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ATLAS ETICS
EXTERNAL THERMAL INSULATION COMPOSITE SYSTEMS
WITH ACRYLIC RENDERS









# ATLAS ETICS EXTERNAL THERMAL INSULATION COMPOSITE SYSTEMS WITH ACRYLIC RENDERS

Issuance date: 10.03.2014 Validity date: 10.03.2019

# **EPD PROGRAM OPERATOR**

BUILDING RESEARCH INSTITUTE 00-611 Warsaw, ul. Filtrowa 1 www.itb.pl

# **MANUFACTURER:**

ATLAS spółka z o.o. 91-222 Łódź, ul. Św. Teresy 105, Poland atlas@atlas.com.pl www.atlas.com.pl

# Manufacturing sites information

Zakład Produkcyjny PIOTRKÓW TRYBUNALSKI, 97-300 Piotrków Trybunalski, ul. Wronia 61/63, Poland

Zakład Produkcyjny BYDGOSZCZ, 85-758 Bydgoszcz, ul. Przemysłowa 32,, Poland

Zakład Produkcyjny DĄBROWA GÓRNICZA, 41-306 Dąbrowa Górnicza, ul. Roździeńskiego 2, Poland

> Zakład Produkcyjny SUWAŁKI, 16-400 Suwałki, Dubowo II nr 33, Poland

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### ATLAS ETICS EXTERNAL THERMAL INSULATION COMPOSITE SYSTEMS WITH ACRYLIC RENDERS

in accordance with ISO 14025:2010 and EN 15804:2012



#### 1. BASIC INFORMATION

This declaration is the type III Environmental Product Declaration (EPD) based on EN 15804 and verified according to ISO 14025. It contains information about the impact of declared construction materials on environment and their aspects verified by the independent Advisory Board according to ISO 14025. Basically, a comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804 (see point 5.3 of the norm) and the building context.

Issuance date: 10.03.2014 Validation date: 01.03.2014 Validity date: 10.03.2019 Declared durability: 50 years

## 2. LIFE CYCLE ASSESSMENT (LCA)

#### Declared unit

The declaration refers to 1 m<sup>2</sup>.

#### System limits

The life cycle analysis of the examined products covers A1-A3 modules (Cradle to Gate) in accordance with EN 15804:2012. Its include production, including raw materials extraction and energy provision up to the finished, packed product at the factory gate. Processes whose total contribution to the final result, according to mass looked at, is less than 0.5 % was ignored.

# Data collection period

The data for manufacture of the examined products refer to the year 2012. The life cycle assessments were prepared for Poland as reference area.

## Data quality

The values determined to calculate the LCA originate from verified Atlas inventory data.

# Assumptions and estimates

The impacts of the representative ATLAS products for each ETICS layer were aggregated using weighted average. The weighted average method was used according to the percentage of each product in ETISC based on the relation to whole production quantity.

Impacts for each product and factory were inventoried and calculated separately.

#### Note

Factory-prefabricated boards made of expanded polystyrene (EPS), mesh glass fibre and anchors are not produced by ATLAS. The impacts of those products were included from databases shown below.

#### Databases

The data for the processes come from the following databases: Ecoinvent, EMPA, Ullmann's, Plastic-Europe, ITB-Data, SPC.

## 3. PRODUCT INFORMATION

ATLAS ETICS is a trade name for External Thermal Insulation Composite System, which comprises insulation board (bonded and mechanically fixed) with reinforced undercoat, and decorative finishes as described in Technical Approval

AT-15-9090/2014 (Domestic Approval). The system is complete and equipped with a vast selection of adhesives, base coats, renders and decorative coats of various colours. The system provides variety of solutions depending on requirements of the investors, building designers and construction workers. ATLAS ETICS also offers a wide range of solutions for all building types, from detached houses to multi-storey developments (< 25 m high). It is fully certified and the exact specification is tailored to meet the requirements of each project, whether residential or commercial, in compliance with all current building regulations in Poland.

#### 4. PRODUCT DESCRIPTION

ATLAS ETICS is External Thermal Insulation Composite System in accordance with Polish national requirements described in ZUAT-15/V.03/2010. Kits to perform the thermal insulation of external walls using EPS boards as a thermal insulating material and a thinned facade finishes.

The insulation system is a kit of materials to be used in the proper order of layers and with the use of appropriate technology.

Components are shown below in Table 1:

Table 1. ATLAS ETICS components

Tuble 1. Area enes components							
Intended sco	pe	Trade name					
Adhesives fo the insulation	r bonding n product	ATLAS HOTER S ATLAS STOPTER K-10					
Insulation pro	oduct *)	Factory-prefabricated, uncoated panels made of expanded polystyrene (EPS) according to EN 13163:2013					
Reinforced	Adhesives for base coat	ATLAS HOTER U ATLAS STOPTER K-20 ATLAS STOPTER K-50					
layer	Glass fibre meshes *)	AKE SSA-1363-SM 0.5					
Key coats		ATLAS CERPLAST ATLAS SILKAT ASX ATLAS SILKON ANX					
Finishing coa	its	ATLAS CERMIT mineral ATLAS CERMIT acryl ATLAS DEKO M/DEKO DIM ATLAS SILKAT ATLAS SILKON TYNK AKRYLOWY ATLAS TYNK SILIKONOWY ATLAS TYNK SILIKONOWO-SILIKATOWY ATLAS TYNK AKRYLOWO-SILIKONOWY ATLAS					
Primers		ATLAS ARKOL SX ATLAS ARKOL NX					
Decorative c	oats	ATLAS ARKOL E ATLAS ARKOL S ATLAS ARKOL N ATLAS FASTEL NOVA					
Ancillary mat	erials *)	Anchors, special fittings (e.g. base profiles, corner profiles)					

<sup>\*)</sup> products from suppliers, ATLAS does not produce these items.



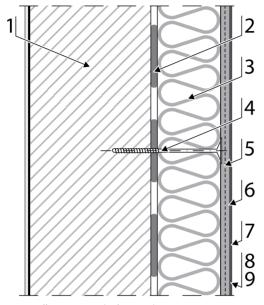
#### ATLAS ETICS EXTERNAL THERMAL INSULATION COMPOSITE SYSTEMS WITH ACRYLIC RENDERS

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Layers' arrangement in the ATLAS ETICS system is shown on Figure 1

Figure 1. ATLAS ETICS scheme



- 1. Wall structure (substrate)
- 2. Adhesive (basic fixing)
- 3. Thermal insulation (EPS)
- 4. Anchor (if necessary, additional fixing)
- 5. Reinforced layer (base coat with glass fibre mesh embedded)
- 6. Key coating (if necessary)
- 7. Finishing coat (renders)
- 8. Primers (optional)
- 9. Decorative coats (optional)

The main objectives of the ATLAS ETICS system are given below:

- providing external walls with appropriate thermal insulation (U value),
- reducing the costs for heating (also for cooling)
- reducing CO<sup>2</sup> and environmental protection
- improving thermal comfort for residents
- increase in durability of external walls by ensuring better protection from weather conditions
- "new look" for buildings walls.

The layers have precisely defined their technical and performance functions:

- adhesives are used for bonding the insulation product to the wall substrate and ensure stability of insulation
- the suitable thickness of EPS plates assures required thermal isolation,
- base coat applied directly onto the insulation product; the reinforcement is embedded into it and provides most of the mechanical properties of the rendering, glass fibre mesh in the base coat to improve its mechanical strength
- key coat very thin coat which may be applied to the base coat and is intended to act as a preparation for the application of the finishing coat.
- finishing coat coat which contributes to the protection against weathering and can provide a decorative finish;
- decorative coat optional coat which generally provides the aesthetic finishing

The Technical Approval AT-15-9090/2014 covers a very wide range of products to perform every single layer of insulation system, for example 5 kinds of adhesives for bonding EPS boards, 3 kinds of adhesive to make the base coat, 3 kinds of key coats, 9 kinds of finishing coats (renders) and 5 kinds of façade paints. Also the thickness of the polystyrene foam boards, used during the work, can vary in every single case. Accordingly, environmental characteristics (LCA) for ATLAS ETICS are presented in a few cases, depending on:

- kind of finishing coat (mineral, acrylic, silicate, silicone or mixed (silicone-silicate and acrylic-silicone), and
- thickness of EPS boards for reference cases 10 cm, 12 cm, 15 cm or 20 cm.

Set out below is an analysis of the ETICS arrangement with acrylic renders.

**Table 2.** Overview of possible solutions – adhesives and reinforcement materials in combination with the relevant system finishing and decorative coats

Insulation fixing - basic	ATLAS HOTER S or ATLAS STOPTER K-10 or ATLAS HOTER U or ATLAS STOPTER K-20 or ATLAS STOPTER K-50
Insulation product	EPS boards, density 20 kg/m³
Insulation fixing – additional	4 pieces per 1 m <sup>2</sup>
Base coat	ATLAS HOTER U or ATLAS STOPTER K-20 or ATLAS STOPTER K-50
Glass fibre meshes	AKE or SSA-1363-SM 0.5
Key coat	ATLAS CERPLAST
Finishing coats	ATLAS CERMIT acryl or TYNK AKRYLOWY ATLAS or TYNK AKRYLOWO-SILIKONOWY ATLAS
Primers *)	ATLAS ARKOL NX
Decorative coats*)	ATLAS ARKOL E or ATLAS ARKOL N or ATLAS FASTEL NOVA

<sup>\*)</sup> Decorative coats and primers are optional only

**Table 3.** An overview of average consumption particular products

ATLAS HOTER S or ATLAS STOPTER K-10 or ATLAS HOTER U or ATLAS STOPTER K-20 or ATLAS STOPTER K-50	4.0 – 5.0 kg/m²
EPS boards, density 20 kg/m³	$1 \text{ m}^2/1 \text{ m}^2$
Anchors	4 pieces /1 m <sup>2</sup>
ATLAS HOTER U or ATLAS STOPTER K-20 or ATLAS STOPTER K-50	3.0 – 3.5 kg/m <sup>2</sup>
AKE or SSA-1363-SM 0.5	1.1 m <sup>2</sup> /1 m <sup>2</sup>
ATLAS CERPLAST	0.3 kg/m <sup>2</sup>
ATLAS CERMIT acryl or TYNK AKRYLOWY ATLAS or TYNK AKRYLOWO-SILIKONOWY ATLAS	2.5 – 4.5 kg/m² (regulated by particle size)
ATLAS ARKOL NX	0.05 - 0.20 kg/m <sup>2</sup>
ATLAS ARKOL E or ATLAS ARKOL N or ATLAS FASTEL NOVA	0.125 – 0.250 dm <sup>3</sup> /m <sup>2</sup>



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**Table 4.** List of ATLAS ETICS varieties in the cases of different thickness EPS boards

Short description	EPS thickness	Environmental characteristic for 1 m <sup>2</sup>
	10 cm	See Table 10
ETICS with acrylic	12 cm	See Table 11
renders	15 cm	See Table 12
	20 cm	See Table 13

#### **5. PRODUCT MANUFACTURE**

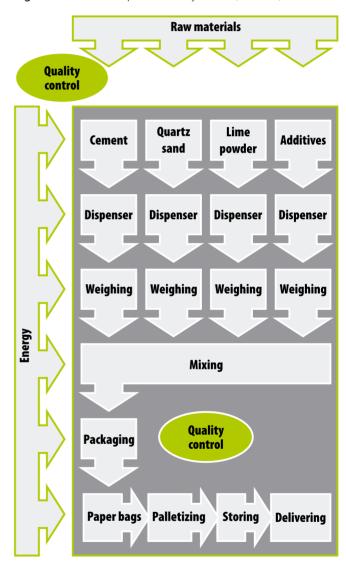
Raw materials and energy

Table 5. Raw materials

No	Name of semi- finished product or raw material	total used in production [Mg]	used on product [%/kg]	used on product [kg/m²]
Adh	esives			
1	raw materials	20567.800	95.450	3.1274
2	additives	372.400	1.730	0.065
3	rest components (each < 0,5 %)	153.600	0.710	0.0281
4	pallet	341.900	1.590	0.0423
5	PE foil st	44.500	0.210	0.0136
6	PE foil	3.300	0.020	0.0008
7	multilayer paper bag	65.000	0.030	0.0072
Acry	lic renders			
1	raw materials	1355.000	58.739	1.9384
2	additives	558.900	24.228	0.7995
3	rest components (< 0,5 %)	52.500	2.276	0.075
4	pallet	125.300	5.430	0.1793
5	PE foil st	6.100	0.264	0.0088
6	PE foil	0.700	0.030	0.0010
7	carton spacer	3.500	0.152	0.0050
8	bucket	82.100	3.559	0.1174
9	water	0.1755		
Faça	nde paints and prim	ers		
1	raw materials	537.7	40.076	0.1829
2	additives	389	28.993	0.1056
3	rest components (each < 0,5 %)	16.5	1.23	0.0073
4	pallet	42.6	3.175	0.0106
5	PE foil st	4.5	0.335	0.0003
6	PE foil	18.2	1.356	0.0003
7	carton spacer	2.4	0.1789	0.0035
8	bucket	36.2	2.698	0.0292
9	water	294.6	21.957	0.0914

The figures below show the working process during the production of dry mixes (Figure 2), ready-to-use renders (Figure 3) and paints (Figure 4). The raw materials are stored in the production factory in silos, big bags, or sacks accordingly. According to the applicable formulation, they are dosed and intensely mixed. Next, products are filled into containers (or packed into paper bags – dry mixes) and send to quality control. Then, they are temporarily stored, or delivered directly as ready-to-use products.

Figure 2. Production process – dry mixes (scheme)





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Figure 3. Production process – ready-to-use renders (scheme)

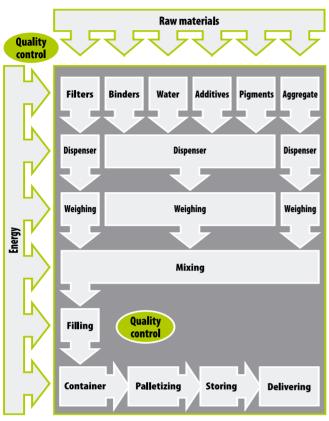
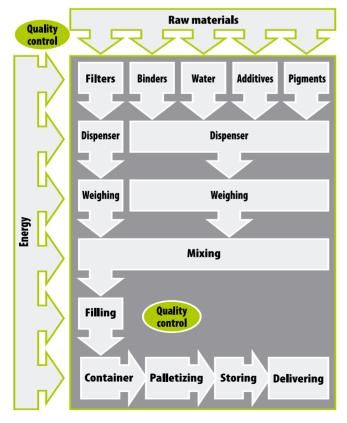


Figure 4. Production process – paints and primers (scheme)



#### 6. PRODUCT APPLICATION

The thermal insulation technology, used in fixing thermal insulation, is made of foamed polystyrene boards (EPS) to the substrate and preparation of a reinforced layer, a render coating and, a paint coating (optionally). The system can be applied both on new, or existing external surfaces of vertical building walls (already plastered, or not) made of masonry, or adhered materials, such as bricks and blocks (ceramic, lime-sand, stone, cellular concrete), or of concrete (poured at the construction site, or in the form of prefabricated elements). To perform each of the layers, according to the need, one of different construction products listed in Table 1 and then in Table 2 can be used.

# Occupational safety and environmental protection

Occupational safety and environmental protection are described in Material Safety Data Sheets (MSDS) for each product. **Note** 

Specific information on application and other actions with these products are described in detail in the Technical Data Sheet available on the producer website www.atlas.com.pl.

# 7. EMISSIONS (LCI) AND THEIR IMPACT ON THE ENVIRONMENT

The following chapter show the life cycle inventory analysis of the adhesives with regard to primary energy needs, water needs, emissions into air and waste.

**Table 6.** Primary energy consumption for A3 module on m<sup>2</sup> of ETICS

Energy resource	Unit	used on product [unit/Mg]	used on product [unit/m²]
electricity	kWh	62.54	0.700
black coal	Mg	_	_
lignite coal	Mg	_	_
coke	Mg	_	_
ON (only inside fabric)	litrs	1.28	0.014
benzin 95	litrs	_	_
oil	litrs	0.45	0.005
natural gas	m³	15.31	0.171
LPG	litrs	_	_

**Table 7.** Emissions into air generated during production stage A3 on m<sup>2</sup> of ETICS

Air emission	Unit	used on product [kg/Mg]	used on product [kg/m²]
Dust	kg	0.23	2.60E-03
CO	kg	0.02	1.69E-04
CO <sub>2</sub>	kg	12.60	1.41E-01
NO <sub>2</sub>	kg	0.026	2.95E-04
SO <sub>2</sub>	kg	0.022	2.50E-04
NH <sub>3</sub>	kg	3.28E-06	3.67E-08
HCI	kg	0.0001	6.92E-07
CH <sub>4</sub>	kg	0.0002	1.96E-06
NMVOC	kg	0.0002	1.69E-06
N <sub>2</sub> O	kg	0.0001	8.47E-07



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**Table 8.** Emissions into water generated during production stage A3

3		
Water and sewage	Unit	Total amount
Water	m³	40632
Industrial Sewage	$m^3$	27
BOD	mg/l	200
COD	mg/l	350
рН	°_	8
Suspended matter	mg/l	100
Municiapal Sewage	m³	16773
BOD	mg/l	28
COD	mg/l	77
рН	°_	7.7
Suspended matter	mg/l	32
Nitrogen amonian	mg/l	0.64
Phosphorans	mg/l	0.9

**Table 9.** Waste generated in the stage of product manufacturing A3

Waste code	Unit	total in production [Mg]	used on product [kg/Mg]	used on product [kg/m²]
Adhesives				
150101	Mg	113.384	0.1845	0.0007
150102	Mg	76.513	0.1245	0.00047
101382	Mg	1892.8	3.0801	0.0117
150103	Mg	54.02	0.0879	0.00033
150105	Mg	80.14	0.1304	0.00050
161002	Mg	32.66	0.0531	0.0002
170107	Mg	321.764	0.5236	0.00199
150202	Mg	1.808	0.0029	0.00001
170405	Mg	10.812	0.0176	0.00007
160304	Mg	37.567	0.0611	0.00023
150106	Mg	27.24	0.0443	0.00017
Acrylic rende	er			
150101	Mg	91.755	0.4895	0.00162
150102	Mg	53.753	0.2868	0.00095
101382	Mg	1149.9	6.1346	0.02024
130208	Mg	0.8	0.0043	1.41E-05
150110	Mg	0.109	0.0006	1.92E-06
150202	Mg	1.678	0.0090	2.95E-05
150203	Mg	2	0.0107	3.52E-05
160107	Mg	0.12	0.0006	2.11E-06
170405	Mg	6.272	0.0335	1.10E-04
80112	Mg	1.361	0.0073	2.40E-05
130307	Mg	0.083	0.0004	1.46E-06
150105	Mg	61.36	0.3274	1.08E-03
160216	Mg	0.79	0.0042	1.39E-05
160304	Mg	37.567	0.2004	6.61E-04
170107	Mg	319.824	1.7062	0.00563
150103	Mg	90.36	0.4821	0.00159
Façade paint	s and pr	imers		
150101	Mg	20.24	0.1785	7.14E-05
150102	Mg	11.102	0.0979	3.92E-05
10408	Mg	99.96	0.8818	3.53E-04
080120	Mg	0.66	0.0058	2.33E-06
101382	Mg	1316.6	11.6	4.65E-03
150110	Mg	0.037	0.0003	1.31E-07
150202	Mg	0.09	0.0008	3.18E-07
160213	Mg	0.143	0.0013	5.05E-07
160214	Mg	0.071	0.0006	2.51E-07
160216	Mg	0.032	0.0003	1.13E-07
160601	Mg	0.35	0.0031	1.24E-06
170203	Mg	9.96	0.0879	3.51E-05



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# 8. ENVIRONMENTAL CHARACTERISTICS (LCA)

The results of the LCA with the indicators as per EPD requirement are given in the following tables for product manufacture (A1, A2, A3 modules).

Table 10. Environmental characteristic for 1 m<sup>2</sup> of ETICS (acrylic render), 10 cm EPS

Environmental assessment information (MND – Module										not de	clared, I	MD – M	odule De	clared	)	
Pro	duct sta	age		ruction cess		Use stage End of life be the				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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
							Enviror	nmenta	limpacts	s: 1 m <sup>2</sup>						
Indica										Unit		A1	A:	2	А3	A1-A3
		ng poter							_	$O_2$ eq.]		12.9	0.		0.3	13.2
		ential of				layer			[kg CFC		8.86		5.51E-0		.35E-09	1.44E-06
		otential		nd wate	r				_	O <sub>2</sub> eq.]		)457	0.000		0.0005	0.0468
		n potent tential of		م المحاد					[kg (PO	*		0041	0.000		0.0001	0.0049
		ion pote				non-for	ccil rocou	ircos	[kg Ethe	ne eq.j Sb eq.]					0.00	0.0032
		ion pote							[NG	[MJ]	0.14 0.00 199.4 1.1			4.4	204.9	
7101011	acpiet	ion pote	inclair (7 th	JI 103311					s on reso			۷۷.۱	'.		1.1	20 1.5
Indica	tor							·		Unit		A1	A:	2	А3	A1-A3
		ble prim ces used				newable	e primar	У		[MJ]		INA	INA	4	INA	INA
		ble prim							[MJ]			INA	IN	4	INA	INA
Total u and pr	se of rei imary e	newable nergy re	e primary sources	/ energy used as	resourc raw mat	es (prim erials)	ary enei	rgy		[MJ]		1.17	0.0	0	0.00	1.17
		newable y resour					renewak	ole		[MJ]		INA	INA	4	INA	INA
Use of materia		newable	primary	energy	resourc	es used	as raw			[MJ]		INA	INA	4	INA	INA
		n-renev imary er						′		[MJ]	22	1.46	1.10	0	4.45	227.01
		ary mate								[kg]		0.69	0.0		0.00	0.69
		ble secc								[MJ]		1.83	0.0		0.00	1.83
		newable	second	ary fuels	5					[MJ]		2.52	0.0		0.00	2.52
Net use	e or rres	sh water		∩+h	or onvir	onmon	tal infor	mation	describi	[dm³]		3.91	0.0 m <sup>2</sup>	1	0.01	3.93
Indicat	tor			Oti	ici elivii	OHHIEH	tai ii ii Ol	mation	aescribi	Unit	.e categ	A1	111 A:	2	А3	A1-A3
	Hazardous waste disposed					[kg]	0	.003		0	0	0.003				
	Non-hazardous waste disposed							[kg]		0.98	0.00	5	0.1	1.08		
	Radioactive waste disposed							[kg]		0		0	0	0		
		for re-us	е							[kg]		0		0	0.054	0.054
		ecycling								[kg]		0.09		0	0.01	0.1
		nergy re	covery							[kg]		0		0	0	0
Export	ed ener	gy								[MJ]		0		0	0	0



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Table 11. Environmental characteristic for 1 m<sup>2</sup> of ETICS (acrylic render), 12 cm EPS

		-						(MANID				10 14	11.0		D	
Environmental assessment information (MND							D – Module not declared, MD – Module Declared)							Benefits		
Pro	duct sta	age		ruction cess				Use sta	ge	ge End of life					and loads beyond the system boundary	
Raw material supply	Transport	& Manufacturing	Transport to construction site	Construction- installation process	es N	R Maintenance	2 Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	S Transport	Waste processing	P Disposal	Reuse-recovery-recycling potential
A1 MD	A2 MD	MD	A4 MND	MND	MND	MND	B3 MND	B4 MND	B5 MND	MND	B7 MND	C1 MND	MND	MND		MND
	11112		,,,,,,	.,,,,,		.,					.,,,,,			.,,0	.,,	
							Enviro	nmenta	l impact							
Indica										Unit		A1	Α		A3	A1-A3
		ng poter								O <sub>2</sub> eq.]		14.2	0.		0.3	14.5
					ic ozone	layer			[kg CFC		9.011		5.51E-0		3.35E-09	1.46E-06
		otential		nd wate	r					O <sub>2</sub> eq.]		500	0.000		0.0005	0.0511
		n potent							[kg (PO	T		045	0.000		0.0001	0.0053
		tential of							_	1-2		034	0.0		0.00	0.0035
					ents) for				[kg	Sb eq.]		0.16	0.0		0.00	0.16
Abiotic	deplet	ion pote	ential (AL	JP-fossil	fuels) fo				[MJ] 233.63 1.10 4.4 s on resource use: 1 m <sup>2</sup>						239.18	
la di sa	L					Environ	imental	aspect	s on reso		e: 1 m²	Λ1		2	4.2	41.42
Indicat		blo prim	2011000	rav ovel	udina ra	المديدة	nrimar	2.7		Unit		A1	Α	2	A3	A1-A3
energy	resour	ces used	l as raw i	material	uding re s	HEWable	г ритаг	у		[MJ]		INA	IN	A	INA	INA
					urces us				[MJ]		INA	IN.	A	INA	INA	
Total u and pr	se of rei imary e	newable nergy re	e primary sources	/ energy used as	resource raw mat	es (prim erials)	ary ene	rgy	[MJ]			1.17	0.0	0	0.00	1.17
Use of primar	non-rer y energ	newable y resour	primary ces usec	energy as raw	excludir material	ng non- s	renewal	ole		[MJ]		INA	IN	A	INA	INA
Use of materia		newable	primary	energy	resourc	es used	as raw			[MJ]		INA	IN	A	INA	INA
					nergy res used as i			/		[MJ]	25	9.16	1.1	0	4.45	264.71
Use of	second	ary mate	erial							[kg]		0.71	0.0	0	0.00	0.71
Use of	renewa	ble secc	ndary fu	uels						[MJ]		1.83	0.0	0	0.00	1.83
Use of	non-rer	newable	second	ary fuels	5					[MJ]		2.52	0.0	0	0.00	2.52
Net us	e of fres	sh water								[dm³]		3.95	0.0	1	0.01	3.97
				Oth	er envir	onmen	tal infor	mation	describi	ng wast	e categ	ories: 1	m <sup>2</sup>			
	Indicator								Unit		A1	Α	2	A3	A1-A3	
	Hazardous waste disposed						[kg]		.003		0	0	0.003			
Non-hazardous waste disposed							[kg]		1.00	0.004	8	0.07	1.07			
	Radioactive waste disposed							[kg]		0		0	0	0		
		for re-us	e							[kg]		0		0	0.0007	0.0007
		ecycling								[kg]		0.09		0	0.012	0.102
		nergy re	covery							[kg]		0		0	0	0
Export	ed ener	gy								[MJ]		0		0	0	0

# ATLAS ETICS External Thermal Insulation Composite Systems With Acrylic Renders in accordance with ISO 14025:2010 and EN 15804:2012



Table 12. Environmental characteristic for 1 m<sup>2</sup> of ETICS (acrylic render), 15 cm EPS

		-	·				4:	(MANID	AA = all =		-11 0	4D M	ll - D -		<b>\</b>	
		E	nvironn	nental a	issessme	ent info	rmation	(MND	– Module	not de	clared, l	MD – Mi	odule De	eclared	)	Benefits
Product stage Construction process				Use sta				ge			End of life			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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
							Enviror	nmenta	l impact:	s: 1 m <sup>2</sup>						
Indicat	tor									Unit		A1	A	2	А3	A1-A3
Global	warmir	ng poter	ntial						[kg C	O <sub>2</sub> eq.]		16.2	0.	1	0.3	16.5
Deplet	ion pot	ential of	the stra	tospher	ic ozone	layer			[kg CFC	11 eq.]	9.25	E-07	5.51E-0	7 3	3.35E-09	1.48E-06
Acidific	cation p	otential	of soil a	nd wate	er				[kg S	O <sub>2</sub> eq.]	0.0	)565	0.000	6	0.0005	0.0576
Eutrop	Eutrophication potential								[kg (PO	<sub>4</sub> ) <sup>3</sup> - eq.]	0.0	0051	0.000	7	0.0001	0.0059
Format	tion pot	ential of	f troposp	heric o	zone				[kg Ethe	ne eq.]	0.0	0038	0.0	0	0.00	0.0039
	Abiotic depletion potential (ADP-elements) for non-fossil resources								[kg	Sb eq.]		0.18	0.0	0	0.00	0.18
Abiotic	deplet	ion pote	ential (A[	DP-fossi	l fuels) fo	r fossil r	esource:	S		[MJ]	2	85.0	1.	1	4.4	290.5
	Environmental aspects							s on reso	urce us	e: 1 m <sup>2</sup>						
Indicat										Unit		A1	A.	2	А3	A1-A3
Use of energy	renewa / resour	ble prim ces usec	nary ene las raw i	rgy excl material	uding re s	newabl	e primar	У		[MJ]		INA	INA	4	INA	INA
Use of	renewa	ble prim	nary ene	rgy reso	urces us	ed as ra	w mater	ials		[MJ]		INA	IN	4	INA	INA
Total u	se of rei imary e	newable nergy re	e primary sources	/ energy used as	resource raw mat	es (prim terials)	nary ene	rgy		[MJ]		1.17	0.0	0	0.00	1.17
Use of primar	and primary energy resources used as raw materials)  Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials							ole		[MJ]		INA	INA	4	INA	INA
Use of materia	Use of non-renewable primary energy resources used as raw materials									[MJ]		INA	INA	4	INA	INA
Total u	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)							/		[MJ]	31	5.70	1.10	0	4.45	321.25
Use of	second	ary mate	erial							[kg]		0.74	0.0	0	0.00	0.74
Use of	Use of renewable secondary fuels									[MJ]		1.83	0.0	0	0.00	1.83
Use of	Use of non-renewable secondary fuels									[MJ]		2.52	0.0	0	0.00	2.52
Net use	Net use of fresh water								[dm³]		4.01	0.0	1	0.01	4.03	
				Oth	ner envir	onmen	tal infor	mation	describi	ng wast	te categ	ories: 1	m <sup>2</sup>			
	Indicator								Unit		A1	A:	2	А3	A1-A3	
Hazardous waste disposed							[kg]		.003		0	0	0.003			
Non-hazardous waste disposed							[kg]		1.01	0.004		0.07	1.08			
	Radioactive waste disposed								[kg]		0		0	0	0	
		or re-us								[kg]		0		0	0.0007	0.0007
Materials for recycling								[kg]		0.09		0	0.012	0.102		
	-I- £		Materials for energy recovery  Exported energy													
Materia			covery							[kg] [MJ]		0		0	0	0

# ATLAS ETICS EXTERNAL THERMAL INSULATION COMPOSITE SYSTEMS WITH ACRYLIC RENDERS in accordance with ISO 14025:2010 and EN 15804:2012



Table 13. Environmental characteristic for 1 m2 of ETICS (acrylic render), 20 cm EPS

		_						/s ss in							D.	
		E	nvironm	nental a	ssessme	ent info	rmation	(MND -	- Module	not de	clared, l	ИD – M	odule De	eclare	d)	D C:
Product stage Construction process			Use stage						End of life				Benefits and loads beyond the system boundary			
≥ Raw material supply	Z Transport	≥ Manufacturing	Transport to construction site	S Construction- installation process	n Ce	R Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	☐ Deconstruction demolition	∩ Transport	© Waste processing	C4	Reuse-recovery-recycling potential
MD	MD	MD	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
							F		l !	. 12						
Indicat	tor.						Enviror	nmenta	limpacts			Λ1	Λ.	2	۸۶	A1-A3
Indicat			+: -1						Elea C	Unit		A1	A		<b>A3</b> 0.3	
		ng poter		نبد ما مدد د		lavian				O <sub>2</sub> eq.]		19.5		0.1		19.9
					ic ozone	layer			[kg CFC		9.63	E-07 0673	5.51E-0 0.000		3.35E-09	1.52E-06 0.0684
			of soil a	na wate	T					O <sub>2</sub> eq.]					0.0005	
		n potent		.					[kg (PO	T		0061	0.000		0.0001	0.0069
			troposp						[kg Ethe			044	0.0		0.00	0.0045
					ents) for				[kg	Sb eq.]		0.22	0.0		0.00	0.22
ADIOUG	. aepiet	ion pote	Mulai (AL	JP-IOSSII	fuels) fo					[MJ]		70.6	1.	ı	4.4	376.1
Indicat	tor		Environmental aspect						5 011 1630		C. 1 111	۸1				
Use of renewable primary energy excluding renewable primary energy resources used as raw materials								Unit		AI	Α'	2	A3	A1-A3		
Use of	renewa					newable	e primar	У		Unit [MJ]		<b>A1</b>	A. IN		A3 INA	A1-A3
Use of energy	renewa resourc	ces used	as raw r	material	S					[MJ]		0.00	IN	A		INA
Use of energy Use of Total u	renewa resourd renewa se of rer	ces used ble prim newable	as raw r nary ener primary	material: rgy reso / energy	urces us resourc	ed as rav es (prim	w mater	ials						A	INA	
Use of energy Use of Total u and pr	renewa resourd renewa se of rer imary er non-rer	ces used ble prim newable nergy re newable	as raw r nary ener primary sources primary	material rgy reso renergy used as renergy	s urces us	ed as raves es (primeterials) ng non-	w mater ary ene	ials rgy		[MJ]		0.00	IN.	A A O	INA	INA INA
Use of energy Use of Total u and pr Use of primar	renewa resourd renewa se of rer imary er non-rer y energ non-rer	ces used ble prim newable nergy re newable y resour	as raw r nary ener primary sources primary ces usec	material: rgy reso renergy used as renergy l as raw	urces us resourc raw mat excludir	ed as raves es (primererials) ng non- s	w mater ary ene renewak	ials rgy		[W1] [W1] [W1]		0.00 3.23 1.17	IN, IN, 0.0	A A O A A	INA INA 0.00	INA INA 1.17
Use of energy Use of Total u and pr Use of primar Use of materia	renewa resource renewa se of ren imary en non-rer y energ non-rer als	ble prim newable nergy re newable y resour newable	as raw r nary energy primary sources primary ces used primary vable pri	material: rgy reso y energy used as y energy I as raw y energy	urces us resourc raw mat excludir material	ed as ran es (prim erials) ng non- s es used	w mater nary ene renewak as raw (primary	ials rgy ole		[W1] [W1] [W1]		0.00 3.23 1.17 0.00	IN, IN, 0.0	A A O A A	INA INA 0.00 INA	INA INA 1.17 INA
Use of energy Use of Total u and pr Use of primar Use of materia Total u energy	renewa r resource renewa se of rer imary er non-rer y energ non-rer als se of no	ble prim newable nergy re newable y resour newable	as raw r nary enen primary sources primary ces used primary vable pri nergy res	material: rgy reso y energy used as y energy I as raw y energy	resources us resources us resources us resources us resources us resources us resources resources us resource	ed as ran es (prim erials) ng non- s es used	w mater nary ene renewak as raw (primary	ials rgy ole		[W] [W] [M] [M]	40	0.00 3.23 1.17 0.00	IN, IN, O.O IN,	A 0 0 A A 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	INA INA 0.00 INA INA	INA INA 1.17 INA INA
Use of energy Use of Total u and pr Use of primar Use of materia Total u energy Use of	renewa resource renewa se of rer imary er non-rer y energ non-rer als se of not r and pri second.	ces used ble prim newable nergy re newable y resour newable on-renew imary er ary mate	as raw r nary enen primary sources primary ces used primary vable pri nergy res	naterial: rgy reso y energy used as y energy l as raw y energy imary er sources	resources us resources us resources us resources us resources us resources us resources resources us resource	ed as ran es (prim erials) ng non- s es used	w mater nary ene renewak as raw (primary	ials rgy ole		[W1] [W1] [W1] [W1] [W1]	40	0.00 3.23 1.17 0.00 0.87	IN, 0.0 IN, IN,	A	INA INA 0.00 INA INA 4.45	INA INA 1.17 INA INA 415.49
Use of energy Use of Total u and pr Use of primar Use of materia Total u energy Use of Use of	renewa r resource renewa se of rer imary el non-rer y energ non-rer als se of non-rer and pri seconda renewa	ces used ble prim newable nergy re newable on-renev imary er ary mate ble secc	as raw r nary energy primary sources primary ces used primary vable pri nergy res	material: rgy reso v energy used as v energy l as raw v energy imary er sources uels	r resource raw mat excluding material resource nergy resused as i	ed as ran es (prim erials) ng non- s es used	w mater nary ene renewak as raw (primary	ials rgy ole		[MJ] [MJ] [MJ] [MJ] [MJ]	40	0.00 3.23 1.17 0.00 0.87 9.94 0.79	IN, 0.0 IN, IN, 1.1	A	INA INA 0.00 INA INA 4.45 0.00	INA INA 1.17 INA INA 415.49 0.79
Use of energy Use of Total u and pr Use of primar Use of materia Total u energy Use of Use of	renewa resourd renewa se of rer imary er non-rer y energ non-rer als se of no rand pri seconda renewa non-rer	ces used ble prim newable nergy re newable on-renev imary er ary mate ble secc	as raw r pary energy sources primary ces used primary vable prinergy reserval	material: rgy reso v energy used as v energy l as raw v energy imary er sources uels	r resource raw mat excluding material resource nergy resused as i	ed as ran es (prim erials) ng non- s es used	w mater nary ene renewak as raw (primary	ials rgy ole		[MJ] [MJ] [MJ]	40	0.00 3.23 1.17 0.00 0.87 9.94 0.79 1.83	IN, 0.0 IN, 1.1 0.0 0.0	A A O O O O O O O O O O O O O O O O O O	INA 0.00 INA INA 4.45 0.00	INA INA 1.17 INA INA 415.49 0.79 1.83
Use of energy Use of Total u and pr Use of primar Use of materia Total u energy Use of Use of	renewa resourd renewa se of rer imary er non-rer y energ non-rer als se of no rand pri seconda renewa non-rer	ces used ble prim newable nergy re newable y resour newable on-renev imary er ary mate ble seco	as raw r pary energy sources primary ces used primary vable prinergy reserval	material: rgy reso v energy used as v energy l as raw v energy imary er sources uels ary fuels	s urces us r resource raw mat excludin material resource nergy resource used as i	ed as raves (primerials) ang nons s es used sources raw mat	w mater lary ene renewak as raw (primary erials)	ials rgy ble	describi	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [kg] [MJ] [MJ] [MJ]	40	0.00 3.23 1.17 0.00 0.87 9.94 0.79 1.83 2.52 4.11	IN/ 0.0 IN/ IN/ 1.1 0.0 0.0 0.0 0.0	A A O O O O O O O O O O O O O O O O O O	INA 0.00 INA INA 4.45 0.00 0.00	INA INA 1.17 INA INA 415.49 0.79 1.83 2.52
Use of energy Use of Total u and pr Use of primar Use of materia Total u energy Use of Use of Use of	renewa resourd renewa se of rer imary er non-rer als se of nor rand pri seconda renewa non-rer e of fres	ces used ble prim newable nergy re newable y resour newable on-renev imary er ary mate ble secco newable h water	as raw r hary energy primary sources primary ces used primary vable prinergy reserval andary fu seconda	material: rgy reso v energy used as v energy l as raw v energy imary er sources uels ary fuels	s urces us r resource raw mat excludin material resource nergy resource used as i	ed as raves (primerials) ang nons s es used sources raw mat	w mater lary ene renewak as raw (primary erials)	ials rgy ble	describi	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	40 te categ	0.00 3.23 1.17 0.00 0.87 9.94 0.79 1.83 2.52 4.11 ories: 1	IN/ 0.0 IN/ IN/ 1.1 0.0 0.0 0.0 0.0	A A O O O O O O O O O O O O O O O O O O	INA 0.00 INA INA 4.45 0.00 0.00	INA INA 1.17 INA INA 415.49 0.79 1.83 2.52 4.13
Use of energy Use of Total u and pr Use of primar Use of materia Total u energy Use of Use of Use of Hazaro	renewa resourd renewa se of rer imary er non-rer y energ non-rer als se of no rand pri second renewa non-rer e of fres	ble primewable nergy re newable y resour newable on-renewable ble seconewable h water	as raw r nary energy primary sources primary ces used primary vable prinergy reserial andary fu secondary	material: rgy reso venergy used as venergy l as raw venergy imary er sources uels ary fuels Oth	s urces us r resource raw mat excludin material resource nergy resource used as i	ed as raves (primerials) ang nons s es used sources raw mat	w mater lary ene renewak as raw (primary erials)	ials rgy ble	describi	[MJ] [MJ] [MJ] [MJ] [MJ] [kg] [MJ] [MJ] [dm³] ng wast Unit [kg]	40 te categ	0.00 3.23 1.17 0.00 0.87 9.94 0.79 1.83 2.52 4.11 ories: 1 A1	IN, 0.0 IN, 1.1 0.0 0.0 0.0 0.0 0.0 m <sup>2</sup> A.	A A O O O O O O O O O O O O O O O O O O	INA INA 0.00 INA INA 4.45 0.00 0.00 0.00 0.01  A3	INA INA 1.17 INA INA 415.49 0.79 1.83 2.52 4.13  A1-A3 0.003
Use of energy Use of Total u and pr Use of primar Use of materia Total u energy Use of Use of Use of Net use Indicat Hazard Non-ha	renewa resourd renewa se of rer imary er non-rer y energ non-rer als se of nod rand pri second renewa non-rer e of fres tor lous wa azardou	ces used ble prim newable nergy re newable y resour newable on-renev imary er ary mate ble seco newable h water	as raw rater and representations of the conditions of the conditio	material: rgy reso venergy used as venergy l as raw venergy imary er sources uels ary fuels Oth	s urces us r resource raw mat excludin material resource nergy resource used as i	ed as raves (primerials) ang nons s es used sources raw mat	w mater lary ene renewak as raw (primary erials)	ials rgy ble	describi	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	40 te categ	0.00 3.23 1.17 0.00 0.87 9.94 0.79 1.83 2.52 4.11 ories: 1	IN, 0.0 IN, 1.1: 0.0 0.0 0.0 0.0 0.0 m <sup>2</sup> A.	A A O O O O O O O O O O O O O O O O O O	INA INA 0.00 INA INA 4.45 0.00 0.00 0.00 0.01 A3	INA INA 1.17 INA INA 415.49 0.79 1.83 2.52 4.13
Use of energy Use of Total u and pr Use of primar Use of materia Total u energy Use of Use of Use of Net use Indicat Hazard Non-ha	renewa resourd renewa se of rer imary en non-rer y energ non-rer als se of no renewa non-rer e of fres tor lous wa azardou	ces used ble prim newable nergy re newable y resour newable on-renev imary er ary mate ble seco newable h water ste disposs is waste aste disposs	as raw ramary energy sources used primary fundary fund	material: rgy reso venergy used as venergy l as raw venergy imary er sources uels ary fuels Oth	s urces us r resource raw mat excludin material resource nergy resource used as i	ed as raves (primerials) ang nons s es used sources raw mat	w mater lary ene renewak as raw (primary erials)	ials rgy ble	describi	[MJ] [MJ] [MJ] [MJ] [MJ] [kg] [MJ] [dm³] ng wast Unit [kg] [kg]	40 te categ	0.00 3.23 1.17 0.00 0.87 9.94 0.79 1.83 2.52 4.11 ories: 1 A1	IN, 0.0 IN, 1.1 0.0 0.0 0.0 0.0 m <sup>2</sup> A. 0.004	A A O O O O O O O O O O O O O O O O O O	INA INA 0.00 INA INA 4.45 0.00 0.00 0.00 0.01  A3 0 0.07 0	INA INA 1.17 INA INA 415.49 0.79 1.83 2.52 4.13  A1-A3 0.003 1.13 0
Use of energy Use of Total u and pr Use of primar Use of materia Total u energy Use of Use of Use of Net use Indicat Hazard Non-ha Radioa Compo	renewa resource renewa se of rer imary er non-rer y energy non-rer als se of no read pri second renewa non-rer e of fres tor lous wa azardou cotive wa ponents f	ble primewable nergy re newable y resour newable on-renewable ble seconewable h water ste dispose waste dispose aste dispose re-us.	as raw ramary energy sources used primary fundary fund	material: rgy reso venergy used as venergy l as raw venergy imary er sources uels ary fuels Oth	s urces us r resource raw mat excludin material resource nergy resource used as i	ed as raves (primerials) ang nons s es used sources raw mat	w mater lary ene renewak as raw (primary erials)	ials rgy ble	describi	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	40 te categ	0.00 3.23 1.17 0.00 0.87 9.94 0.79 1.83 2.52 4.11 ories: 1 A1 .003 1.06 0	IN, O.0 IN, IN, 1.1 O.0 O.0 O.0 O.0 M <sup>2</sup> A.	A A O O O O O O O O O O O O O O O O O O	INA INA 0.00 INA INA 4.45 0.00 0.00 0.01  A3 0 0.07 0 0.0007	INA INA 1.17 INA INA 415.49 0.79 1.83 2.52 4.13  A1-A3 0.003 1.13 0 0.0007
Use of energy Use of Total u and pr Use of primar Use of materia Total u energy Use of Use of Use of Net use Indicat Hazard Non-ha Radioa Compo	renewa resource renewa se of rer imary en non-rer y energy non-rer als see of not renewa non-rer e of fres tor lous wa azardou active wa pals for real	ble primewable nergy re newable y resour newable on-renewable ble seconewable h water ste dispose waste dispose aste dispose re-us.	as raw range as range a	material: rgy reso venergy used as venergy l as raw venergy imary er sources uels ary fuels Oth	s urces us r resource raw mat excludin material resource nergy resource used as i	ed as raves (primerials) ang nons s es used sources raw mat	w mater lary ene renewak as raw (primary erials)	ials rgy ble	describi	[MJ] [MJ] [MJ] [MJ] [MJ] [kg] [MJ] [dm³] ng wast Unit [kg] [kg]	40 te categ	0.00 3.23 1.17 0.00 0.87 9.94 0.79 1.83 2.52 4.11 ories: 1 A1 .003 1.06 0	IN, O.0 IN, IN, 1.1 O.0 O.0 O.0 O.0 m <sup>2</sup> A.	A A O O O O O O O O O O O O O O O O O O	INA INA 0.00 INA INA 4.45 0.00 0.00 0.00 0.01  A3 0 0.07 0	INA INA 1.17 INA INA 415.49 0.79 1.83 2.52 4.13  A1-A3 0.003 1.13 0

[MJ]

0

0

Exported energy

EXTERNAL THERMAL INSULATION COMPOSITE SYSTEMS WITH ACRYLIC RENDERS

in accordance with ISO 14025:2010 and EN 15804:2012



#### **VERIFICATION**

The process of verification of an EPD is in accordance with EN ISO 14025, clause 8 and ISO 21930, clause 9. 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
Independent verification corresponding to ISO 14025 & 8.3.1.
external internal
Verification of EPD: dr eng. Aleksander Panek
LCI audit and input data verification: msc eng. Dominik Bekierski
LCA: dr eng. Michał Piasecki
Verification of procedures and declaration: dr eng. Halina Preizner

#### **NORMATIVE REFERENCES**

- ISO 14025:2006, Environmental management Type III environmental declarations Principles and procedure.
- ISO 21930:2007, Sustainability in building and construction Environmental declaration of building products.
- ISO 14044:2006, Environmental management Life cycle assessment Requirements and guidelines.

- ISO 15686-1:2000, Buildings and constructed assets Service life planning Part 1: General principles ISO 15686-8:2008, Buildings and constructed assets Service life planning Part 8: Reference service life EN 15804:2012, Sustainability in construction works Environmental product declarations Core rules for the product category of construction products.
- EN 15942:2011, Sustainability of construction works Environmental product declarations Communication format business-to-business





# Zakład Fizyki Cieplnej, Instalacji Sanitarnych i Środowiska

02-656 Warszawa, ul. Ksawerów 21

# ŚWIADECTWO nr 020/2014 DEKLARACJI ŚRODOWISKOWEJ III TYPU

Wyroby:

Zestaw wyrobów do wykonywania ociepleń ścian zewnętrznych budynków systemem ATLAS ETICS z tynkiem akrylowym

Wnioskodawca:

ATLAS Sp. z o.o.

91-222 Łódź, ul. Św. Teresy 105

potwierdza się poprawność ustalenia danych uwzględnionych przy opracowaniu Deklaracji Środowiskowej III typu oraz zgodność z wymaganiami normy

PN-EN 15804:2012

Zrównoważoność obiektów budowlanych.

Deklaracje środowiskowe wyrobów.

Podstawowe zasady kategoryzacji wyrobów budowlanych.

Niniejsze świadectwo, wydane po raz pierwszy 10 marca 2014 r. jest ważne 5 lat, lub do czasu zmiany wymienionej Deklaracji Środowiskowej

Kierownik Zakładu Fizyki Cieplnej, Instalacji Sanitarnych i Środowiska

Robert Gerylo

TECHNIK! & CHNIK!

Dyrektor Instytutu Techniki Budowlanei

Jan Bobrowicz

Warszawa, marzec 2014 r.

