



Issuance date: 25.11.2022

Validity date: 25.11.2027

Rocko Tiles



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Basic information

This declaration is the Type III Environmental Product Declaration (EPD) based on EN 15804+A2 and verified according to ISO 14025 by an external auditor. It contains the information on the impacts of the declared construction materials on the environment and their aspects verified by the independent body according to ISO 14025. Basically, comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804+A2.

Life cycle analysis (LCA): A1-A4, C1-C4 and D modules in accordance with EN 15804

(Cradle-to-Gate with options)

The year of preparing the EPD: 2022

Product standard: EN 14041

Service Life: 15 years

PCR: ITB-PCR A

Declared unit: 1 m²

Reasons for performing LCA: B2B

Representativeness: Poland, European, 2021

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MANUFACTURER

The manufacturing plant in Jasło (Poland) is one of 12 Kronospan plants in the world producing floors and one producing floors in SPC technology.

The plant specializes in the production of floors and wall coverings in the SPC technology - the latest in the field of vinyl floors.

The floors are characterized by dimensional stability, excellent design and appearance, thanks to the unique production technology.

The plant started operating in 2018.

The Rocko Tiles covered by this environmental declaration is a very flexible and dimensionally stable product, which was obtained by using over 70% calcium carbonate and the addition of PVC for its production. The SPC compound contains also recycled material.

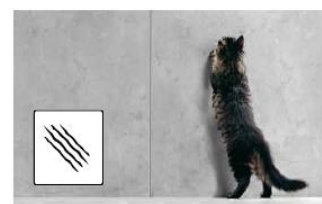


PRODUCT DESCRIPTION

Rocko Tiles are waterproof large-format wall panels used as finishing and decorative materials. Wall panels in fashionable decors that imitate wood, concrete or marble are suitable for indoor use in dry and humid conditions, such as bathroom, laundry room, kitchen or vestibule. Light and thin tiles may replace paint, wallpaper, porcelain stoneware and ceramic tiles on the wall. Rocko Tiles are easy to install, waterproof, hygienic, functional and dimensionally stable. The product can be used for the renovation of old rooms because it can be easily mounted on old tiles or concrete. Rocko Tiles can also be installed on the floor, including water or electric underfloor heating. Wall panels are resistant to impacts and scratches, UV radiation, stains and are easy to clean. The panels meet the requirements of class C-s2, d0 in scope of fire resistance, so they are flame-retardant and emit moderate smoke. Renovation with the use of these boards can be quick, without dust, dirt and noise. The substrate on which the boards are installed must, however, be stable and even. The boards can be cut, drilled and milled. They can be laid in full size 2800 x 1230 mm or cut according to the



Waterproof



Scratch resistant



Stain proof and easy to clean



Soft touch



Fire resistant



Mineral based board



Dimensionally stable



Easy installation

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design. The boards are very thin. Moreover, it does not change its dimensions under the influence of temperature.

After the substrate is prepared, the boards are mounted on the wall with the appropriate adhesives. The manufacturer recommends using an adhesive based on ms-polymers, or for difficult surfaces: adhesives based on polyurethane or epoxy resins. The boards can be joined with epoxy or silicone grout or with special aluminum profiles. All technical information can be found at [manufacturer site](#).

Table 1. Product types covered by EPD

Product type	Dimensions	Surface density
Collection Stones	2800x1230x4 mm 2650 x 1230 mm other	~ 8,0 – 9,0 kg/m ²
Collection Bosco (wood)		~ 8,0 – 9,0 kg/m ²
Collection metal		~ 8,0 – 9,0 kg/m ²
Collection color (ex. White, almond, Cashmere, Grey, black)		~ 8,0 – 9,0 kg/m ²

Classification of reaction to fire in accordance with EN 135101-1:2018. Density is 1900 – 2100 kg/m³

Table 2. Rocko-Tiles - technical information

DIMENSIONS			
	thickness	4 mm · tmax - tmin ≤ 0,50 mm	
dimensions	length	2800 mm	
	width	1230 mm	
SURFACE			
	Reaction to fire	EN 13501-1	C-s2,d0
	Thermal resistance (conductivity)	EN 12667	0.008 (m ² K)/W
	PU adhesion / Cross cut test [0-5]	EN ISO 2409	≤ 3
	Scratch resistance - value	EN 438-2	5.5 N
	Scratch resistance - class	EN 438-2	4
	Gloss change	PN-EN 16094	A2
	Abrasion resistance	EN 15468	3000 Cycles
	Chemical resistance (e.g. acetone, alcohol, sodium hydroxide, hydrogen peroxide)	EN 438-2	5
	Impact stability (large ball)	EN 438-2	1800 mm
MECHANICAL PROPERTIES			
	Dimensional stability - length	ISO 23999	≤ 0,25 %
	Dimensional stability - width		≤ 0,25 %
	Humidity exposure	Internal	No visual change or failure
AGEING			
	Changing temperatures test	Internal	OK
	Light fastness (blue wool scale 6)	EN 13329	≥ 4
EMISSION			
	TUV PROFICERT LEVEL	Internal	Premium
	AgBB		✓
	A+		✓
	Belgian VOC regulation		✓
	MIT Finnish classification		✓
	Austrian Eco Label uz 56		✓
ENVIRONMENT			
	Content of phthalates		Free
	Content of formaldehyde		Free
	Hygienic certificate		Nr 396/322/403/2020

LIFE CYCLE ASSESSMENT (LCA) – general rules applied

Unit

The declaration refers to 1 m² of Rocko Tile product (4 mm, 8.5 kg/m²).

System boundary

Type of the EPD is: cradle to gate - with options. The following life cycle stages were considered. Production stage including: A1 – Raw material extraction and processing, A2 – Transport to the manufacturer and A3 – Manufacturing, A4 – transport to the construction site. End-of-life stage: C1- Deconstruction, C2 – Transport to waste processing, C3 – Waste processing, C4 – Disposal (landfill). This includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of waste state or disposal of final residues. EPD includes D module- declaration of all benefits and loads beyond product system. Energy and water consumption, emissions as well as information on generated wastes were inventoried. It can be assumed that the total sum of omitted processes does not exceed 5% of all impact categories. In accordance with EN 15804+A2, machines and facilities (capital goods) required for the production as well as transportation of employees were not included in LCA.

Allocation

The allocation rules used for this EPD are based on general ITB's document PCR A (EN 15804+A2). The total average recipe per declared unit is used. Mass allocation was used.

System limits

All raw materials submitted for the formulations and production data were taken into consideration. In the assessment, all available data from production have been considered, i.e. all raw materials/elements used as per formulation process, utilized thermal energy for heating, and electric power consumption. Thus, material and energy flows contributing less than 1 % of mass or energy have been considered. It can be assumed that the total sum of neglected processes does not exceed 1 % of energy usage and mass per modules.

Modules A1 and A2: Raw materials supply and transport

The modules A1 and A2 represent the extraction and processing of raw materials and components and transport to the production site (including PVC, calcium carbonate, inks, primers, lacquers, foils, modifiers, wax, additives). For A2 module (transport) European averages for fuel data are applied. All distances and types of vehicles for all input products were declared by manufacturer and considered. Data on mode of transport and distances, as reported by suppliers were used for those materials and parts contributing more than 0.1 % of total product mass.

Module A3: Production

The manufacturing process (as presented on Figure 1) occurs in factory located in Jasło, Poland. Electricity is consumed in the process and gas.

Module A4: transport to construction site

Transport of the packed textile floorcovering from factory gate to the place of installation is considered. Delivery of the final product over a distance of 800 km by truck (Euro 5) was assumed.

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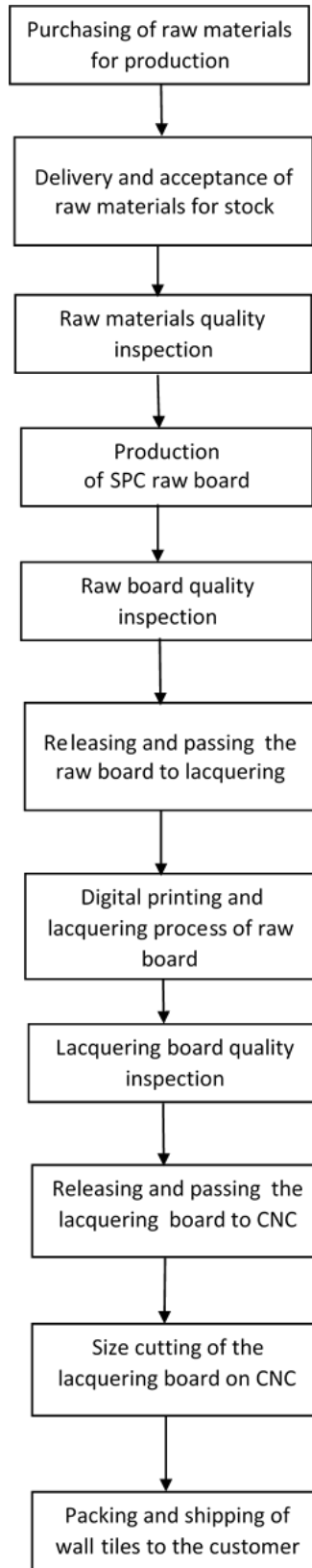


Fig. 1. A basic scheme of Rocko-Tiles manufacturing process (A3)

Modules C and D: End-of-life (EOL)

The product (at the end of life in building) is to be removed from a building using electrical tool. The End of Life scenario is based on respective destination rates for material (Table 3). In the applied scenario, the polymer based elements are incinerated (50%), and rest is landfilled (50%). In the adapted end-of-life scenario, the de-constructed products are transported to recycling plant 100 km on > 16t lorry EURO 5. The recycling potentials of materials is presented in table 2 (incineration benefits). Module D presents credits resulting from energy recovered (incineration). Regarding incineration, model for the waste incineration is adapted according to the material composition and heating value of the end of life material. The reuse, recovery and recycling stage is considered beyond the system boundaries (D). Each scenario assumes that rate % of the material is sent to that scenario (table 2).

Table 3. End-of-life scenario for the end of life component.

Material	Landfilling %	Energy recovery %
End of life material	50	50

Electricity at end-of-life (module D) has been modelled using an average EU-27 electricity mix.

Data collection period

The data for manufacture of the declared products refer to period between 01.01.2021 – 31.12.2021 (1 year). The life cycle assessments were prepared for Italy and Europe as reference area.

Data quality

The data selected for LCA originate from ITB-LCI questionnaires (2 manufacturing plants) completed by producer and verified via data audit. No data collected is older than five years and no generic datasets used are older than ten years. The representativeness, completeness, reliability, and consistency is judged as good. The background data for the processes come from the following resources database Ecoinvent v.3.8 (energy carriers, PVC, calcium carbonate, additives, waste treatment, incineration, and packaging) .The background data for energy is national based on KOBiZE reports (Polish electricity mix and combustion factors for fuels). Specific (LCI) data quality analysis was a part of the input data verification. Where no background data was available, data gaps were complemented by literature research.

Assumptions and estimates

The impacts of the representative product were aggregated using mass averaged approach per unit. The average product density was assumed as 8.5 kg/m².

Calculation rules

LCA was performed using ITB-LCA tool developed in accordance with EN15804+A2. Emission of greenhouse gases was calculated using the IPCC 2013 GWP method with a 100-year horizon. Emission of acidifying substances, Emission of substances to water contributing to oxygen depletion, Emission of gases that contribute to the creation of ground-level ozone, Abiotic depletion, and ozone depletion emissions where all calculated with the CML-IA baseline method

Additional information

Polish electricity mix used (production) is 0.698 kg CO₂/kWh (KOBiZE 2021). European electricity mix used is 0.430kg CO₂/kWh for the end of life (Ecoinvent v3.8, RER).

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As a general rule, no particular environmental or health protection measures other than those specified by law are necessary. There is no harmful emissive potential. No damage to health or impairment is expected under normal use corresponding to the intended use of the product. Product has the Hygienic Certificate no. 396/322/403/2020. The product contains up to 30% of recycled material (mostly pre-consumer). Product is a formaldehyde free.

LIFE CYCLE ASSESSMENT (LCA) – Results

Declared unit

The declaration refers to declared unit (DU) – 1 m². The following life cycle modules (table 4) were included in the analysis. The following tables 5-8 present the environmental impacts of the life cycle of Rocko-Tiles.

Table 4. System boundaries for the environmental characteristic included in LCA

Environmental assessment information (MD – Module Declared, MND – Module Not Declared, INA – Indicator Not Assessed)																	
Product stage			Construction process		Use stage								End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	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	
MD	MD	MD	MD	MD	MND	MND	MND	MND	MND	MND	MND	MD	MD	MD	MD	MD	

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Table 5. Life cycle assessment (LCA) results for Rocko Tiles- environmental impacts (DU: 1 m²)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO ₂	1.44E+01	1.49E+00	6.88E+00	2.28E+01	9.03E-02	2.26E-02	1.13E-02	1.88E-01	3.65E+00	4.52E-02	-1.78E+00
Greenhouse potential - fossil	eq. kg CO ₂	1.50E+01	1.48E+00	6.69E+00	2.31E+01	8.77E-02	2.19E-02	1.10E-02	1.87E-01	3.65E+00	4.47E-02	-1.78E+00
Greenhouse potential - biogenic	eq. kg CO ₂	-5.98E-01	5.20E-03	1.93E-01	-4.00E-01	2.56E-03	6.40E-04	3.20E-04	6.39E-04	0.00E+00	4.51E-04	-8.53E-04
Global warming potential - land use and land use change	eq. kg CO ₂	2.34E-02	5.99E-04	2.32E-03	2.63E-02	3.07E-05	7.68E-06	3.84E-06	7.34E-05	0.00E+00	4.53E-05	-7.75E-05
Stratospheric ozone depletion potential	eq. kg CFC 11	3.04E-06	3.41E-07	1.44E-07	3.52E-06	1.79E-09	4.48E-10	2.24E-10	4.33E-08	0.00E+00	1.36E-08	-1.76E-07
Soil and water acidification potential	eq. mol H+	8.57E-02	5.99E-03	7.33E-02	1.65E-01	9.73E-04	2.43E-04	1.22E-04	7.59E-04	7.89E-02	3.78E-04	-1.93E-03
Eutrophication potential - freshwater	eq. kg P	4.55E-03	1.02E-04	1.25E-02	1.72E-02	1.66E-04	4.16E-05	2.08E-05	1.26E-05	0.00E+00	1.30E-05	-2.35E-05
Eutrophication potential - seawater	eq. kg N	2.69E-02	1.80E-03	1.07E-02	3.93E-02	1.41E-04	3.52E-05	1.76E-05	2.29E-04	4.14E-02	1.30E-04	-3.48E-04
Eutrophication potential - terrestrial	eq. mol N	1.55E-01	1.87E-02	8.98E-02	2.64E-01	1.19E-03	2.98E-04	1.49E-04	2.50E-03	4.53E-01	1.42E-03	-3.76E-03
Potential for photochemical ozone synthesis	eq. kg NMVOC	5.38E-02	6.01E-03	2.51E-02	8.49E-02	3.33E-04	8.32E-05	4.16E-05	7.66E-04	1.12E-01	4.10E-04	-1.78E-03
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	5.60E-04	5.49E-06	3.23E-05	5.97E-04	4.28E-07	1.07E-07	5.34E-08	6.63E-07	0.00E+00	1.51E-07	-1.28E-06
Abiotic depletion potential - fossil fuels	MJ	2.43E+02	2.19E+01	1.13E+02	3.78E+02	1.48E+00	3.71E-01	1.86E-01	2.78E+00	0.00E+00	1.03E+00	-2.46E+01
Water deprivation potential	eq. m ³	9.05E+00	1.03E-01	2.32E+00	1.15E+01	3.07E-02	7.68E-03	3.84E-03	1.28E-02	4.12E-02	6.00E-03	-1.61E-02

Table 6. Life cycle assessment (LCA) results– additional impacts indicators (DU: 1 m²)

Indicator	Unit	A1-A5	C1-C4	D
Particulate matter	disease incidence	INA	INA	INA
Potential human exposure efficiency relative to U235	eg. kBq U235	INA	INA	INA
Potential comparative toxic unit for ecosystems	CTUe	INA	INA	INA
Potential comparative toxic unit for humans (cancer effects)	CTUh	INA	INA	INA
Potential comparative toxic unit for humans (non-cancer effects)	CTUh	INA	INA	INA
Potential soil quality index	dimensionless	INA	INA	INA

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Table 7. Life cycle assessment (LCA) results for Rocko Tile- the resource use (DU: 1 m²)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	2.05E+01	3.24E-01	8.29E+00	2.91E+01	1.10E-01	2.75E-02	1.38E-02	3.98E-02	0.00E+00	1.81E-02	-5.67E-02
Consumption of renewable primary energy resources used as raw materials	MJ	6.29E+00	0.00E+00	0.00E+00	6.29E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total consumption of renewable primary energy resources	MJ	2.68E+01	3.24E-01	8.29E+00	3.54E+01	1.10E-01	2.75E-02	1.38E-02	3.98E-02	0.00E+00	1.81E-02	-5.67E-02
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	1.84E+02	2.19E+01	1.12E+02	3.18E+02	1.49E+00	3.72E-01	1.86E-01	2.78E+00	-4.36E+01	1.12E+00	0.00E+00
Consumption of non-renewable primary energy resources used as raw materials	MJ	5.83E+01	0.00E+00	0.00E+00	5.83E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.36E+01	0.00E+00	0.00E+00
Total consumption of non-renewable primary energy resources	MJ	2.43E+02	2.19E+01	1.13E+02	3.78E+02	1.49E+00	3.72E-01	1.86E-01	2.78E+00	0.00E+00	1.12E+00	-2.73E+01
Consumption of secondary materials	kg	8.53E-02	7.60E-03	2.68E+00	2.77E+00	1.36E-04	3.39E-05	1.70E-05	9.31E-04	0.00E+00	0.00E+00	1.42E+00
Consumption of renew. secondary fuels	MJ	2.13E-01	8.44E-05	5.73E-05	2.13E-01	7.56E-07	1.89E-07	9.45E-08	1.03E-05	0.00E+00	0.00E+00	-4.46E-06
Consumption of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	9.05E-02	9.05E-02	1.20E-03	3.00E-04	1.50E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net consumption of freshwater	m ³	1.19E-01	2.81E-03	3.30E-02	1.55E-01	4.03E-04	1.01E-04	5.04E-05	3.49E-04	1.02E-04	1.61E-04	-3.30E-04

Table 8. Life cycle assessment (LCA) results of the steel door type B0- waste categories (DU: 1 unit)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	4.63E-04	2.52E-02	1.61E-03	2.73E-02	1.54E-05	3.84E-06	1.92E-06	3.12E-03	0.00E+00	1.63E-06	-2.46E-05
Non-hazardous waste	kg	1.93E-02	4.49E-01	6.34E-02	5.32E-01	7.99E-04	2.00E-04	9.98E-05	5.53E-02	0.00E+00	4.26E+00	-1.31E-02
Radioactive waste	kg	2.76E-04	1.68E-06	8.41E-05	3.62E-04	1.11E-06	2.78E-07	1.39E-07	2.07E-07	0.00E+00	6.28E-06	-5.01E-06
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	0.00E+00	0.00E+00
Materials for recycling	kg	4.71E-03	6.91E-05	1.74E-02	2.22E-02	1.54E-06	3.84E-07	1.92E-07	8.60E-06	2.33E+00	0.00E+00	-5.68E-05
Materials for energy recovery	kg	2.25E-05	5.57E-07	1.21E-04	1.44E-04	1.34E-08	3.36E-09	1.68E-09	6.95E-08	0.00E+00	0.00E+00	-1.83E-07
Exported Energy	MJ	7.77E-01	0.00E+00	3.34E-01	1.11E+00	4.43E-03	1.11E-03	5.54E-04	0.00E+00	0.00E+00	0.00E+00	-1.18E-02

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Verification

The process of verification of this EPD is in accordance with ISO 14025 and ISO 21930. After verification, this EPD is valid for a 5-year-period. EPD does not have to be recalculated after 5 years, if the underlying data have not changed significantly.

The basis for LCA analysis was EN 15804 and ITB PCR A
Independent verification corresponding to ISO 14025 (sub clause 8.1.3.) <input checked="" type="checkbox"/> external <input type="checkbox"/> internal
External verification of EPD: Halina Prejzner, PhD. Eng. LCA, LCI audit and input data verification: Michał Piasecki, PhD., D.Sc., Eng.

Note: The declaration owner has the sole ownership, liability, and responsibility for the declaration. Declarations of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

Normative references

- ITB PCR A General Product Category Rules for Construction Products
- EN 14041:2004- Resilient, textile and laminate floor coverings - Essential characteristics
- ISO 14025:2006, Environmental labels and declarations – Type III environmental declarations – Principles and procedures
- ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
- ISO 15686-1:2011 Buildings and constructed assets – Service life planning – Part 1: General principles and framework
- ISO 15686-8:2008 Buildings and constructed assets – Service life planning – Part 8: Reference service life and service-life estimation
- EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
- ISO 14067:2018 Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification
- PN-EN 15942:2012 Sustainability of construction works – Environmental product declarations – Communication format business-to-business


dr hab. inż. Michał Piasecki


KIEROWNIK
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CERTIFICATE № 378/2022 of TYPE III ENVIRONMENTAL DECLARATION

Product:

Wall covering - Rocko Tiles

Manufacturer:

Kronoflooring Sp. z o.o.

ul. Przemysłowa 10, 38-200 Jasło, Poland

confirms the correctness of the data included in the development of
Type III Environmental Declaration and accordance with the requirements of the standard

EN 15804

Sustainability of construction works.

Environmental product declarations.

Core rules for the product category of construction products.


This certificate, issued for the first time on 10th November 2022 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Head of the Thermal Physic, Acoustics
and Environment Department


Agnieszka Winkler-Skalna, PhD



Deputy Director
for Research and Innovation


Krzysztof Kućzyński, PhD

Warsaw, November 2022