

# Environmental Product Declaration



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

## *Thermowood*

from

**Södra Wood A/S**



Programme:

The International EPD® System, [www.environdec.com](http://www.environdec.com)

Programme operator:

EPD International AB

EPD registration number:

S-P-11801

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2023-12-18

Valid until:

2028-12-17

***EPD of multiple products, based on the average results of the product group.***

*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)*



## General information

### Programme information

<b>Programme:</b>	The International EPD® System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
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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): *Construction products, 2019:14, Version 1.3.1 and c-PCR Wood and wood-based products for use in construction (EN 16485:2014)*

PCR review was conducted by: *The Technical Committee of the International EPD® System. Claudia A. Peña. Contact via [info@environdec.com](mailto:info@environdec.com)*

#### Life Cycle Assessment (LCA)

LCA accountability: *Fanni Végvári, CarbonZero AB*

#### Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

EPD verification by individual verifier

Third-party verifier: *Vladimír Kočí, LCA Studio, Czech Republic*



Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes  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:

Södra Wood A/S

Contact:

Rasmus Vadmand, rasmus.vadmand@sodra.com

Description of the organisation:

Södra Wood A/S is a timber import company with many years of experience who deliver to Scandinavian timber traders, the furniture industry and other wood-consuming industries.

Name and location of production site(s):

Rundhällen, Sweden

Koppom, Sweden

## Product information

Product name(s):

Thermowood and painted Thermowood.

Product description:

Thermowood distributed by Södra Wood A/S are timber for cladding. There are several processes and different actors involved in the manufacturing of the timber. Firstly, the wood is harvested from forests and transported to a sawmill where the wood is debarked and cut into size. The lumber is then sent off for thermal treatment and is treated in 212 degrees Celsius. The thermally treated lumber is then transported for planing of the lumber. For some of the products, planing is the last step of the process and final product, while some are being surface treated with a water-based oil.

Geographical scope:

Sweden and Norway for suppliers and Denmark for distribution of final product.

## LCA information

Functional unit / declared unit:

1 m<sup>3</sup> of Thermowood with a density of 420 kg/m<sup>3</sup>.

Reference service life:

100 years, same as building.

Time representativeness:

The data is represented for the year of 2022.

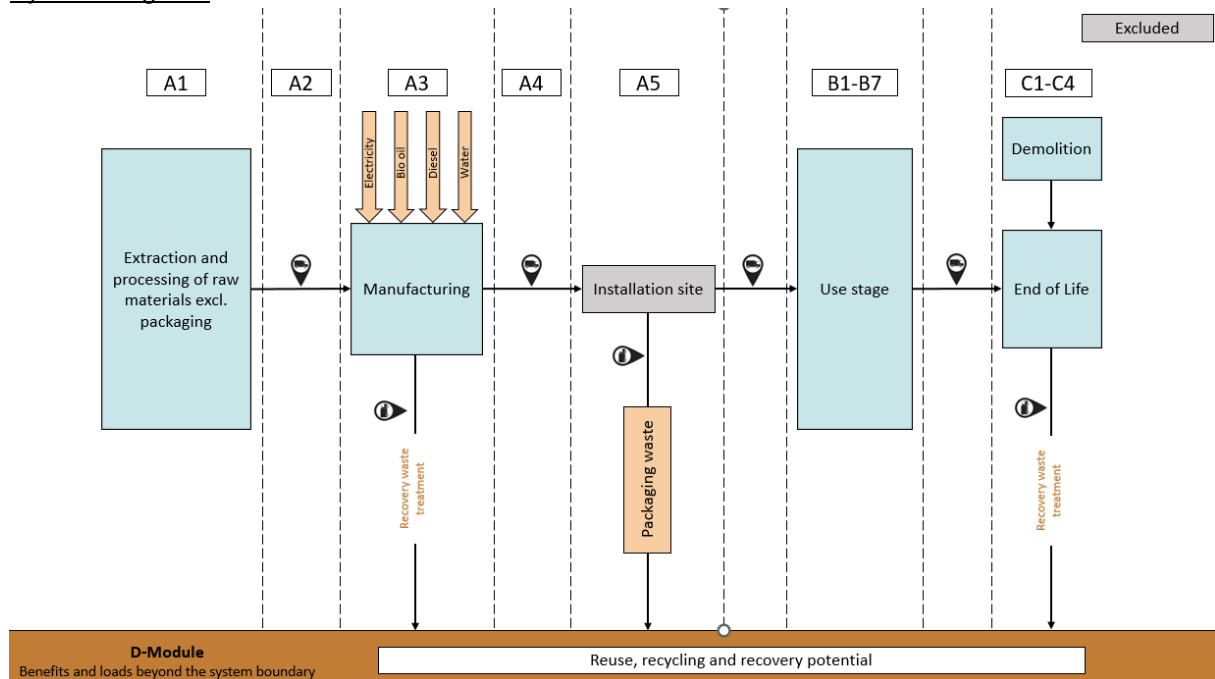
Database(s) and LCA software used:

LCA for Experts (v.10.7.1.28) with an integrated Ecoinvent database v.3.8.

Description of system boundaries:

Cradle to grave and module D (A + B + C + D).

### System diagram:



### More information:

#### *A1, raw material supply*

This module considers the extraction and processing of all raw materials, energy, and transportation which occur upstream to the studied manufacturing process (except for ancillary material used in product manufacturing process).

#### *A2, transport to the manufacturer*

The raw materials are transported to the manufacturing site. This also includes additives and packaging.

#### *A3, manufacturing*

This module includes manufacturing of Thermowood, including packaging material.

#### *A4, Transport*

Transportation from the manufacturing site to the construction site is taken into account, and is calculated based upon an average distance of 350 km.

#### *A5, Construction installation*

This stage includes any resources used during the installation of the product on the construction site. Treatment of the packaging waste on-site is considered.

#### *B1-B7 Use phase*

This stage includes no activities or emissions related to the product.

#### *C1 Deconstruction/Demolition*

This stage includes the de-construction and/or demolition of the Thermowood.

### *C2 Transport*

Transport distance to waste processing.

### *C3 Waste processing*

This stage includes any waste treatment needed.

### *C4 Final disposal*

This includes any material that is landfilled.

### *D Benefits and loads beyond the system boundary*

Emission credits are obtained from energy recovery and recycling of waste materials. In energy recovery, it is assumed that heat and electricity from waste incineration substitute thermal energy from natural gas and average Swedish electricity grid mix, respectively.

### Omissions of life cycle stages

The following flows were excluded from the system boundary:

- A1-A3: The plants, production of machines and transportation systems are excluded since the related flows are supposed to be negligible compared to the potential environmental impacts through the life cycle of the product.

In addition, the following flows are excluded from the system boundaries:

- Flows related to human activities, such as employee transport.

### Cut-off criteria

The following procedures were followed for the exclusion of inputs and output.

- All input and output flows in a unit process were considered i.e., taking into account the value of all flows in the unit process and the corresponding LCI where data was available.
- Data gaps were filled by conservative assumptions with average or generic data. Any assumptions in such cases were documented.
- The use of cut-off criterion on mass inputs and primary energy at the unit process level (1%) and at the information module level (5%).

All hazardous and toxic materials and substances are included in the inventory and the cut-off rules do not apply.

### Allocation

Allocation criteria are based on mass allocation.



## LCA: Scenarios and additional technical information

### TRANSPORT FROM THE PRODUCTION PLACE TO THE USER (A4)

#### Transportation model

Transportation type	Capacity utilisation (incl. return) %	Type of vehicle	Distance (km)	Fuel/Energy consumption
Truck	61%	Average truck trailer with a 27 t payload	350	1,95 l/tkm diesel

#### Fuel type used

Fuel type	Database	Regional coverage	Time reference
EU 28: Diesel mix (6,35% bio-content)	Sphera	EU	2017

### END OF LIFE (C2-C4)

#### Transport distance to waste processing (C2)

Transportation type	Capacity utilisation (incl. return) %	Type of vehicle	Distance (km)	Fuel/Energy consumption
Truck	61%	Average truck trailer with a 27 t payload	50	1,95 l/tkm

#### Waste treatment and disposal rates (C3-C4)

Packaging material	Recycling rate	Incineration rate	Landfill rate
Wood	67%	31%	2%

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	X	X	X	X	X	X
Geography	SE/ NO	SE/ NO	SE	SE/DK	DK	DK	DK	DK	DK	DK	DK	DK	DK	DK	DK	DK	DK	
Specific data used	Specific data is used for module A1-A3			-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Variation – products	2%			-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Variation – sites	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-	

## Content information

The content information is declared for the worst-case product, painted Thermowood.

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, kg C/kg
Wood	518	0	221
Water content (19%)	98	0	0
Paint	25	0	0
<b>TOTAL</b>	<b>420</b>	<b>0</b>	<b>221</b>
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Plastic film	0,41	0,1	0
PET band	0,065	0,02	0
<b>TOTAL</b>	<b>0,475</b>	<b>0,12</b>	<b>0</b>

During the life cycle of the product no hazardous substance listed in the “Candidate List of Substances of Very High Concern (SVHC) for authorization” has been used in a percentage higher than 0,1% of the weight of the product.



## Results of the environmental performance indicators

### Mandatory impact category indicators according to EN 15804

Results per functional or declared unit										
Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	-7,25E+02	5,40E+00	5,51E-01	0,00E+00	1,31E-01	2,46E-02	8,38E+02	8,29E+00	-6,89E+02
GWP-fossil	kg CO <sub>2</sub> eq.	1,14E+02	1,06E+01	1,10E+00	0,00E+00	2,57E-01	4,86E-02	3,59E+00	1,18E+00	-2,29E+02
GWP-biogenic	kg CO <sub>2</sub> eq.	-8,44E+02	0,00E+00	5,38E-05	0,00E+00	0,00E+00	0,00E+00	8,37E+02	7,70E+00	-4,60E+02
GWP-luluc	kg CO <sub>2</sub> eq.	8,63E+00	9,75E-02	-1,48E-05	0,00E+00	2,33E-03	2,94E-04	8,23E-04	1,19E-03	-4,85E-01
ODP	kg CFC 11 eq.	4,01E-08	1,01E-12	-6,00E-13	0,00E+00	3,28E-14	9,55E-14	2,10E-11	3,19E-13	-1,09E-09
AP	mol H <sup>+</sup> eq.	4,40E-01	1,99E-02	-1,54E-03	0,00E+00	1,32E-03	5,13E-04	3,47E-02	5,16E-03	-9,74E-01
EP-freshwater	kg P eq.	8,89E-04	3,85E-05	-8,18E-07	0,00E+00	9,22E-07	2,24E-07	5,93E-06	8,36E-06	-1,74E-03
EP-marine	kg N eq.	1,65E-01	8,24E-03	-2,67E-04	0,00E+00	6,18E-04	1,37E-04	9,96E-03	1,54E-03	-4,07E-01
EP-terrestrial	mol N eq.	2,04E+00	9,40E-02	-2,36E-03	0,00E+00	6,84E-03	1,50E-03	1,44E-01	1,66E-02	-4,35E+00
POCP	kg NMVOC eq.	5,20E-01	1,77E-02	-9,17E-04	0,00E+00	1,73E-03	3,70E-04	2,73E-02	6,42E-03	-1,10E+00
ADP-minerals&metals*	kg Sb eq.	1,47E-04	6,87E-07	-4,04E-08	0,00E+00	1,67E-08	4,99E-09	1,96E-07	9,68E-08	-2,31E-05
ADP-fossil*	MJ	3,54E+03	1,44E+02	-1,74E+01	0,00E+00	3,43E+00	1,11E+00	5,31E+01	1,71E+01	-4,64E+03

WDP*	m <sup>3</sup>	1,01E+01	1,25E-01	-9,78E-02	0,00E+00	3,05E-03	4,54E-03	2,33E+01	3,13E-02	-5,53E+01
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-land use and land use change = 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

Results per functional or declared unit										
Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-GHG <sup>1</sup>	kg CO <sub>2</sub> eq.	1,29E+02	1,07E+01	4,66E-01	0,00E+00	2,60E-01	4,90E-02	3,60E+00	6,90E+00	-2,30E+02

### Resource use indicators

Results per functional or declared unit										
Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	MJ	-5,36E+06	1,06E+01	-2,74E+00	0,00E+00	2,50E-01	5,13E-01	1,32E+01	1,06E+00	-1,03E+04
PERM	MJ	5,37E+06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	7,70E+03	1,06E+01	-2,74E+00	0,00E+00	2,50E-01	5,13E-01	1,32E+01	1,06E+00	-1,03E+04
PENRE	MJ	3,52E+03	1,44E+02	-1,74E+01	0,00E+00	3,45E+00	1,11E+00	5,31E+01	1,71E+01	-4,62E+03

<sup>1</sup> 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 CO<sub>2</sub> is set to zero.

PENRM	MJ	1,35E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,54E+03	1,44E+02	-1,74E+01	0,00E+00	3,45E+00	1,11E+00	5,31E+01	1,71E+01	-4,62E+03
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m <sup>3</sup>	2,00E+00	1,19E-02	-5,33E-03	0,00E+00	2,74E-04	7,31E-04	5,47E-01	8,47E-04	-1,96E+00
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 resources; 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

Results per functional or declared unit										
Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	-9,86E-08	4,29E-10	1,12E-11	0,00E+00	1,07E-11	-9,96E-11	1,20E-09	5,42E-08	-4,49E-08
Non-hazardous waste disposed	kg	1,13E+00	2,13E-02	-4,27E-04	0,00E+00	5,25E-04	7,00E-04	4,16E+00	9,12E+00	-9,94E+00
Radioactive waste disposed	kg	6,96E-01	3,67E-04	-8,78E-04	0,00E+00	6,45E-06	1,83E-04	3,01E-03	1,22E-04	-9,47E-02

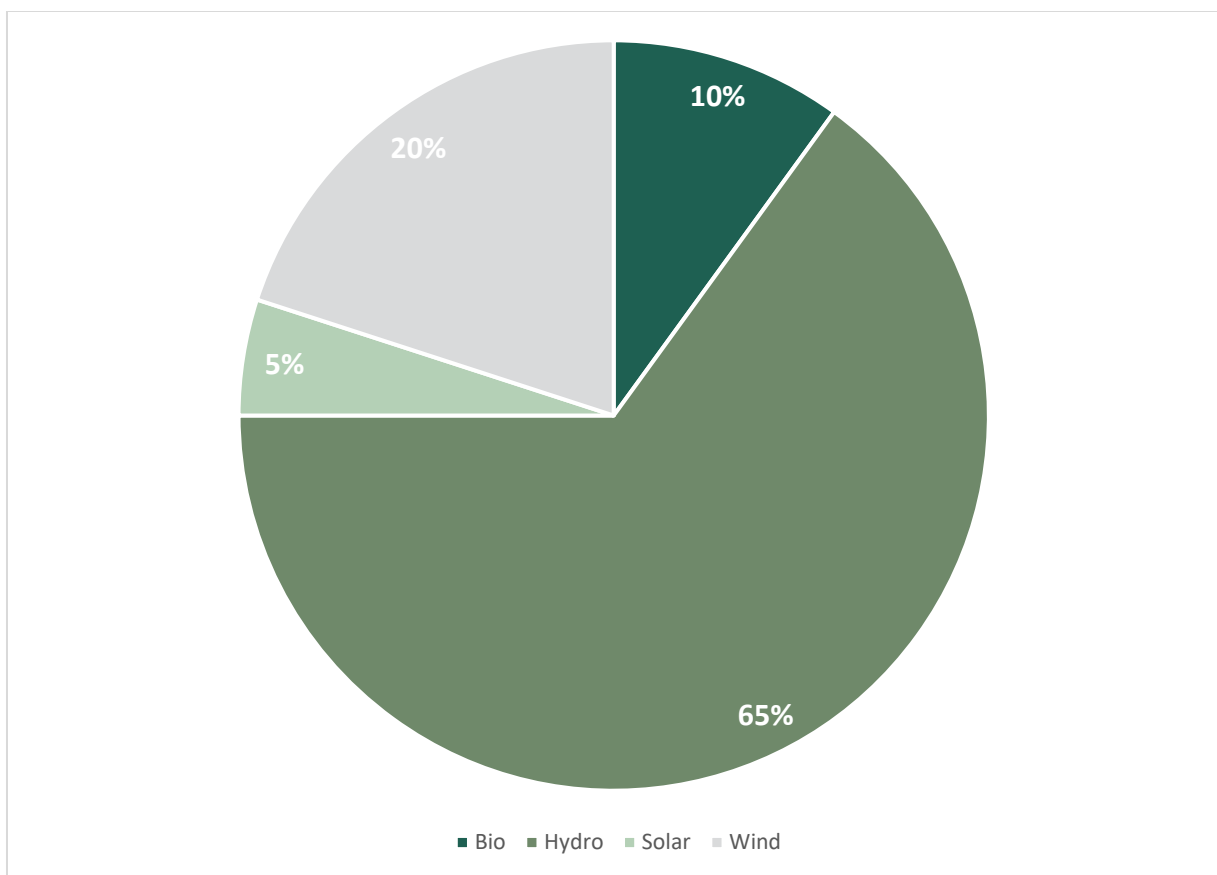
## Output flow indicators

Results per functional or declared unit										
Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	6,71E-01	0,00E+00	1,24E-01	0,00E+00	0,00E+00	0,00E+00	5,63E+02	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	-8,21E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,95E+02	1,79E+00	-2,00E+00
Exported energy, thermal	MJ	-1,87E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-5,31E+02	0,00E+00	-4,62E+00

## Additional environmental information

Greenhouse gas emission from the use of electricity in the manufacturing phase.

Electricity mix	Value
Location	Sweden
Electricity mix	Bio: 10% Hydro: 65% Solar: 5% Wind: 20%
Reference year	2022



## References

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EN 15804:2012+A2:2019- Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products

General Programme Instructions of the International EPD<sup>®</sup> System. Version 4.

ISO 14020:2000 Environmental labels and declarations — General principles

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures


ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines

NPCR 015 for wood and wood-based products

PCR 2019:14 Construction products and construction services. Version 1.3.1.

Statistics Denmark. 2020. Waste generation by industry, time, kind of treatment and waste category  
<https://www.statbank.dk/statbank5a/SelectVarVal/saveselections.asp> (Retrieved 2023-11-27)

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