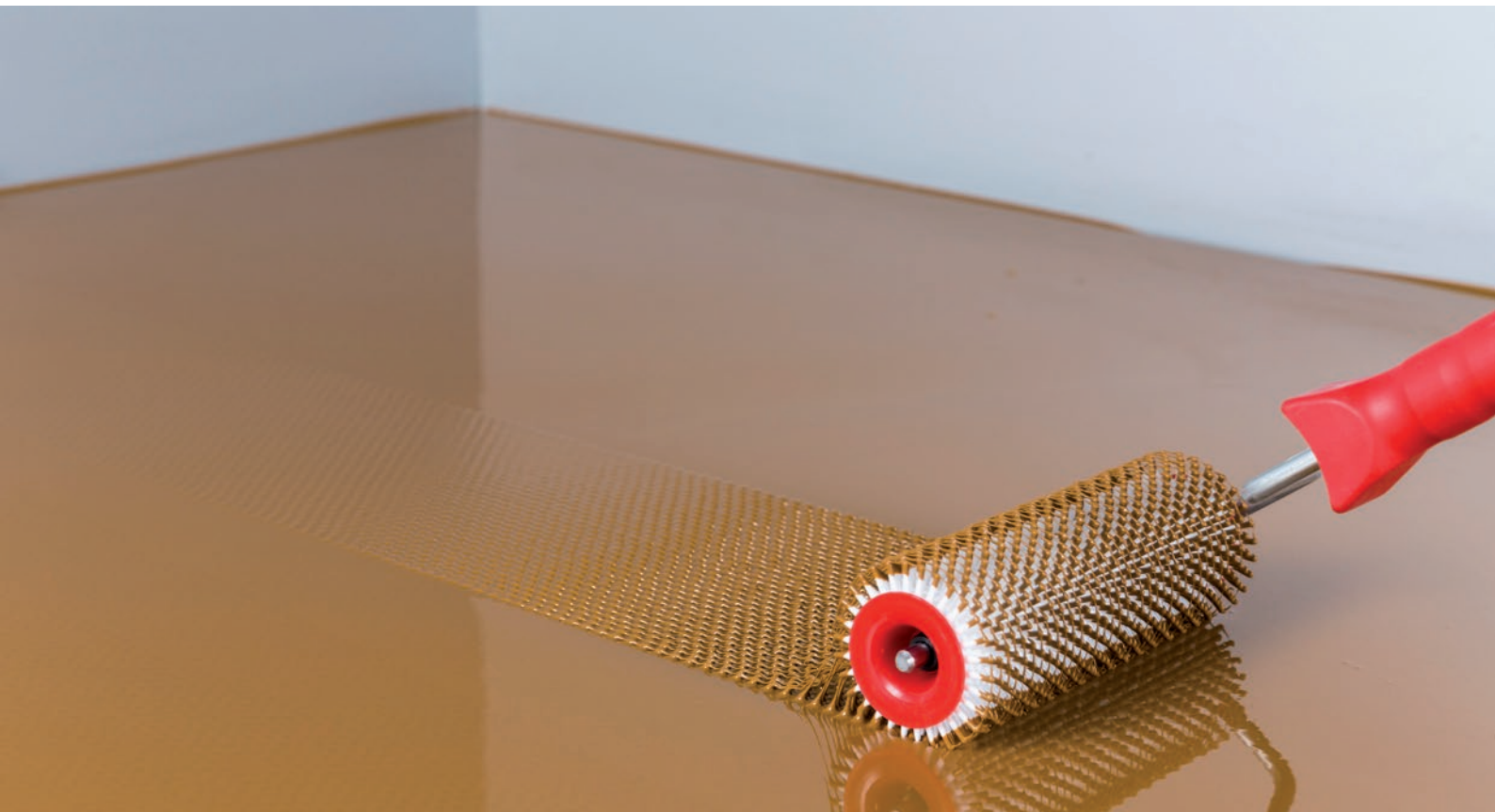


ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 for

Mapedek Teak Design System



Programme:
**The International
EPD[®] System;**
www.environdec.com

Programme
operator:
EPD International AB

EPD registration
number:
S-P-01381

Publication
date:
2019-06-10

Valid until:
2024-06-09

Geographical
scope:
International





1. COMPANY DESCRIPTION / GOAL & SCOPE

Founded in 1937 in Milan, Italy, Mapei produces adhesives and complementary products for laying all types of floor, wall and coating materials, and also specializes in other chemical products used in the building industry, such as waterproofing products, specialty mortars, admixtures for concrete, products for underground constructions and for the restoration of concrete and historical buildings.

There are currently 85 subsidiaries in the Mapei Group, with a total of 80 production facilities located around the world in 35 different countries and in 5 different continents. Mapei also has 31 central laboratories. Most locations are ISO 9001 and ISO 14001 or EMAS-certified.

Mapei's strategy of internationalization is based on two main objectives: being closer to local needs and lowering transportation costs. With the declared objective of being close to buyers and clients, Mapei's presence in the five continents enables the company to comply with the requirements of each location, and to use only locally-based managers and qualified personnel, without changing the approach of Mapei.

Mapei invests 12% in its company's total work-force and 5% of its turnover in Research & Development; in particular, 70% of its R&D efforts are directed to develop eco-sustainable and environmentally friendly products, which give important contribution to all major green rating systems for eco-sustainable buildings such as LEED and BREEAM.

Furthermore, Mapei has developed a sales and technical service network with offices all over the world and offers an efficient Technical Assistance Service that is valued by architects, engineers, contractors and owners.

The goal of the study is to provide necessary data and documentation to produce an EPD according to the requirements of PCR Environdec (version 2.2, 2017-05-30) under EN 15804:2014 and to have more comprehension about the environmental impacts related to the components included in **Mapedek Teak Design System** manufactured in Mapei S.p.A. located in Robbiano di Mediglia (Italy), including packaging of the finished products.

Target audiences of the study are customers and other parties with an interest in the environmental impacts of the **Mapedek Teak Design System**.

This analysis shall not support comparative assertions intended to be disclosed to the public.

2. PRODUCT DESCRIPTION

The products included in Mapedek Teak Design System are the following:

Mapedek Primer 200 is a two-component, adhesion promoter for polyurethane systems. It's packaged in 5,5 kg canister (A+B).

Mapedek Litescreed is a two-component, self-levelling, lightweight, self-extinguishing polyurethane base layer for levelling off internal and external bridge decks. It's packaged in 20 kg cans (A+B).

Marine Filler 20 is an expanded cellular filler and is added to Mapedek Litescreed to form lightweight levelling layers on internal and external decks. It's packaged in 50 litres bags and 1000 litres bigbags.

Mapedek Teak Design is a two-component, self-levelling resin coating to form seamless teak effect finishes on internal and external decks on ships. It's packaged in 20 kg cans (A+B).

Mapedek Finish 111 TSR is a two-component, aliphatic, matt polyurethane finishing product in water dispersion; available in transparent or various colours and with a smooth or anti-skid finish. It's packaged in 6 kg cans and can be used in alternative to **Mapedek Wax**.

Mapedek Wax is a one-component, transparent aliphatic polyurethane finish in water dispersion. It's resistant to UV rays and yellowing. It's packaged in 5 kg cans and can be used in alternative to **Mapedek Finish 111 TSR**.

Mapedek Litescreed, **Mapedek Teak Design**, **Mapedek Finish 111 TSR** are suitable for marine equipment in compliance with the Marine Equipment Directive (MED) 96/98/EC and subsequent amendments.



Mapedek Teak Design System



3. CONTENT DECLARATION

The following table shows the composition of the system studied:

Table 1: Mapedeck Design System

Component	Consumption (kg/m ²)
Mapedeck Primer 200	0,1
Mapedeck Litescreed	4,9 (7 mm thickness)
Marine Filler 20	5,25 (7 mm thickness)
Mapedeck Teak Design	6,75 (5 mm thickness)
Mapedeck Finish 111 TSR	0,1
Mapedeck Wax*	0,04
Mapedeck Teak Design System (TOT)	17,10/17,04**

*Can be used **instead of** Mapedeck Finish 111 TSR

**According to the finish used (i.e. 17,04 kg/m² with the use of Mapedeck Wax)

For further information consult the TDS (Technical Data Sheet).

The products contain neither carcinogenic substances nor substances of very high concern (SVHC) on the REACH Candidate List published by the European Chemicals Agency, in a concentration higher than 0,1 % (by unit weight).

4. DECLARED UNIT AND REFERENCE SERVICE LIFE

The declared unit is 1 kg of product, packaging included.

Packaging materials include:

- PP (Polypropylene)
- PE (Polyethylene)
- Metal
- Carboard
- LDPE (Low Density Polyethylene)
- Wood

According to the system boundary applied, the RSL is not specified in this study.

5. SYSTEM BOUNDARIES AND ADDITIONAL TECHNICAL INFORMATION

The approach is “cradle to gate”.

The following modules have been considered:

- A1, A2, A3 (Product stage): extraction and transport of raw materials and packaging, production process.

Table 2: System boundaries

System Boundaries														
A1 – A3			A4 – A5		B1 – B7					C1 – C4				D
PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE					END OF LIFE STAGE				
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	
Raw Material Supply	Transport	Manufacturing	Transport	Installation Process	Use	Maintenance	Repair	Replacement	Refurbishment	Deconstruction/ Demolition	Transport	Waste Processing	Disposal	
					B6	Operational Energy Use								
					B7	Operational Water Use								
					Reuse-Recovery-Recycling-potential									

included

excluded

 included  excluded

A brief description of production process is the following:

The production process starts from raw materials, that are purchased from external and intercompany suppliers and stored in the plant. Bulk raw materials are stored in specific silos and added automatically in the production mixer, according to the formula of the product. Other raw materials, supplied in bags or big bags, are stored in their warehouse and added automatically or manually in the mixer. During the production of the powder, all the components are mechanically mixed in batches. Raw materials of latexes are mixed, properly diluted and packed into drums. The semi-finished products are then packaged, put on wooden pallets, covered by stretched hoods and stored in the Finished Products’ warehouse. The quality of final products is controlled before the sale.



Figure 1: Production process detail

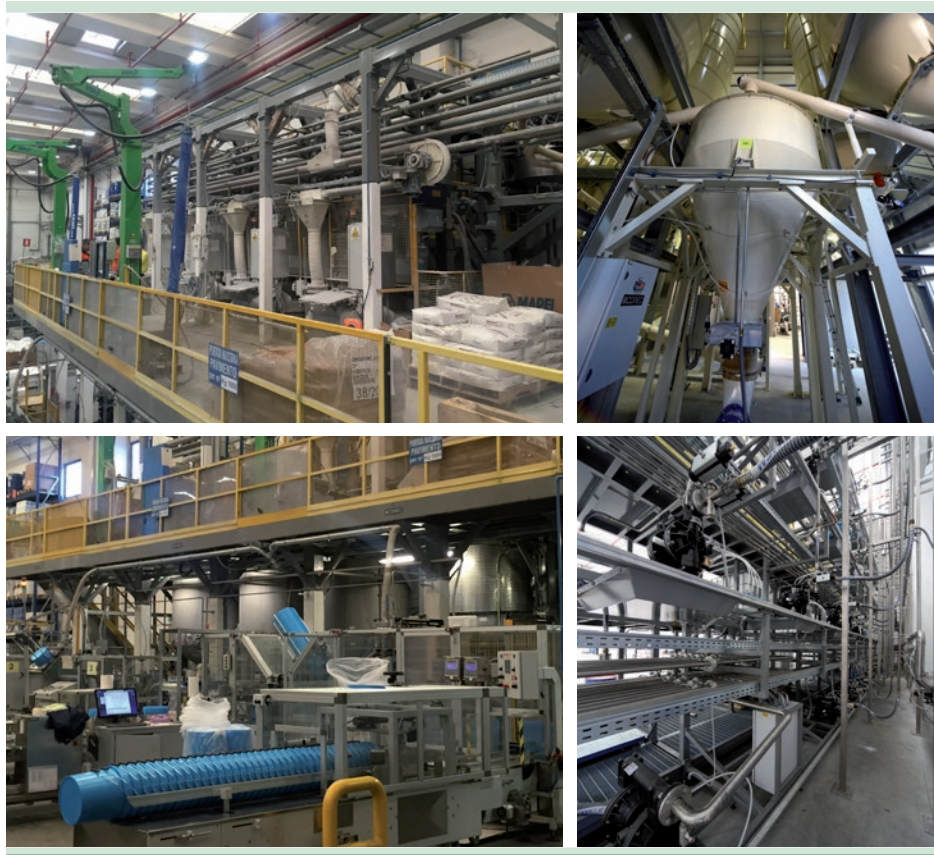


Figure 2: Mediglia Plant



6. CUT-OFF RULES & ALLOCATION

Criteria for the exclusion of inputs and outputs (cut-off rules) in the LCA, information modules and any additional information are intended to support an efficient calculation procedure. They are not applied in order to hide data.

The following procedure is applied for the exclusion of inputs and outputs:

- All inputs and outputs to a unit process, for which data are available, are included in the calculation.
- Cut-off criteria, where applied, are described in Table 3.

Input flows are covered for over 99% of the formulas.

Table 3: Cut-off criteria

Process excluded from the study	Cut-off criteria	Quantified contribution from process
A3: production (auxiliary materials)	Less than 10^{-5} kg/kg of finished product	Sensitivity study demonstrates a relative contribution lower than 0,5%
A3: waste and particle emission	Less than 10^{-5} kg/kg of finished product	Sensitivity study demonstrates a relative contribution lower than 0,5%

For the allocation procedure and principles, consider the following table:

Table 4: Allocation procedure and principles

Module	Allocation Principle
A1	All data are referred to 1 kg of product <ul style="list-style-type: none">• A1: electricity is allocated to the whole plant production
A3	All data are referred to 1 kg of packaged product <ul style="list-style-type: none">• A3-wastes: all data are allocated to the whole plant production



7. ENVIRONMENTAL PERFORMANCE & INTERPRETATION



GWP₁₀₀

Global Warming Potential refers to the emission/presence of GHGs (greenhouse gases) in the atmosphere (mainly CO₂, N₂O, CH₄) which contribute to the increase in the temperature of the planet.



AP

Acidification Potential refers to the emission of specific acidifying substances (i.e. NO_x, SO_x) in the air. These substances decrease the pH of the rainfall with predictable damages to the ecosystem.



EP

Eutrophication Potential refers to the nutrient enrichment of flowing water, which determines unbalance in aquatic ecosystems and causes the death of the aquatic fauna.



ODP

Ozone Depletion Potential refers to the degradation of the stratospheric layer of the ozone involved in blocking the UV component of sunrays. Depletion is due to particularly reactive components that originate from chlorofluorocarbon (CFC) or chlorofluoromethanes (CFM).



POCP

The Photochemical Ozone Creation Potential is the ozone formation in low atmosphere. This is quite common in the cities where a great amount of pollutants (like VOC and NO_x) are emitted every day (industrial emissions and vehicles). It is mainly diffused during the summertime.



ADP_e (elements)

Abiotic Depletion Potential elements refers to the depletion of the mineral resources.










ADP_f (fossil fuel)

Abiotic Depletion Potential fossil fuel refers to the depletion of the fossil fuel resources.

The following tables show the environmental impacts for the products considered according to CML methodology (2001 – Jan.2016, ver. 4.7). All the results are referred to the declared unit (see § 4).

Mapedek Primer 200

Table 5: **Mapedek Primer 200**: environmental categories referred to the declared unit

Environmental category	Unit	A1-A3
 GWP₁₀₀	(kg CO ₂ eq.)	1,49E+00
 ADPe (element)	(kg Sb eq.)	7,71E-03
 ADPf (fossil)	(MJ)	3,70E+01
 AP	(kg SO ₂ eq.)	1,28E-02
 EP	(kg (PO ₄) ³ eq.)	1,36E-03
 ODP	(kg R-11 eq.)	2,19E-07
 POCP	(kg ethylene eq.)	8,38E-04

GWP₁₀₀: Global Warming Potential; **ADPe**: Abiotic Depletion Potential (elements); **EP**: Eutrophication Potential; **AP**: Acidification Potential; **POCP**: Photochemical Ozone Creation Potential; **ODP**: Ozone Depletion Potential; **ADPf**: Abiotic Depletion Potential (fossil)



Table 6: **Mapedeck Primer 200**: other environmental indicators referred to the declared unit

Environmental Indicator	Unit	A1-A3
RPEE	MJ	1,93E+00
RPEM	MJ	-
TPE	MJ	1,93E+00
NRPE	MJ	3,87E+01
NRPM	MJ	-
TRPE	MJ	3,87E+01
SM	kg	-
RSF	MJ	-
NRSF	MJ	-
W	m ³	3,36E-02

RPEE Renewable primary energy as energy carrier; **RPEM** Renewable primary energy as material utilisation; **TPE** Total use of renewable primary energy sources; **NRPE** Non-renewable primary energy as energy carrier; **NRPM** Non-renewable primary energy as material utilization; **TRPE** Total use of non-renewable primary energy sources; **SM** Use of secondary materials; **RSF** Renewable secondary fuels; **NRSF** Non-renewable secondary fuels; **W** Net use of fresh water








Table 7: **Mapedeck Primer 200**: waste production and other output flows referred to the declared unit

Output flow	Unit	A1-A3
NHW	kg	5,25E-03
HW	kg	4,21E-06
RW	kg	0,00E+00
Components for re-use	kg	-
Materials for recycling	kg	-
Materials for energy recovery	kg	-
Exported energy	MJ	-

HW Hazardous waste disposed; **NHW** Non Hazardous waste disposed; **RW** Radioactive waste disposed

Mapedek Litescreed

Table 8: **Mapedek Litescreed**: environmental categories referred to the declared unit

Environmental category		Unit	A1-A3
	GWP₁₀₀	(kg CO ₂ eq.)	2,43E+00
	ADPe (element)	(kg Sb eq.)	5,76E-06
	ADPf (fossil)	(MJ)	3,96E+01
	AP	(kg SO ₂ eq.)	1,36E-02
	EP	(kg (PO ₄) ³ -eq.)	4,73E-03
	ODP	(kg R-11 eq.)	4,07E-08
	POCP	(kg ethylene eq.)	6,82E-04

GWP₁₀₀: Global Warming Potential; **ADPe**: Abiotic Depletion Potential (elements); **EP**: Eutrophication Potential; **AP**: Acidification Potential; **POCP**: Photochemical Ozone Creation Potential; **ODP**: Ozone Depletion Potential; **ADPf**: Abiotic Depletion Potential (fossil)



Table 9: **Mapeddeck Litescreed**: other environmental indicators referred to the declared unit

Environmental Indicator	Unit	A1-A3
RPEE	MJ	1,73E+01
RPEM	MJ	-
TPE	MJ	1,73E+01
NRPE	MJ	4,22E+01
NRPM	MJ	-
TRPE	MJ	4,22E+01
SM	kg	-
RSF	MJ	-
NRSF	MJ	-
W	m ³	9,80E-01

RPEE Renewable primary energy as energy carrier; **RPEM** Renewable primary energy as material utilisation; **TPE** Total use of renewable primary energy sources; **NRPE** Non-renewable primary energy as energy carrier; **NRPM** Non-renewable primary energy as material utilization; **TRPE** Total use of non-renewable primary energy sources; **SM** Use of secondary materials; **RSF** Renewable secondary fuels; **NRSF** Non-renewable secondary fuels; **W** Net use of fresh water








Table 10: **Mapeddeck Litescreed**: waste production and other output flows referred to the declared unit

Output flow	Unit	A1-A3
NHW	kg	5,25E-03
HW	kg	4,21E-06
RW	kg	0,00E+00
Components for re-use	kg	-
Materials for recycling	kg	-
Materials for energy recovery	kg	-
Exported energy	MJ	-

HW Hazardous waste disposed; **NHW** Non Hazardous waste disposed; **RW** Radioactive waste disposed

Marine Filler 20

Table 11: **Marine Filler 20**: environmental categories referred to the declared unit

Environmental category		Unit	A1-A3
	GWP₁₀₀	(kg CO ₂ eq.)	3,78E-01
	ADPe (element)	(kg Sb eq.)	2,20E-07
	ADPf (fossil)	(MJ)	4,99E+00
	AP	(kg SO ₂ eq.)	2,18E-03
	EP	(kg (PO ₄) ³ -eq.)	1,16E-04
	ODP	(kg R-11 eq.)	1,97E-13
	POCP	(kg ethylene eq.)	1,43E-04

GWP₁₀₀: Global Warming Potential; **ADPe**: Abiotic Depletion Potential (elements); **EP**: Eutrophication Potential; **AP**: Acidification Potential; **POCP**: Photochemical Ozone Creation Potential; **ODP**: Ozone Depletion Potential; **ADPf**: Abiotic Depletion Potential (fossil)



Table 12: **Marine Filler 20**: other environmental indicators referred to the declared unit

Environmental Indicator	Unit	A1-A3
RPEE	MJ	1,17E+00
RPEM	MJ	-
TPE	MJ	1,17E+00
NRPE	MJ	5,28E+00
NRPM	MJ	-
TRPE	MJ	5,28E+00
SM	kg	-
RSF	MJ	-
NRSF	MJ	-
W	m ³	3,03E-03

RPEE Renewable primary energy as energy carrier; **RPEM** Renewable primary energy as material utilisation; **TPE** Total use of renewable primary energy sources; **NRPE** Non-renewable primary energy as energy carrier; **NRPM** Non-renewable primary energy as material utilization; **TRPE** Total use of non-renewable primary energy sources; **SM** Use of secondary materials; **RSF** Renewable secondary fuels; **NRSF** Non-renewable secondary fuels; **W** Net use of fresh water








Table 13: **Marine Filler 20**: waste production and other output flows referred to the declared unit

Output flow	Unit	A1-A3
NHW	kg	5,25E-03
HW	kg	4,21E-06
RW	kg	0,00E+00
Components for re-use	kg	-
Materials for recycling	kg	-
Materials for energy recovery	kg	-
Exported energy	MJ	-

HW Hazardous waste disposed; **NHW** Non Hazardous waste disposed; **RW** Radioactive waste disposed

Mapedeck Teak Design

Table 14: **Mapedeck Teak Design**: environmental categories referred to the declared unit

Environmental category	Unit	A1-A3
 GWP₁₀₀	(kg CO ₂ eq.)	2,50E+00
 ADPe (element)	(kg Sb eq.)	6,53E-06
 ADPf (fossil)	(MJ)	4,43E+01
 AP	(kg SO ₂ eq.)	1,16E-02
 EP	(kg (PO ₄) ³ -eq.)	4,43E-03
 ODP	(kg R-11 eq.)	4,13E-08
 POCP	(kg ethylene eq.)	6,64E-04

GWP₁₀₀: Global Warming Potential; **ADPe**: Abiotic Depletion Potential (elements); **EP**: Eutrophication Potential; **AP**: Acidification Potential; **POCP**: Photochemical Ozone Creation Potential; **ODP**: Ozone Depletion Potential; **ADPf**: Abiotic Depletion Potential (fossil)



Table 15: **Mapedek Teak Design**: other environmental indicators referred to the declared unit

Environmental Indicator	Unit	A1-A3
RPEE	MJ	1,48E+01
RPEM	MJ	-
TPE	MJ	1,48E+01
NRPE	MJ	4,74E+01
NRPM	MJ	-
TRPE	MJ	4,74E+01
SM	kg	-
RSF	MJ	-
NRSF	MJ	-
W	m ³	1,61E+00

RPEE Renewable primary energy as energy carrier; **RPEM** Renewable primary energy as material utilisation; **TPE** Total use of renewable primary energy sources; **NRPE** Non-renewable primary energy as energy carrier; **NRPM** Non-renewable primary energy as material utilization; **TRPE** Total use of non-renewable primary energy sources; **SM** Use of secondary materials; **RSF** Renewable secondary fuels; **NRSF** Non-renewable secondary fuels; **W** Net use of fresh water








Table 16: **Mapedek Teak Design**: waste production and other output flows referred to the declared unit

Output flow	Unit	A1-A3
NHW	kg	5,25E-03
HW	kg	4,21E-06
RW	kg	0,00E+00
Components for re-use	kg	-
Materials for recycling	kg	-
Materials for energy recovery	kg	-
Exported energy	MJ	-

HW Hazardous waste disposed; **NHW** Non Hazardous waste disposed; **RW** Radioactive waste disposed

Mapedeck Finish 111 TSR

Table 17: **Mapedeck Finish 111 TSR**: environmental categories referred to the declared unit

Environmental category		Unit	A1-A3
	GWP₁₀₀	(kg CO ₂ eq.)	2,71E+00
	ADPe (element)	(kg Sb eq.)	1,14E-02
	ADPf (fossil)	(MJ)	5,70E+01
	AP	(kg SO ₂ eq.)	1,27E-02
	EP	(kg (PO ₄) ³ -eq.)	3,02E-03
	ODP	(kg R-11 eq.)	3,10E-07
	POCP	(kg ethylene eq.)	1,41E-03

GWP₁₀₀: Global Warming Potential; **ADPe**: Abiotic Depletion Potential (elements); **EP**: Eutrophication Potential; **AP**: Acidification Potential; **POCP**: Photochemical Ozone Creation Potential; **ODP**: Ozone Depletion Potential; **ADPf**: Abiotic Depletion Potential (fossil)



Table 18: **Mapeddeck Finish 111 TSR:** other environmental indicators referred to the declared unit

Environmental Indicator	Unit	A1-A3
RPEE	MJ	2,38E+00
RPEM	MJ	-
TPE	MJ	2,38E+00
NRPE	MJ	5,93E+01
NRPM	MJ	-
TRPE	MJ	5,93E+01
SM	kg	-
RSF	MJ	-
NRSF	MJ	-
W	m ³	3,71E-02

RPEE Renewable primary energy as energy carrier; **RPEM** Renewable primary energy as material utilisation; **TPE** Total use of renewable primary energy sources; **NRPE** Non-renewable primary energy as energy carrier; **NRPM** Non-renewable primary energy as material utilization; **TRPE** Total use of non-renewable primary energy sources; **SM** Use of secondary materials; **RSF** Renewable secondary fuels; **NRSF** Non-renewable secondary fuels; **W** Net use of fresh water








Table 19: **Mapeddeck Finish 111 TSR:** waste production and other output flows referred to the declared unit

Output flow	Unit	A1-A3
NHW	kg	5,25E-03
HW	kg	4,21E-06
RW	kg	0,00E+00
Components for re-use	kg	-
Materials for recycling	kg	-
Materials for energy recovery	kg	-
Exported energy	MJ	-

HW Hazardous waste disposed; **NHW** Non Hazardous waste disposed; **RW** Radioactive waste disposed

Mapedeck Wax

Table 20: **Mapedeck Wax**: environmental categories referred to the declared unit

Environmental category	Unit	A1-A3
 GWP₁₀₀	(kg CO ₂ eq.)	9,77E-01
 ADPe (element)	(kg Sb eq.)	4,79E-03
 ADPf (fossil)	(MJ)	2,40E+01
 AP	(kg SO ₂ eq.)	5,93E-03
 EP	(kg (PO ₄) ³ -eq.)	1,44E-03
 ODP	(kg R-11 eq.)	2,05E-07
 POCP	(kg ethylene eq.)	6,12E-04

GWP₁₀₀: Global Warming Potential; **ADPe**: Abiotic Depletion Potential (elements); **EP**: Eutrophication Potential; **AP**: Acidification Potential; **POCP**: Photochemical Ozone Creation Potential; **ODP**: Ozone Depletion Potential; **ADPf**: Abiotic Depletion Potential (fossil)



Table 21: **Mapeddeck Wax**: other environmental indicators referred to the declared unit

Environmental Indicator	Unit	A1-A3
RPEE	MJ	8,48E-01
RPEM	MJ	-
TPE	MJ	8,48E-01
NRPE	MJ	2,52E+01
NRPM	MJ	-
TRPE	MJ	2,52E+01
SM	kg	-
RSF	MJ	-
NRSF	MJ	-
W	m ³	1,29E-02

RPEE Renewable primary energy as energy carrier; **RPEM** Renewable primary energy as material utilisation; **TPE** Total use of renewable primary energy sources; **NRPE** Non-renewable primary energy as energy carrier; **NRPM** Non-renewable primary energy as material utilization; **TRPE** Total use of non-renewable primary energy sources; **SM** Use of secondary materials; **RSF** Renewable secondary fuels; **NRSF** Non-renewable secondary fuels; **W** Net use of fresh water

Table 22: **Mapeddeck Wax**: waste production and other output flows referred to the declared unit

Output flow	Unit	A1-A3
NHW	kg	5,25E-03
HW	kg	4,21E-06
RW	kg	0,00E+00
Components for re-use	kg	-
Materials for recycling	kg	-
Materials for energy recovery	kg	-
Exported energy	MJ	-

HW Hazardous waste disposed; **NHW** Non Hazardous waste disposed; **RW** Radioactive waste disposed

Tables above and following plots show absolute results and relative contribution for the environmental categories considered in this EPD.

The module **A1** (raw materials extraction and processing) has the greatest contribution for all the environmental categories included in this study. Considering ODP and ADPe, module **A1** highlights a relative contribution close to 100%.

The electricity consumption used for the manufacturing process doesn't affect significantly the results.

The module **A2** (raw materials transportation) gives a negative contribution to POCP due to the NO and NO₂ emission factors (for more details, see the methodology used: *HBEFA -Handbook Emission Factors for Road Transport*).

Table 23: Environmental Impact of **Mapedeck Primer 200** as percentage referred to the declared unit





Table 24: Environmental Impact of **Mapedeck Litescreed** as percentage referred to the declared unit

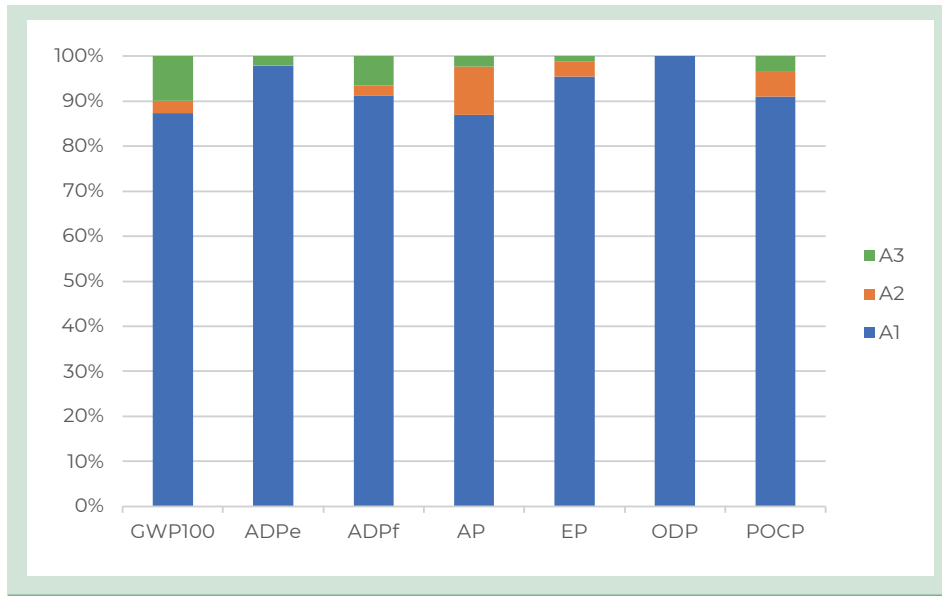


Table 25: Environmental Impact of **Mapedeck TeakDesign** as percentage referred to the declared unit

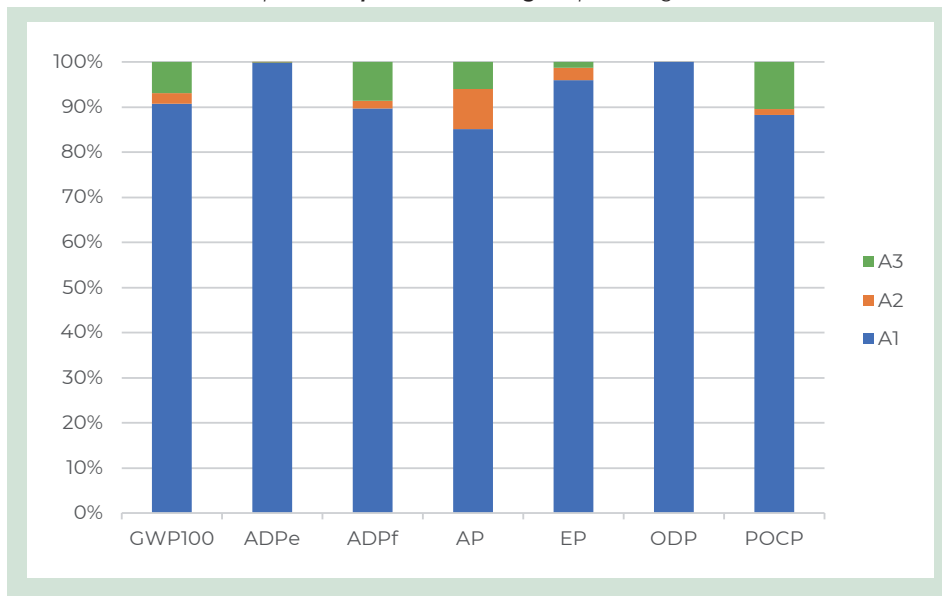
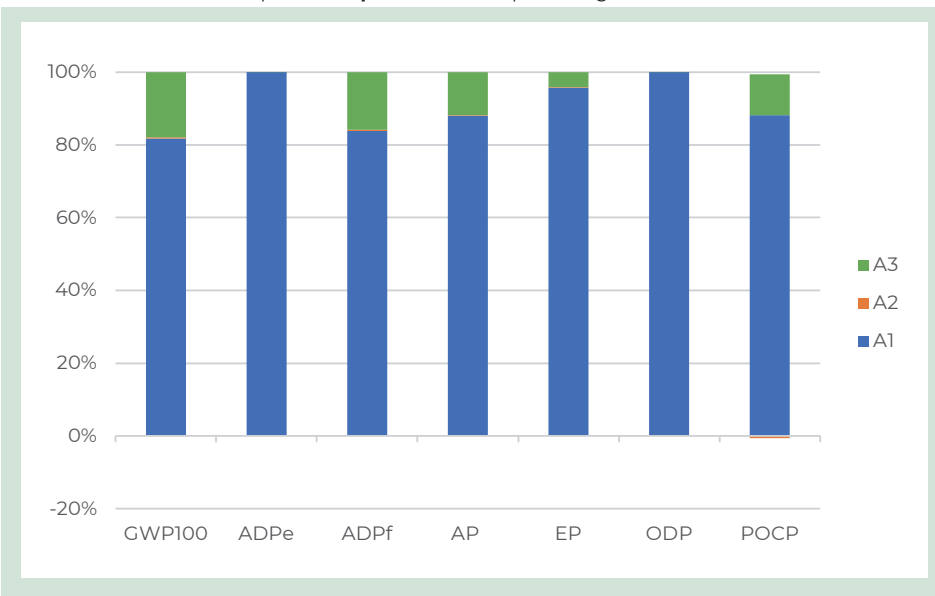


Table 26: Environmental Impact of **Mapeddeck TSR III** as percentage referred to the declared unit



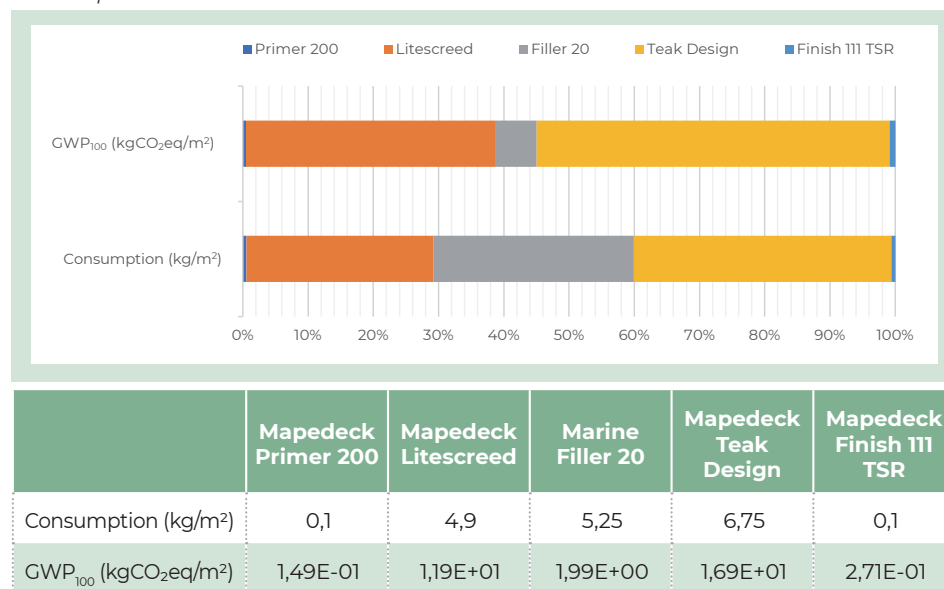
Table 27: Environmental Impact of **Mapeddeck Wax** as percentage referred to the declared unit





The following plot and table show the comparison between GWP_{100} and the consumption of single component for the system studied.

Table 28: Plot and table showing the comparison between GWP_{100} and system components consumption



More details about electrical mix used in this EPD (Italian grid mix – 2014), is shown below:

	Data source	Amount	Unit
Electricity grid mix (IT) – 2014	GaBi database	0,4020	kg CO ₂ -eqv/kWh
Electricity from photovoltaic (IT) – 2014	GaBi database	0,0641	kg CO ₂ -eqv/kWh

8. DATA QUALITY

Table 29: Data quality

Dataset & Geographical reference	Database (source)	Temporary reference
A1; A3		
Polymer Dispersions (EU)	EcoProfile EPDLA	2015
Fillers (EU)	GaBi Database	2017
Additives (EU)	GaBi Database; EFCA EPD IBU 20150091; PlasticEurope	2005 – 2017
Electricity grid mix (IT)	GaBi Database	2014
Electricity from photovoltaic (IT)	GaBi Database	2014
Packaging components (EU)	GaBi Database, PlasticEurope	2005 – 2017
A2; A4		
Truck transport (euro 3, 27t payload – GLO)	GaBi Database	2017
Light Train (Gross Ton Weight 500t - GLO)	GaBi Database	2017
Oceanic ship (27500 DWT - GLO)	GaBi Database	2017
Electricity grid mix (EU)	GaBi Database	2014
Diesel for transport (EU)	GaBi Database	2014
Heavy Fuel Oil (EU)	GaBi Database	2014

All data included in table above refer to a period between 2005 and 2017; the most relevant ones are specific from supplier, while the others (i.e. transport and minor contribution dataset), come from European and global databases.

All dataset are not more than 10 years old according to EN 15804 § 6.3.7 “Data quality requirements”. The only exception is represented by raw materials coming from PlasticEurope database.

Primary data concern the year 2017 and represent the whole annual production.



9. VERIFICATION AND REGISTRATION

EPD of construction products may not be comparable if they do not comply with EN 15804.

Environmental product declarations within the same product category from different programs may not be comparable.




CEN standard EN15804 served as the core PCR

PCR:	PCR 2012:01 Construction products and Construction services, Version 2.2, 2017-05-30
PCR review was conducted by:	The Technical Committee of the International EPD® System. Chair: Massimo Marino Contact via info@environdec.com
Independent verification of the declaration and data, according to ISO 14025	<input checked="" type="checkbox"/> EPD Process Certification (Internal) <input type="checkbox"/> EPD Verification (external)
Third party verifier:	Certiquality S.r.l. Number of accreditation: 003H rev14
Accredited or approved by:	Accredia
Procedure for follow-up of data during EPD validity involves third-party verifier	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

10. REFERENCES

- EN 15804:2014 SUSTAINABILITY OF CONSTRUCTION WORKS - ENVIRONMENTAL PRODUCT DECLARATIONS – CORE RULES FOR THE PRODUCT CATEGORY OF CONSTRUCTION PRODUCTS
- GENERAL PROGRAMME INSTRUCTIONS OF THE INTERNATIONAL EPD® SYSTEM. VERSION 3.0
- HBEFA: HANDBOOK EMISSION FACTORS FOR ROAD TRANSPORT
- ISO 14025 ENVIRONMENTAL LABELS AND DECLARATIONS - TYPE III ENVIRONMENTAL DECLARATIONS - PRINCIPLES AND PROCEDURES
- ISO 14044 ENVIRONMENTAL MANAGEMENT – LIFE CYCLE ASSESSMENT – REQUIREMENTS AND GUIDELINES
- MARINE EQUIPMENT DIRECTIVE (MED) 96/98/EC
- PCR 2012:01; “PRODUCT GROUP CLASSIFICATION: MULTIPLE UN CPC CODES CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES”; VERSION 2.2

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