ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

TEMAL PAINTED WHITE WASHBASIN CABINETS, TWO DRAWERS, 625 MM WIDTH, 400 MM DEPTH

TEMAL OY

GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	Temal Oy
Address	Huoltamotie 3, Nakkila
Contact details	temal@temal.fi
Website	www.temal.fi

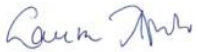
PRODUCT IDENTIFICATION

Product name	Temal painted white washbasin cabinets, two drawers, 625 mm width 400 mm depth
Additional label(s)	Stella, Trend, Temalette, Round
Product number / reference	MSL, ST, TL, TRL
Place(s) of production	Nakkila, Finland

The Building Information Foundation RTS sr

EPDs within the same product category but from different programmes may not be comparable.

Jukka Seppänen
RTS EPD Committee Secretary



Laura Apilo
Managing Director

EPD INFORMATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Construction products EPDs may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPD program operator	The Building Information Foundation RTS sr
EPD standards	This EPD is in accordance with EN 15804+A2and ISO 14025 standards.
Product category rules	The CEN standard EN 15804 serves as thecore PCR. In addition, the RTS PCR (English version, 26.8.2020) is used.
EPD author	Heidi Seppä, Temal Oy
EPD verification	Independent verification of this EPD anddata, according to ISO 14025: □ Internal certification ☒ External verification
Verification date	January 4, 2022
EPD verifier	Anni Oviir, Rangi Maja OÜ
EPD number	RTS_170_22
ECO Platform nr.	-
Publishing date	January 20, 2022
EPD valid until	January 20, 2027

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Temal's product range includes furniture for bathroom, utility room, storage and kitchen. These products represent the lucid Nordic style, which is well-known for its long-lasting quality and versatile sense of functionality. Fittings with a tailored design are harmoniously suitable for furnishing the whole home. The flexible 5 cm dimensioning ensures that Temal fits perfectly into all homes – from small to large spaces – without compromising on style, quality or functionality.

The clean design language of the Temal washbasin combined with the clear lines of the two-drawer vanity unit provides the bathroom with a stylish look. The enamelled flat washbasin is made of glazed steel. It is both hygienic and easy to clean. The drawers are equipped with soft-sliding hinges, which add comfort. The Temal washbasin and vanity units are produced from carefully selected materials. The space-saving water trap provides extra space for storage.

The vanity unit is fully recyclable and suitable for energy use. Steel parts are recycled, and wood-based and plastic parts go into energy production. Some raw materials used in Temal products have already been recycled, but the percentages are small and difficult to determine, therefore they have been ignored in the present study

Temal products are manufactured at the Nakkila factory from wood-based furniture boards by sawing, cutting and painting. Assembly is also carried out at the factory. Temal mainly supplies fully assembled furniture.

PRODUCT APPLICATION

Bathroom furniture
Wall-mounted without support legs. Suitable for use indooruse in damp facilities.

TECHNICAL SPECIFICATIONS

The vanity unit frame and front panels are made of wood-based furniture board, melamine and MDF board. The washbasin on top of the vanity unit is a steel-frame enamelled countertop washbasin.
Vanity units Stella and Trend

The furniture has two drawers with melamine and MDF frames. The drawer slide rails are made of steel.

The furniture contains two aluminium profile handles or two metal wire handles. The weight differences has been considered and calculated with both the aluminium handle and metal handle. The difference in outcome is insignificant.

This study concerns a medium-sized vanity unit, 625 mm wide and 400 mm deep, height 640 mm.

PRODUCT STANDARDS

The production has been certified by ISO-9001. More information https://temal.fi/

PHYSICAL PROPERTIES OF THE PRODUCT

Width 625 mm
Depth 400 mm
Height 640 mm
Weight 28,38 kg

Moisture-resistant
The width of the furniture is always 25 mm narrower than the width of the counter top washbasin on top of the furniture.

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at www.temal.fi.

PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer %	Renewable %	Country Region of origin
steel	9,64	-	-	EU
wood based	17,4	-	100	EU
paint and glue	0,69	-	-	EU
plastic	0,54	-	-	EU
aluminium	0,1	-	-	EU

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	34,3	EU
Minerals	0	EU
Fossil materials	4,4	EU
Bio-based materials	61,3	EU

PRODUCT LIFE-CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

Temal products are manufactured at the Nakkila factory from wood-based furniture boards by sawing, cutting and painting. Assembly is also carried out at the factory.

Dispersion glue is used with the wooden pegs in the assembly phase. This glue is harmless to health and the environment and accounts for approximately one per mille of the total mass and has therefore been ignored in the present study. The glue goes to energy use with the furniture board.

The tools are electrically operated and no water is used in the process. No water is used on the paint line due to solvent-based paints. The factory halls are heated with propane gas. Components are transported inside the factory by roller cages or pump carts by manpower. Products are packaged manually in cardboard boxes made of partly recycled material and then transferred onto a forklift truck pallet for plastic coating. The amount of plastic wrapper is kept at a minimum. The small amount of plastic just ensure that the packaging remains on the pallet.

Products are loaded onto trucks using an electronic forklift.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The furniture is delivered assembled. The furniture is packed in a cardboard box and covered with plastic on a forklift truck pallet. Trucks transporting products also transport other products, so the productis loaded in the remaining space of the truck. Smaller delivery trucks are sometimes used instead of regular trucks.

The product is delivered approximately 17 km from the Nakkila factory to the Posti terminal in Pori, from where the delivery then continues to the terminal closest to the delivery address. From this point, the average transport distance to the customer is approximately 220 km (European lorry > 32 tonnes).

Before installation and after leaving the factory, the furniture is stored in dry and warm premises. The product is installed either by a private person or by an installer if the installation takes place, for example, in a housing company under the responsibility of a developer. Installation is usually carried out using only plain tools, such as a spirit level and battery-operated screwdriver.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase. Air, soil, and water impacts during the use phase have not been studied. The life cycle of the Temal furniture, when properly used and maintained, is approximately 20 years.

PRODUCT END OF LIFE (C1-C4, D)

The vanity unit is fully recyclable and suitable for energy use. Steel parts are recycled, and wood-based and plastic parts go into energy production. Some raw materials used in Temal products have already been recycled

When the furniture has reached the end of its life cycle, it can be disposed of by sorting the wood-based parts into the recycling centre's wood recycling point and the metal parts into the metal recycling point.

Disassembly can be performed with the help of manual tools. The furniture can be easily disassembled into different waste types for recycling and disposal. The product cannot be recycled among the household mixed waste, but the components of the furniture must be delivered to a separate recycling station. The vanity unit does not contain harmful substances, WEEE waste or any other material that is not reusable or recyclable. The average distance from the final destination to the recycling station is assumed to be 23 km.

LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	Calendar year 2019

DECLARED AND FUNCTIONAL UNIT

Declared unit	1 unit, painted white washbasin cabinet with two drawers and sink (625 width 400 depth)
Mass per declared unit	28,38 kg

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	7,91
Biogenic carbon content in packaging, kg C	1,06

SYSTEM BOUNDARY

This EPD covers the *cradle to gate with options* scope with following modules; C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary is included.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x	x	x
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances.

The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

Materials representing less than 1% of all the product materials, in relation to the mass of the whole furniture, are excluded from the calculation.

The quantities of glue, wooden fastening pegs and binder laths are excluded from the calculation. The amount of glue in the furniture accounts for approximately 0.2% and the binder lath for 0.4% of the

total mass of the furniture. The wooden pegs weigh a total of 0.002 kg, i.e. less than one per mil of the total weight. In total less than 1%.

Acquisition, maintenance and use of production equipment and construction activities on the premises of the production plant or on the site, infrastructure and personnel-related activities are not included in the calculation. Activities related to the management and sales of the company and the use of energy and water by the headquarters and the factory's recreational facilities are not included in the calculation.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order;

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.

3. Allocation should be based on economic values.

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

Manufacturing materials - A1

The raw material consumption data have been obtained for the product examined and therefore no allocation of these data was necessary.
In this project m3 has been used instead of kg. For the calculations of wood-based material, the average densities of melamine, 700 kg/m3, and MDF furniture board, 700 kg/m3, have been used.

The difference between the countertop washbasins Stella (Temalette), Trend and Round is the shape of the washbasin, which does not significantly affect the weight of the washbasin, so it has been ignored. It has been assumed and verified by weighing that the various washbasin models affect the total weight of the final product only a little and it has therefore been assumed that the calculation is valid for the vanity furniture listed in this study, regardless of the shape of the washbasin.

Possible recycled steel as a raw material has not been taken into account in the production of the enamelled washbasin, but all steel has been assumed to be virgin steel in the calculation. The other difference between Stella and Trend is that Stella has an aluminium profile handle and Trend has a metal handle. Calculation has been done with aluminium handles. The difference in outcome is insignificant.

The paint density has been assumed to be 1.6 kg/litre for each layer of paint, according to which the per-furniture mass of the paint has been calculated using known litres of paint consumption. The correctness of the paint feed in the paint shop is determined by weighing a 100 cm2 test plate before and after the application of the

paint. The primer and topcoat have a slightly different feed, which has, however, been found to be insignificant in relation to the final mass of the paint.

Ancillary and packaging materials – A3

Packaging material consumption, reason for allocation: measured at the production plant level Waste generation, reason for allocation: measured at the production plant level The inputs were allocatedto the product under examination on the basis of the production volumes.

Depending on the situation and order, the forklift pallet may contain several vanity units or, for example, only one vanity unit, storage cabinets and mirror cabinets.
The capacity of utilization of the forklift pallet has been calculated on average. Average unit of products packed on the same pallet is four.

Manufacturing energy use – A3

Production flows could not be allocated in terms of the following flows, as the data is only measured at the level of the production plant: Electricity, heat and propane gas consumption, reason for allocation: measured at the production plant level

In this study, energy consumption has been divided equally and is by default equal for all the furniture manufactured. The separate electricity consumption of the painting line cannot be verified, so the share of energy used by the painting line is also calculated in relation to all the products.

In the production of enamelled washbasins, electricity consumption can be calculated per washbasin. There is no precise information on the quality of electricity, so the resource market for electricity, medium voltage has been used.

Manufacturing waste and wastewater - A3

The generated waste has also been divided equally for all the furniture manufactured in the factory during the year, with the exception of the waste generated on the painting line, which has been divided equally for the painted furniture manufactured during the year.

Transport to the building site - A4

The transport distance from the factory to the customer is an average estimate. If all deliveries within Finland are studied, the average delivery distance is 220 km (average European lorry > 32 tonnes).

Transport to waste processing - C2

At the end of the life cycle, the average distance transported to waste treatment is 23 km. The figure is based on the average distance and the estimate of the dispersion in the distances of the sorting points.

Waste processing for reuse, recovery and/or recycling - C3

In the furniture board materials, the waste percentage has been calculated to be 15%. By default, the waste percentage is the same regardless of the size of the furniture to be manufactured. The vanity furniture covered by the study, the white painted 625/400 Stella, Trend, Temalette and Round units with drawers, represented approximately 1% of Temal's total production in 2019. The amount of waste per furniture also includes the 3% waste of the paint line

and the waste parts of wood-based materials obtained per furniture by calculating the weight loss percentage of the boards using 15%. This 15% is used as an energy resource not as waste. Wood-based waste materials are used in energy production. The wood chips are not a commodity for Temal and those are free for end user. Temal does not get cost compensation from wood-based waste material. At the end of the life cycle, it is assumed that wood-based and plastic materials are completely burned into energy and the steel washbasin and metal parts are recycled, as well as the aluminium handle. It has been assumed in the calculation that 2–4% of the demolition waste from the furniture will end up in final disposal.

Waste from wood-based materials replace fossil fuels. The same average effective calorific value of 18.7 MJ/kg has been used in the calculation of energy efficiency for MDF and melamine boards (wood-based materials). The used efficiency of the CHP plant in the calculation was approximately 73% as a whole, of which the efficiency for electricity is 11% and for heat production 62%. Source: The fuel efficiency of the power plant is 73%, of which heat accounts for 62% (Eriksson, O & Finnveden, G. 2017). The calorific value of wood waste is 4.7 kWh/kg (VTT. 2016)

At the end of the life cycle, the assumption is that 99.9% of the steel is recycled, assuming that all recycled steel material replaces the use of virgin metal.

Allocation used in Ecoinvent 3.6 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of the EN 15804 - standard.

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AVERAGES AND VARIABILITY

A mid-sized piece of furniture is studied in this report. With its depth and width, the furniture represents an average product. A changeof 5 cm in the width or depth corresponds to a change in mass of approximately 1.6 kg.

ENVIRONMENTAL IMPACT DATA

Note: additional environmental impact data may be presented in annexes.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO_2e	3,83E1	4,85E-1	1,96E1	5,83E1	6,08E-1	4,87E1	MND	MND	MND	MND	MND	MND	MND	0E0	5,94E-2	1,65E1	1,1E0	6,31E0
GWP – fossil	kg CO_2e	5,23E1	4,85E-1	2,29E1	7,57E1	6,14E-1	8,32E-1	MND	MND	MND	MND	MND	MND	MND	0E0	5,93E-2	1,51E0	9,53E-1	-3,77E1
GWP – biogenic	kg CO_2e	-1,5E1	3,52E-4	-3,57E0	-1,86E1	4,46E-4	4,79E1	MND	MND	MND	MND	MND	MND	MND	0E0	4,31E-5	1,5E1	1,46E-1	4,4E1
GWP – LULUC	kg CO_2e	1,05E0	1,46E-4	2,19E-1	1,27E0	1,85E-4	4,44E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1,79E-5	7,94E-4	5,97E-6	-4,68E-3
Ozone depletion pot.	kg CFC_{-11}e	3,76E-6	1,14E-7	2,28E-6	6,15E-6	1,44E-7	4,89E-8	MND	MND	MND	MND	MND	MND	MND	0E0	1,39E-8	6,4E-8	2,38E-9	-4,87E-6
Acidification potential	mol H^+e	3,33E-1	2,04E-3	8,89E-2	4,24E-1	2,58E-3	3,04E-3	MND	MND	MND	MND	MND	MND	MND	0E0	2,49E-4	4,87E-3	2,36E-4	-1E-1
EP-freshwater[2)]	kg Pe	3,25E-3	3,94E-6	7,28E-4	3,98E-3	4,99E-6	1,4E-5	MND	MND	MND	MND	MND	MND	MND	0E0	4,83E-7	3,28E-5	2,67E-7	-8,03E-4
EP-marine	kg Ne	5,83E-2	6,13E-4	1,48E-2	7,36E-2	7,77E-4	2,76E-3	MND	MND	MND	MND	MND	MND	MND	0E0	7,51E-5	1,13E-3	1,1E-4	-2,03E-2
EP-terrestrial	mol Ne	6,58E-1	6,77E-3	1,69E-1	8,33E-1	8,58E-3	1,03E-2	MND	MND	MND	MND	MND	MND	MND	0E0	8,29E-4	1,29E-2	1,14E-3	-2,39E-1
POCP (“smog”)	kg NMVOCe	2,2E-1	2,18E-3	4,95E-2	2,71E-1	2,76E-3	3,73E-3	MND	MND	MND	MND	MND	MND	MND	0E0	2,67E-4	3,49E-3	2,75E-4	-1,13E-1
ADP-minerals & metals	kg Sbe	1,78E-3	8,27E-6	8,1E-5	1,87E-3	1,05E-5	5,97E-6	MND	MND	MND	MND	MND	MND	MND	0E0	1,01E-6	1,77E-5	3,55E-7	-2,36E-5
ADP-fossil resources	MJ	7E2	7,54E0	4,92E2	1,2E3	9,55E0	5,44E0	MND	MND	MND	MND	MND	MND	MND	0E0	9,23E-1	7,95E0	1,86E-1	-4,64E2
Water use[1)]	m^3e depr.	4,05E1	2,8E-2	5,97E0	4,65E1	3,55E-2	1,04E-1	MND	MND	MND	MND	MND	MND	MND	0E0	3,43E-3	1,26E-1	4,5E-2	-5,41E0

1) GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. 2) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator. 3) Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO_4e.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	4,58E-6	4,38E-8	4,79E-7	5,1E-6	5,55E-8	7,31E-8	MND	MND	MND	MND	MND	MND	MND	0E0	5,37E-9	5,37E-8	1,2E-9	-1,17E-6
Ionizing radiation[3)]	kBq U235e	2,59E0	3,29E-2	1,31E1	1,57E1	4,17E-2	2,34E-2	MND	MND	MND	MND	MND	MND	MND	0E0	4,03E-3	3,86E-2	3,77E-4	1,19E-1
Ecotoxicity (freshwater)	CTUe	1,86E3	5,76E0	3,88E2	2,25E3	7,3E0	1,52E1	MND	MND	MND	MND	MND	MND	MND	0E0	7,05E-1	2,15E1	1,99E0	-6,14E2
Human toxicity, cancer	CTUh	4,77E-7	1,47E-10	1,21E-8	4,89E-7	1,87E-10	1,45E-9	MND	MND	MND	MND	MND	MND	MND	0E0	1,8E-11	6,71E-10	8,61E-11	-4,42E-9
Human tox. non-cancer	CTUh	1,46E-6	6,83E-9	2,38E-7	1,7E-6	8,65E-9	2,71E-8	MND	MND	MND	MND	MND	MND	MND	0E0	8,36E-10	2,4E-8	3,47E-9	2,33E-6
SQP	-	1,51E2	1,14E1	2,16E1	1,84E2	1,44E1	3,76E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,39E0	2,31E0	5,22E-2	-2,8E1

4) SQP = Land use related impacts/soil quality.5) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy	MJ	1,77E2	9,49E-2	1,2E2	2,96E2	1,2E-1	7,6E-2	MND	MND	MND	MND	MND	MND	MND	0E0	1,16E-2	5,55E-1	6,88E-3	-9,84E1
Renew. PER as material	MJ	1,17E2	0E0	3,84E1	1,55E2	0E0	-7,14E1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-1,16E2	0E0	0E0
Total use of renew. PER	MJ	2,93E2	9,49E-2	1,58E2	4,51E2	1,2E-1	-7,14E1	MND	MND	MND	MND	MND	MND	MND	0E0	1,16E-2	-1,16E2	6,88E-3	-9,84E1
Non-re. PER as energy	MJ	6,81E2	7,54E0	4,78E2	1,17E3	9,55E0	5,44E0	MND	MND	MND	MND	MND	MND	MND	0E0	9,23E-1	7,95E0	1,86E-1	-4,64E2
Non-re. PER as material	MJ	1,93E1	0E0	1,43E1	3,37E1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of non-re. PER	MJ	7E2	7,54E0	4,92E2	1,2E3	9,55E0	5,44E0	MND	MND	MND	MND	MND	MND	MND	0E0	9,23E-1	7,95E0	1,86E-1	-4,64E2
Secondary materials	kg	1,13E0	0E0	1,49E-2	1,14E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	6,51E0
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m^3	4,43E-1	1,57E-3	1,82E-1	6,27E-1	1,99E-3	5,81E-3	MND	MND	MND	MND	MND	MND	MND	0E0	1,92E-4	4,37E-3	1,61E-3	-1,6E-1

6) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	2,35E1	7,33E-3	1,2E0	2,47E1	9,28E-3	6,52E-2	MND	MND	MND	MND	MND	MND	MND	0E0	8,97E-4	0E0	1,38E-2	-1,64E0
Non-hazardous waste	kg	1,36E2	8,1E-1	2,4E1	1,61E2	1,03E0	6,18E0	MND	MND	MND	MND	MND	MND	MND	0E0	9,92E-2	0E0	4,86E-1	9,28E0
Radioactive waste	kg	2,09E-3	5,17E-5	5,29E-3	7,44E-3	6,55E-5	2,49E-5	MND	MND	MND	MND	MND	MND	MND	0E0	6,33E-6	0E0	4,72E-7	3,15E-5

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	1,3E-1	1,3E-1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	9,74E0	0E0	0E0
Materials for energy rec	kg	0E0	0E0	2,36E-1	2,36E-1	0E0	2,52E1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1,78E1	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	1,72E2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	2,38E2	0E0	0E0

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO_2e	1,35E0	1,71E-2	6,9E-1	2,06E0	2,16E-2	1,72E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,09E-3	5,83E-1	3,87E-2	2,22E-1
ADP-minerals & metals	kg Sbe	6,26E-5	2,91E-7	2,85E-6	6,57E-5	3,69E-7	2,1E-7	MND	MND	MND	MND	MND	MND	MND	0E0	3,57E-8	6,25E-7	1,25E-8	-8,31E-7
ADP-fossil	MJ	2,47E1	2,66E-1	1,73E1	4,23E1	3,36E-1	1,92E-1	MND	MND	MND	MND	MND	MND	MND	0E0	3,25E-2	2,8E-1	6,55E-3	-1,64E1
Water use	m^3e depr.	1,43E0	9,88E-4	2,1E-1	1,64E0	1,25E-3	3,65E-3	MND	MND	MND	MND	MND	MND	MND	0E0	1,21E-4	4,44E-3	1,58E-3	-1,9E-1
Secondary materials	kg	3,98E-2	0E0	5,26E-4	4,03E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	2,29E-1
Biog. C in product	kg C	N/A	N/A	2,79E-1	2,79E-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	N/A	N/A	3,74E-2	3,74E-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

7) Biog. C in product = Biogenic carbon content in product

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity production, nuclear, boiling water reactor (Reference product: electricity, high voltage) in Finland, Electricity production, peat (Reference product: electricity, high voltage) in Finland, Electricity production, wind, 1-3mw turbine, onshore (Reference product: electricity, high voltage) in Finland, Electricity production, hydro, run-of-river (Reference product: electricity, high voltage) in Finland, Electricity production, photovoltaic, 3kwp slanted-roof installation, multi-si, panel, mounted (Reference product:electricity, low voltage) in Finland, Market for electricity, medium voltage (Reference product: electricity, medium voltage),in Finland, (Ecoinvent 3.6, 2019)
Electricity CO_2e / kWh	0,263
Heating data source and quality	Heat production, propane, at industrial furnace >100kw (Reference product: heat, district or industrial, other than natural gas)
Heating CO_2e / kWh	0,024

Transport scenario documentation (A4)

Scenario parameter	Value
Specific transport CO2e emissions, kg CO2e /tkm	0.0901
Average transport distance, km	220
Capacity utilization (including empty return) %	50
Bulk density of transported products	137,56
Volume capacity utilization factor	100

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	28,38
Collection process – kg collected with mixed waste	-
Recovery process – kg for re-use	-
Recovery process – kg for recycling	10,02
Recovery process – kg for energy recovery	17,86
Disposal (total) – kg for final deposition	0,5
Scenario assumptions e.g. transportation	End-of-life product is product is transported 50 km with an average lorry

BIBLIOGRAPHY

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

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

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

Ecoinvent database v3.6 (2019) and One Click LCA

database. EN 15804:2012+A2:2019 Sustainability in

construction works –
Environmental product declarations – Core rules for the product category of construction products.

Temal painted white washbasin cabinets, two drawers, 625 mm width 400 depth LCA background report 10.12.2021

ABOUT THE MANUFACTURER

Temal is a family-owned company that manufactures furniture for bathroom, laundry, kitchen and storage at Temal's own factory in Nakkila, Finland. Temal's headquarter, showroom and concept store are located in Helsinki, Finland. Temal also have an office and showroom in Stockholm, Sweden. Currently, Temal employs approximately 50 people. Business activities are conducted in Finland and Sweden. Furniture is manufactured using an innovative method that allows it to be available in 5-centimetre size intervals, both in width and depth. Temal's enameled washbasins have a steel core, which provides a higher durability than traditional washbasins. All the furniture is made of impregnated, moisture-resistant frames.

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	Temal Oy
EPD author	Heidi Seppä, Temal Oy
EPD verifier	Anni Oviir, Rangi Maja OÜ
EPD program operator	The Building Information Foundation RTS sr
Background data	This EPD is based on Ecoinvent 3.6 (cut-off) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for Wood and Plant Fiber Based Products

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with EN 15804, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The background report (project report) for this EPD

Why does verification transparency matter? Read more online.

VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	Answer
Independent EPD verifier	Anni Oviir, Rangi Maja OÜ
EPD verification started on	23.11.2020
EPD verification completed on	04.01.2022
Approver of the EPD verifier	The Building Information Foundation RTS sr

Author & tool verification	Answer
EPD author	Heidi Seppä, Temal Oy
EPD author training completion	17.12.2020
EPD Generator module	Wood and Plant Fiber Based Products

Independent software verifier	Teija Käpynen, Envineer Oy
Software verification date	11.8.2020

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of

- the data collected and used in the LCA calculations,
- the way the LCA-based calculations have been carried out,
- the presentation of environmental data in the EPD, and
- other additional environmental information, as present

with respect to the procedural and methodological requirements in ISO 14025:2010 and EN 15804:2012+A2:2019.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographicalarea of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Anni Oviir, Rangi Maja OÜ

ANNEX 1 : ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	5,17E1	4,8E-1	2,28E1	7,49E1	6,08E-1	2,64E0	MND	MND	MND	MND	MND	MND	MND	0E0	5,88E-2	1,5E0	9,52E-1	-3,58E1
Ozone depletion Pot.	kg CFC_{-11}e	3,48E-6	9,06E-8	3,07E-6	6,64E-6	1,15E-7	4,28E-8	MND	MND	MND	MND	MND	MND	MND	0E0	1,11E-8	5,59E-8	2,54E-9	-3,69E-6
Acidification	kg SO_2e	2,74E-1	9,86E-4	7,43E-2	3,49E-1	1,25E-3	2,8E-3	MND	MND	MND	MND	MND	MND	MND	0E0	1,21E-4	3,33E-3	1,7E-4	-7,94E-2
Eutrophication	kg PO_4^{3}e	1,16E-1	1,99E-4	2,27E-2	1,39E-1	2,52E-4	8,04E-3	MND	MND	MND	MND	MND	MND	MND	0E0	2,44E-5	1,42E-3	1,15E-4	-2,58E-2
POCP (“smog”)	kg C_2H_4e	2,38E-2	6,25E-5	4,96E-3	2,88E-2	7,91E-5	6,86E-4	MND	MND	MND	MND	MND	MND	MND	0E0	7,65E-6	1,44E-4	3,58E-6	-1,35E-2
ADP-elements	kg Sbe	1,78E-3	8,27E-6	8,1E-5	1,87E-3	1,05E-5	5,97E-6	MND	MND	MND	MND	MND	MND	MND	0E0	1,01E-6	1,77E-5	3,55E-7	-2,36E-5
ADP-fossil	MJ	7E2	7,54E0	4,92E2	1,2E3	9,55E0	5,44E0	MND	MND	MND	MND	MND	MND	MND	0E0	9,23E-1	7,95E0	1,86E-1	-4,64E2

ANNEX 5 : ENVIRONMENTAL IMPACTS – TRACI 2.1. / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	5,13E1	4,8E-1	2,27E1	7,46E1	6,07E-1	2,84E0	MND	MND	MND	MND	MND	MND	MND	0E0	5,87E-2	1,5E0	9,52E-1	-3,55E1
Ozone Depletion	kg CFC_{-11}e	4,48E-6	1,21E-7	3,68E-6	8,28E-6	1,53E-7	5,46E-8	MND	MND	MND	MND	MND	MND	MND	0E0	1,48E-8	7,32E-8	2,5E-9	-5,15E-6
Acidification	kg SO_2e	2,75E-1	1,77E-3	7,37E-2	3,5E-1	2,25E-3	3E-3	MND	MND	MND	MND	MND	MND	MND	0E0	2,17E-4	4,16E-3	2,2E-4	-8,46E-2
Eutrophication	kg Ne	4,01E-2	2,49E-4	8,02E-3	4,84E-2	3,16E-4	2,6E-3	MND	MND	MND	MND	MND	MND	MND	0E0	3,05E-5	4,84E-4	5,73E-5	-7,11E-3
POCP (“smog”)	kg O_3e	3,24E0	3,89E-2	8,86E-1	4,16E0	4,93E-2	5,9E-2	MND	MND	MND	MND	MND	MND	MND	0E0	4,76E-3	7,09E-2	6,52E-3	-1,22E0
ADP-fossil	MJ	5,38E1	1,08E0	1,54E1	7,03E1	1,37E0	5,29E-1	MND	MND	MND	MND	MND	MND	MND	0E0	1,32E-1	6,88E-1	2,48E-2	-6,13E1