

# Environmental Product Declaration



In accordance with ISO 14025 and Product Category Rules for Furniture

## BOARDER

from

# LINTEX

Programme:	The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>
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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](http://www.environdec.com).



## Programme information

<b>Programme:</b>	<p>The International EPD<sup>®</sup> System</p> <p>EPD International AB Box 210 60 SE-100 31 Stockholm Sweden</p> <p><a href="http://www.environdec.com">www.environdec.com</a> <a href="mailto:info@environdec.com">info@environdec.com</a></p>
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Product category rules (PCR): <i>Furniture, Except seats and mattresses 2012:19 version 2.01 valid until 2023-06-17</i>
PCR review was conducted by: <i>PCR Committee: Arper PsA Srl Moderator: Leo Breedveld, 2B Srl</i>
Independent third-party verification of the declaration and data, according to ISO 14025:2006: <input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification
Third party verifier: <i>David Althoff Palm, Ramboll Sweden AB, <a href="mailto:david.palm@ramboll.se">david.palm@ramboll.se</a></i>  <i>Approved by: The International EPD<sup>®</sup> System</i>
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 from different programmes may not be comparable.

## Company information

### Owner of the EPD:

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Description of the organisation: LINTEX is a Swedish producer of innovative writing boards and sound absorbing office screens, designed to inspire people to do great work, in offices, schools and institutions all over the world. Together with some of Scandinavia's leading designers and by using durable materials, such as tempered glass, high end textiles, solid wood, and enamelled steel, LINTEX creates well designed, functional products, made to last for a long time

LINTEX is a family business founded in 1983. Head office and factory are located in the town of Nybro in southern Sweden. LINTEX have subsidiary's, sales offices and agents elsewhere in Scandinavia, Europe and various parts of the world.

Working sustainably is a key element of LINTEX's strategy, culture and day-to-day operations. LINTEX understands that sustainability requires transformation. This means finding new ways of thinking and new innovative solutions. LINTEX has started the journey towards circular products with net zero climate impact. As of 2022 the production in Nybro is self-sufficient with respect to renewable energy, thanks to geothermal heating and over 4200 solar panels on the factory roof.

Management system-related certifications: LINTEX has been certified according to ISO 14001 since 2009. The company is also certified according to the FSC-STD-40-004 Chain of Custody Certification standard, certificate code DNV-COC-002282.

LINTEX Supplier Code of Conduct sets the scope for the company's supply chain management. LINTEX China is a member of the organization Sedex and use their third party SMETA-audits to verify social compliance.

## Product information

Product name and description: BOARDER is a wall-mounted whiteboard made of a white or soft grey ceramic steel layer mounted on a wooden board with an aluminium foil layer and an aluminium profile. BOARDER is suited for use in environments such as schools, offices and conference premises. BOARDER comes in different sizes, ranging from 1005x1205 mm to 4005x1205 mm. For this EPD, the modelled whiteboard was 2005x1205 mm, weighing 25,73 kg. The table below shows other BOARDER sizes and how to convert the EPD results from the baseline size by multiplying with a conversion factor. The factors are based on the surface area of the whiteboard, assuming that environmental impacts scale with the board surface for all impact categories. In practice, new results can be generated by multiplying with the conversion factor, which is simply the ratio of the writing surface area compared to the baseline area of 2,42 m<sup>2</sup> (2005x1205 mm). Since the size of the frame does not exactly scale with the surface area, this introduces an error (of <10%), where results for large models are overestimated and small models are underestimated.

Width (mm)	Height (mm)	Area (m <sup>2</sup> )	Conversion factor	Comment
1005	1205	1,21	<b>0,50</b>	
1505	1205	1,81	<b>0,75</b>	
2005	1205	2,42	<b>1</b>	Baseline
2505	1205	3,02	<b>1,25</b>	
3005	1205	3,62	<b>1,50</b>	
3505	1205	4,22	<b>1,75</b>	
4005	1205	4,83	<b>2</b>	
1505	1505	2,27	<b>0,94</b>	BOARDER 1505
2005	1505	3,02	<b>1,25</b>	BOARDER 1505
2505	1505	3,77	<b>1,56</b>	BOARDER 1505
3005	1505	4,52	<b>1,87</b>	BOARDER 1505

Additional information on use, reuse and end-of-life: For daily cleaning, a whiteboard eraser or similar shall be used. For deep cleaning it is normally sufficient with water on a microfibre cloth. If the board is unusually dirty and stained, a designated alcohol-based cleaning solution may be used. Soap-based cleaning solution shall always be avoided, since this is the most common cause of erasing problems and smearing ink.

When the whiteboard is no longer needed, LINTEX encourages the owner/holder to put the product on the market again, to enable reuse. When the product's end-of life is finally reached, the product shall be handled by a professional waste management company to enable material recycling.

Product-related certifications: BOARDER is certified according to the Swedish labelling system Möbelfakta, ID 0120151027. BOARDER is evaluated and recommended by Byggvarubedömningen, an assessment system for building related products evaluating chemical content and environmental impact during the life cycle, ID 108344.

BOARDER is tested for VOC and formaldehyde emissions according to ISO 16000-9:2006 and evaluated according to EN 16516:2017 (EU-LCI values). The test results meet the requirements for the Recommended class in Swedish Byggvarubedömningen. BOARDER is also tested and approved according to EN 14434:2010 "Writing boards for educational institutions – Ergonomic, technical and safety requirements and their test methods".

The ceramic steel whiteboard surface has a 30- year guarantee and is Cradle to Cradle Certified. For more product certifications, for example FSC (Forest Stewardship council®), see [www.lintex.se](http://www.lintex.se).

## LCA information

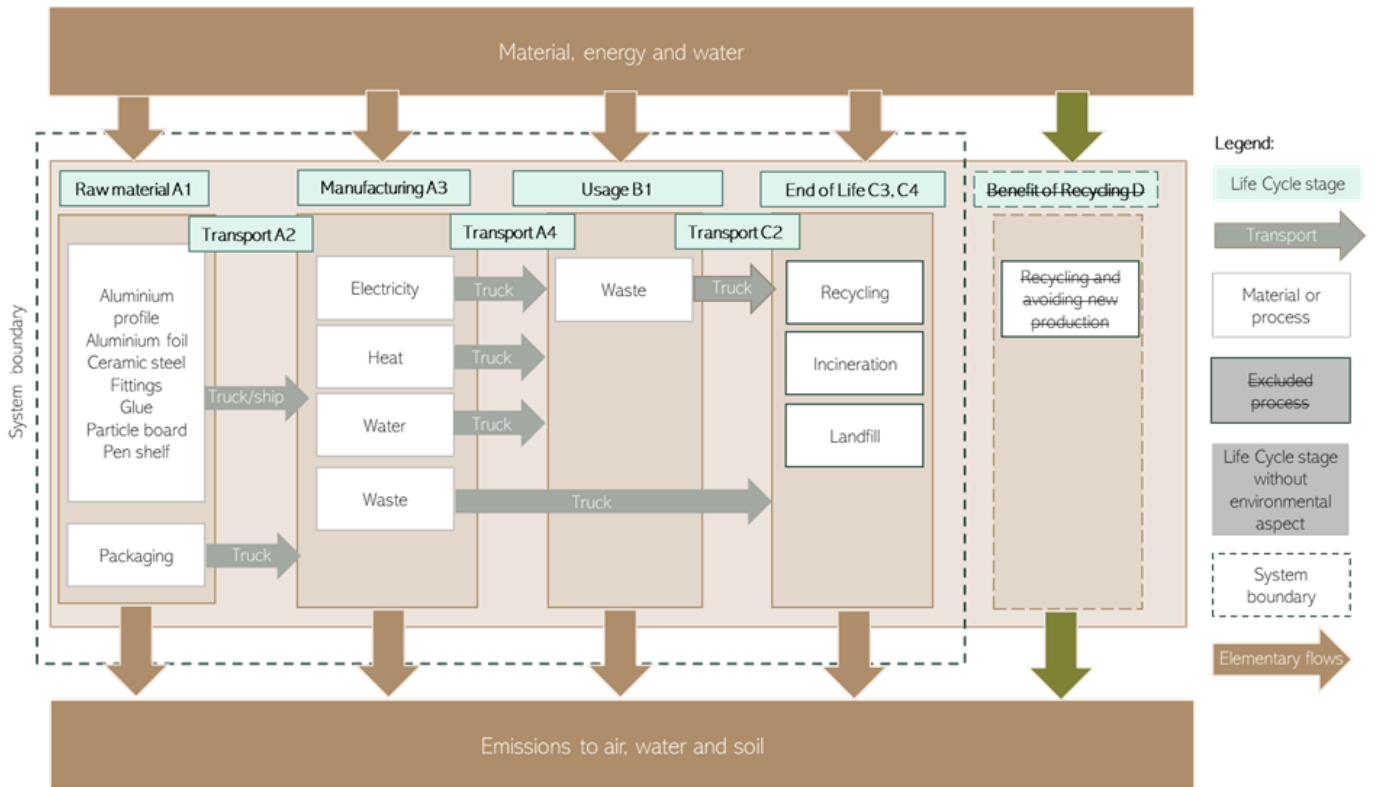
<b>Declared Unit</b>	The declared unit is 1 BOARDER whiteboard, weighing 25,73 kg, with standard size 2005 x 1205 mm.
<b>Product group classification</b>	UN CPC 3812
<b>Goal and Scope</b>	<p>The result will be used to understand where the environmental burden for the products occurs during the life cycle and aims to lay a road map for development to decrease this burden. The result will be communicated by the International EPD system.</p> <p>The audience includes resellers and end-clients.</p>
<b>Manufacturing Site</b>	Nybro, Sweden.
<b>Geographical Area</b>	The product is globally available, but the model for transports and waste is based on Europe, which is Lintex' main market.
<b>Compliant with</b>	<p>This EPD follows the "Book-keeping" LCA approach which is defined as attributional LCA in the ISO 14040 standard.</p> <p>In accordance with ISO 14025, ISO 14040 – ISO 140 44.</p> <p>This EPD follows the Product Category Rules Furniture, Except seats and mattresses 2012:19 version 2.01 valid until 2023-06-17</p>
<b>Cut-Off Rules</b>	<p>The following procedure is followed for the exclusion of inputs and output:</p> <ul style="list-style-type: none"> <li>- Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts shall be included</li> </ul> <p>A screening and expert judgement showed that the following aspects contribute less than 1% and could be cut-off:</p> <ul style="list-style-type: none"> <li>- Various supplier packaging</li> <li>- Potential transports from retailer to installation site</li> <li>- Energy and material use in installation</li> <li>- Cleaning and maintenance during use</li> </ul>
<b>Background data</b>	<p>The data quality is considered good. All site-specific data for raw materials, auxiliary materials as well as energy and emissions in the manufacturing process is from 2020 and have been represented with ecoinvent datasets. All other relevant environmental aspects have been represented by generic ecoinvent data.</p> <p>ecoinvent is the world's biggest LCI (Life cycle inventory) data library and the latest and most updated version was used. ecoinvent contains data for the specific geographical regions relevant for this study. The background data from ecoinvent 3.8 are from 2016-2020.</p>
<b>Electricity data</b>	Electricity consumption in the A3 module comes from Lintex own production from installed solar cells and geothermal heat pumps.
<b>Allocations</b>	<p>Polluter Pays / Allocation by Classification</p> <p>Two allocation rules are applied: 1) the raw material necessary for the manufacture is allocated by mass of the declared unit; 2) the energy necessary for the manufacture is allocated in MJ by production of the declared unit</p>
<b>Impact Assessment methods</b>	Potential environmental impacts and resource use values are calculated according to the GPI and PCR using the SimaPro 9.3 software.
<b>Based on LCA Report</b>	Miljögiraff Lintex BOARDER LCA report 1003BOARDER
<b>LCA Practitioner</b>	Daniel Böckin, Miljögiraff AB
<b>Software</b>	SimaPro 9.3

## System boundary

The EPD follows Cradle to grave (A1–C4) boundaries. A1 is defined as upstream, A2 and A3 as core and the remaining modules (A4–C4) as downstream. See the system diagram below for information about included modules.

Up-stream	Core			Downstream												
Raw materials	Transport	Manufacturing	Transport	Construction-Installation	Use stage	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal	Reuse-recovery-recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	NR	NR	NR	NR	NR	NR	NR	NR	X	X	X	MND

X= included in the LCA, NR = module without environmental aspects MND= Module Not Declared.



## Content and life cycle information

The following table shows the **material content** of the whiteboard and the percentage of recycled and renewable material in the product. The aluminium profile and pen shelf come from LINTEX China, while the other components and materials come from external suppliers.

Components	Main material	Weight (kg)	Recycled material (wt%)		Renewable material (wt%)
			Pre-cons.	Post-cons.	
Particle board	Wood	15,8	0	0	88
Ceramic steel	Steel	7,60	13,9	3,41	0
Aluminium profile	Aluminium	0,86	0	0	0
Aluminium foil	Aluminium	0,64	0	40	0
Pen shelf	Aluminium	0,49	0	0	0
Glue	Glue	0,24	0	0	0
Fittings	Steel	0,06	0	0	0
Plastic corners	Plastic (LDPE)	0,01	0	0	0
<b>Total</b>		<b>25,7</b>	<b>4,1</b>	<b>2,0</b>	<b>54,1</b>
<b>Packaging</b>					
Cardboard	Cardboard	1,69	0	80	100
Corner protectors	Cardboard	0,24	0	50	100
Edge protectors	Plastic (LDPE)	0,34	0	30	0
Plastic band	Plastic (PP)	0,04	0	0	0
Wooden stands	Wood	0,67	0	0	100
<b>Substances of Very High Concern (SVHC)</b>	-	<b>Weight (mg)</b>	<b>Weight-% (versus the product)</b>		<b>exceeds 0.1%</b>
(No SVHC exceeding 0,1 wt% in product)					

The majority of the product weight comes from the particle board and the ceramic steel. The ceramic steel makes up the writing surface and consists of 88% steel and 12% enamel.

**Manufacturing** takes place in Nybro, Sweden and includes gluing, cutting and assembling. The energy consumption for manufacturing was estimated based on yearly energy use and total production of whiteboards compared to LINTEX total production. It is, on a yearly basis, covered by LINTEX own production from their rooftop solar cells and their geothermal heat pump.

**Packaging** is shown in the table above, including wooden stands for transportation.

It is assumed that there are no environmental aspects during **installation** or **use** of the product, except the waste management of packaging after installation.

**End of life** is based on a generic European waste scenario where LINTEX main markets are located.

## Environmental performance

### Potential environmental impact

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Global warming potential (GWP)	Fossil	kg CO <sub>2</sub> eq.	6,73E+01	6,07E+00	2,05E+00	7,54E+01
	Biogenic	kg CO <sub>2</sub> eq.	-1,81E+01	6,05E-03	2,21E+01	3,97E+00
	Land use and land transformation	kg CO <sub>2</sub> eq.	1,58E-01	2,95E-03	1,92E-04	1,62E-01
	TOTAL	kg CO <sub>2</sub> eq.	4,94E+01	6,08E+00	2,44E+01	7,99E+01
Acidification potential (AP)		kg SO <sub>2</sub> eq.	3,87E-01	2,59E-02	8,79E-03	4,21E-01
Eutrophication potential (EP)		kg PO <sub>4</sub> <sup>3-</sup> eq.	2,08E-02	5,18E-04	1,06E-04	2,14E-02
Photochemical oxidant formation potential (POFP)		kg NMVOC eq.	2,64E-01	2,03E-02	1,33E-02	2,97E-01
Abiotic depletion potential – Elements		kg Sb eq.	2,17E-04	1,67E-04	1,55E-06	3,86E-04
Abiotic depletion potential – Fossil resources		MJ, net calorific value	7,77E+02	9,02E+01	1,32E+01	8,81E+02
Water scarcity potential		m <sup>3</sup> eq.	2,71E+01	5,24E-01	1,00E-01	2,77E+01

### Global warming potential IPCC 2021

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
GWP-GHG	kg CO <sub>2</sub> eq.	6,56E+01	6,02E+00	4,45E+00	7,60E+01



## Use of resources

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	0,00E+00	1,55E+01	2,11E-01	<b>1,57E+01</b>
	Used as raw materials	MJ, net calorific value	2,21E+02	0,00E+00	0,00E+00	<b>2,21E+02</b>
	TOTAL	MJ, net calorific value	2,21E+02	1,55E+01	2,11E-01	<b>2,36E+02</b>
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	8,09E+02	9,58E+01	1,40E+01	<b>9,19E+02</b>
	Used as raw materials	MJ, net calorific value	1,96E+01	0,00E+00	0,00E+00	<b>1,96E+01</b>
	TOTAL	MJ, net calorific value	8,28E+02	9,58E+01	1,40E+01	<b>9,38E+02</b>
Secondary material	kg	1,57E+00	0,00E+00	0,00E+00	<b>1,57E+00</b>	
Renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	<b>0,00E+00</b>	
Non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	<b>0,00E+00</b>	
Net use of fresh water	m <sup>3</sup>	5,94E-01	1,64E-02	1,58E-02	<b>6,26E-01</b>	

## Waste production and output flows

### Waste production

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Hazardous waste disposed	kg	0	0	0	0
Non-hazardous waste disposed	kg	0	0	0	0
Radioactive waste disposed	kg	0	0	0	0

### Output flows

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	0	1,35E+00	1,35E+00
Materials for energy recovery	kg	0	0	1,75E+01	1,75E+01
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0

## Other environmental indicators

Impact category	UNIT	Upstream	Core	Downstream	TOTAL
Human toxicity, cancer impacts	cases	2,05E-05	3,84E-07	2,90E-07	2,12E-05
Human toxicity, non-cancer impacts	cases	1,41E-05	8,92E-07	8,65E-07	1,58E-05
Fresh water ecotoxicity	PAF .m3 .day	4,12E+05	1,43E+04	2,59E+05	6,85E+05
Land use	species.yr	2,31E+03	4,93E+01	5,07E+00	2,37E+03

Share of biogenic carbon	Unit	Amount
Biogenic carbon in the product	kg C	5,56
Biogenic carbon in the packaging	kg C	1,15

## Additional information

Overall, most of the environmental impact of BOARDER can be attributed to the emission of greenhouse gases and particulate matter, the use of fossil resources and the emission of toxic substances into ecosystems. Most of these occur in the production of raw materials (upstream), particularly the ceramic steel, aluminium profile and pen shelf. The impacts of the ceramic steel come mainly from the production of the raw materials, including steel and enamelling ingredients as well as from combustion for the enamelling process. The impacts of the aluminium profile and pen shelf are caused mainly by the use of non-renewable electricity for aluminium production.

## References

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