

Environmental Product Declaration



In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

MORE desk

Product code M4006

from

ESTEL GROUP



Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-10624 MORE desk
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): The Norwegian EPD Foundation NPCR 026, PCR – Part B for Furniture, v.2.0, UN CPC codes 3812
PCR review was conducted by: Technical committee of Norwegian EPD Foundation: Christofer Skaar
Life Cycle Assessment (LCA)
LCA accountability: CATAS S.P.A.
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification by accredited certification body
Third-party verification: SGS Italia S.P.A. is an approved certification body accountable for the third-party verification. The certification body is accredited by: Accredia, accreditation n°0005VV
Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: ESTEL GROUP
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Description of the organisation: ESTEL Group S.r.l. is an historic Italian company with headquarters in Thiene (VI) specialized in the production of design furniture for domestic and office purpose. Founded in 1937, among the years is became Italian Leader in Office sector. Its success is due to productive, technological, informational, and organizational investments and to a wide and complete range of products. The company policy, always focused on research and development had fed a continuous process of study, experimentation and innovation in particular on sustainability.

Product-related or management system-related certifications: ISO 14001:2015, FSC-STD-40-004 v3.1, UNI EN ISO 9001:2015, ISO 45001:2018

Name and location of production site(s): Via cartiera di mezzo 1, 36011 Arsiero (VI)

Product information

Product name: MORE desk
Product identification: M4006
Product description: MORE is a desk with overall dimensions of 2000*800*740mm and 44.70 kg of weight. The desk configuration comprehends:

- A particle board panel of 22mm (thickness) as main surface
- An aluminium frame for the particle board
- ABS boards
- Cast iron legs
- Foot made by HDPE and steel, with an ABS foot holder.

UN CPC code: 3812

Geographical scope: The geographical scope is Italian due to the actual commercialization data used.

LCA information

Functional unit: A desk including its packaging, and maintained for the estimated service life. The total weight, including packaging, is 45.82kg.

Reference service life: 15 years, as prescribed by PCR Furniture and based on durability tests.

Time representativeness: Primary data is based on production of year 2022. Other calculation data is based on the best available data at the time of preparing the LCA.

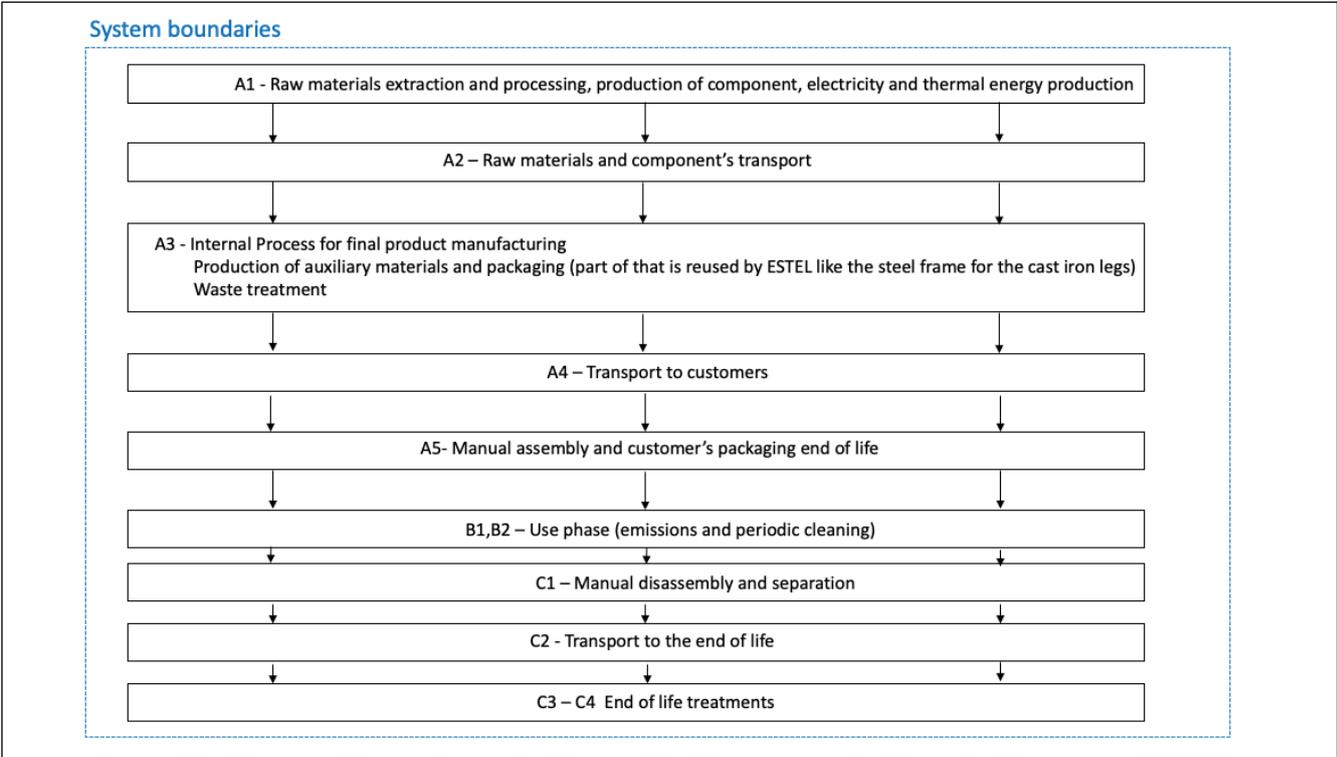
Database(s) and LCA software used: Ecoinvent v3.8, and SimaPro v9.3 as LCA software.

Description of system boundaries:
 Cradle to grave and module D (A + B + C + D)

Module	Processes
A1	Raw materials extraction and processing Production of components Generation of electricity and heat from primary energy resources, also including their extraction, refining and transport
A2	Transport of raw materials and components up to the factory gate

A3	Manufacturing of product Production of packaging Waste treatment
A4	Transport of the product to customers
A5	Assembly. This phase is manual. Waste treatment of customers packaging
B1	Emission during use phase
B2	Maintenance/ Periodic cleaning
C1	Disassembly This phase is manual.
C2	Transport of the discarded product to a recycling or final disposal site Since specific data relating to the distance of the discarded product to a waste treatment centre are missing, the average distance included in Simapro for each type of waste has been assumed
C3-C4	Recycling and energy recovery processes (C3) Waste disposal processes (C4) An Italian disposal scenario is assumed, following the actual commercialization of the product and Eurostat percentage for waste treatment. In the module C3 a virtual emission of biogenic CO ₂ has been added so that the uptake related to the cardboard (packaging) recycling and emission of biogenic CO ₂ are balanced.
D	Benefits and impacts related to material recycling

System diagram:



More information:

LCA Practitioner:



Testing Certification Research

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Additional information and assumption:

- The assembly and disassembly phases are manual, so their impacts are neglected.
- In A5 the customer's packaging end of life is considered
- For customers ESTEL offers the packaging's take back and disposal service.
- Distribution to customers is set completely in Italy by EURO 4 camion of 16-32ton. A medium distance of 306.8 km is assumed. The loading factor used is the one implemented in Simapro (5.79ton).
- In the manufacturing phase the Italian energy residual mix (year 2022) is assumed
- In the use phase the contribution to the environmental impacts is due to the periodic cleaning of the desktop and the indoor emissions caused by the particle board. The periodic cleaning is made with common cleaner and paper two times a week for the entire life of the product. The emissions during the use phase are Formaldehyde and Toluene. The emissions values are based on test reports and normative benchmarks.
- Emissions and wastes derived from cutting and drilling on the aluminum profiles and particleboard panel were allocated by physical relationship (mass).
- The quantity of energy derived from the Aluminum department was allocated on linear meter, the energy derived from offices and other commodities was allocated on m³ of product.
- The waste derived from particleboard cutting is incinerated with energy recovery (A3) but this energy is not used in the life cycle of the desk.
- Part of the component's packaging (wood pallets, metallic frame and HDPE box) is reused by ESTEL. This packaging is allocated by number of items transported.
- Cut-off: The cut-off followed is the one prescribed by the PCR Construction with a minimum of 95% of total flows covered. The cut-off includes packaging of cleaning consumables, plastic strings (packaging for particle board) and internal facility transport.
- The end-of-life scenario is based on Eurostat statistics for Italy in 2020 (most recent data available) with some change due to the not available recycle of some materials. In particular the end of waste scenario is:
 - o Steel 99.97% recycle, 0.03% landfill and 7.7E-06 % incineration (without energy recovery)
 - o Aluminum 99.99% recycle, 1.9E-03% landfill and 2.3E-04% incineration (without energy recovery)
 - o Paperboard 99.90% recycle, 0.04% landfill and 0.06% incineration (without energy recovery)
 - o PE and PS 88.78% recycle, 4.75% landfill and 6.47% incineration (without energy recovery)
 - o ABS 4.75% landfill and 95.25% incineration (without energy recovery)
 - o Particle board (including adhesive and ABS edges) 100% incineration (without energy recovery)

Module D: for the calculation of this phase the R2 and quality values of materials from PEFCR guidance v.6.3_2 are assumed (CFF_Default_Parameters_March2018). For PS the quality value of 0.75 is assumed (lower value for polymer in the table) and it is verified with the economic relationship between recycled PS and virgin PS. For particle boards the quality factor of 1 prescribed by EN 16485 is used due to the lack of this data in the CFF Default value.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	X	X	-	-	-	-	-	X	X	X	X	X
Geography	GLO	GLO	IT	IT	IT	IT	IT	-	-	-	-	-	IT	IT	IT	IT	GLO
Specific data used	>60%*			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	n/a			n/a	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

*specific data was calculated as the share of the GWP-GHG

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Particle board	23.8	92.8%	92.8% and 0.45 kg C/kg
Aluminium	6.02	0	0
ABS	0.248	0	0
Cast Iron	12.93	0	0
Powder coating	0.158	0	0
Steel	1.522	0	0
Adhesive	0.016	0	0

HDPE	0.005	0	0
TOTAL	44.70	49.41%	
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Cardboard	0.616	1.38	0.45
PE	0.313	0.70	0
PS	0.192	0.43	0
TOTAL	1.121	2.51	

No substance on the “Candidate List of Substances of Very High Concern for authorization” derived under REACH is present either above the limits for the registration with the European Chemicals Agency or in excess of 0.1% by weight of the product.
 This information is derived from the technical and safety data sheet of the materials.

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	2.64E+02	2.32E+00	1.05E-01	0.00E+00	1.19E+01	2.97E-01	0.00E+00	9.57E-01	-1.30E+02
GWP-biogenic	kg CO ₂ eq.	-3.62E+01	8.23E-04	1.02E+00	0.00E+00	6.64E-01	1.24E-04	0.00E+00	3.71E+01	1.04E-01
GWP-luluc	kg CO ₂ eq.	1.08E+00	9.17E-04	2.57E-05	0.00E+00	3.43E-01	2.37E-04	0.00E+00	7.23E-05	-1.44E-03
GWP-total	kg CO ₂ eq.	2.29E+02	2.32E+00	1.12E+00	0.00E+00	1.29E+01	2.97E-01	0.00E+00	3.79E+01	-1.30E+02
ODP	kg CFC 11 eq.	2.92E-05	5.40E-07	1.51E-08	0.00E+00	8.06E-07	6.81E-08	0.00E+00	2.73E-08	-3.62E-06
AP	mol H ⁺ eq.	1.42E+00	1.17E-02	3.37E-04	0.00E+00	7.72E-02	1.71E-03	0.00E+00	3.90E-03	-1.11E+00
EP-freshwater	kg P eq.	9.79E-02	1.50E-04	4.24E-06	0.00E+00	5.17E-03	2.31E-05	0.00E+00	1.17E-04	-7.09E-02
EP-marine	kg N eq.	2.33E-01	4.04E-03	1.24E-04	0.00E+00	1.79E-02	6.20E-04	0.00E+00	2.10E-03	-1.45E-01
EP-terrestrial	mol N eq.	2.46E+00	4.42E-02	1.28E-03	0.00E+00	1.42E-01	6.77E-03	0.00E+00	1.98E-02	-1.56E+00
POCP	kg NMVOC eq.	8.35E-01	1.26E-02	3.65E-04	6.46E-01	3.65E-02	1.93E-03	0.00E+00	4.87E-03	-4.82E-01
ADP-minerals&metals*	kg Sb eq.	6.54E-03	8.12E-06	2.26E-07	0.00E+00	5.45E-05	1.01E-06	0.00E+00	7.99E-07	6.53E-04
ADP-fossil*	MJ	3.76E+03	3.53E+01	9.88E-01	0.00E+00	1.29E+02	4.55E+00	0.00E+00	2.67E+00	-1.26E+03
WDP*	m ³	8.41E+01	1.06E-01	3.06E-03	0.00E+00	6.44E+00	1.60E-02	0.00E+00	6.45E-02	-2.24E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption									

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Additional mandatory and voluntary impact category indicators

Indicator	Unit	A1-A3	A4	A5	B1	B2	C2	C3	C4	D
GWP-GHG ¹	kg CO ₂ eq.	2.68E+02	2.32E+00	1.06E-01	0.00E+00	1.29E+01	2.97E-01	0.00E+00	9.60E-01	- 1.30E+02
<i>Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017</i>										

Resource use indicators

Indicator	Unit	A1-A3	A4	A5	B1	B2	C2	C3	C4	D
PERE	MJ	4.25E+02	4.98E-01	1.41E-02	0.00E+00	6.25E+00	7.57E-02	0.00E+00	9.60E-02	- 2.63E+01
PERM	MJ	2.44E+02	0.00E+00	0.00E+00	0.00E+00	6.14E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	6.69E+02	4.98E-01	1.41E-02	0.00E+00	6.77E+01	7.57E-02	0.00E+00	9.60E-02	- 2.63E+01
PENRE	MJ	4.05E+03	3.75E+01	1.05E+00	0.00E+00	1.38E+02	4.83E+00	0.00E+00	2.90E+00	- 1.33E+03
PENRM	MJ	3.08E+02	0.00E+00	0.00E+00	0.00E+00	4.79E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	4.36E+03	3.75E+01	1.05E+00	0.00E+00	1.38E+02	4.83E+00	0.00E+00	2.90E+00	- 1.33E+03
SM	kg	2.21E+01	0.00E+00							
RSF	MJ	0.00E+00								
NRSF	MJ	0.00E+00								

¹ This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO₂ is set to zero.

FW	m ³	3.65E+00	3.61E-03	1.11E-04	0.00E+00	1.98E-01	5.41E-04	0.00E+00	5.50E-03	1.79E-01
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water									

Waste indicators

Indicator	Unit	A1-A3	A4	A5	B1	B2	C2	C3	C4	D
Hazardous waste disposed	kg	6.27E-02	9.22E-05	2.63E-06	0.00E+00	4.82E-04	1.16E-05	0.00E+00	4.84E-05	4.57E-02
Non-hazardous waste disposed	kg	4.78E+01	1.82E+00	6.24E-02	0.00E+00	2.98E+00	2.96E-01	0.00E+00	5.30E-01	-3.16E+01
Radioactive waste disposed	kg	1.04E-02	2.39E-04	6.66E-06	0.00E+00	3.37E-04	3.06E-05	0.00E+00	5.83E-06	-2.38E-03

Output flow indicators

Indicator	Unit	A1-A3	A4	A5	B1	B2	C2	C3	C4	D
Components for re-use	kg	1.86E+01	0.00E+00							
Material for recycling	kg	0.00E+00	0.00E+00	1.06E+00	0.00E+00	0.00E+00	0.00E+00	2.06E+01	0.00E+00	0.00E+00
Materials for energy recovery	kg	2.42E+00	0.00E+00							
Exported energy, electricity	MJ	0.00E+00								
Exported energy, thermal	MJ	4.37E+01	0.00E+00							

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

References

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