EPD

ENVIRONMENTAL
PRODUCT DECLARATION

POLYURETHANE AND MINERAL WOOL INSULATED WALL AND ROOFING PANELS

Environmental Product Declaration
in accordance with UNI EN ISO 14025
and UNI EN 15804:2012+A2:2019.

DECLARATION NUMBER
S-P-04627

PRODUCT CATEGORY RULES
Construction products, 2019:14, version 1.11, UN CPC 54

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PROGRAMME
The International EPD® System
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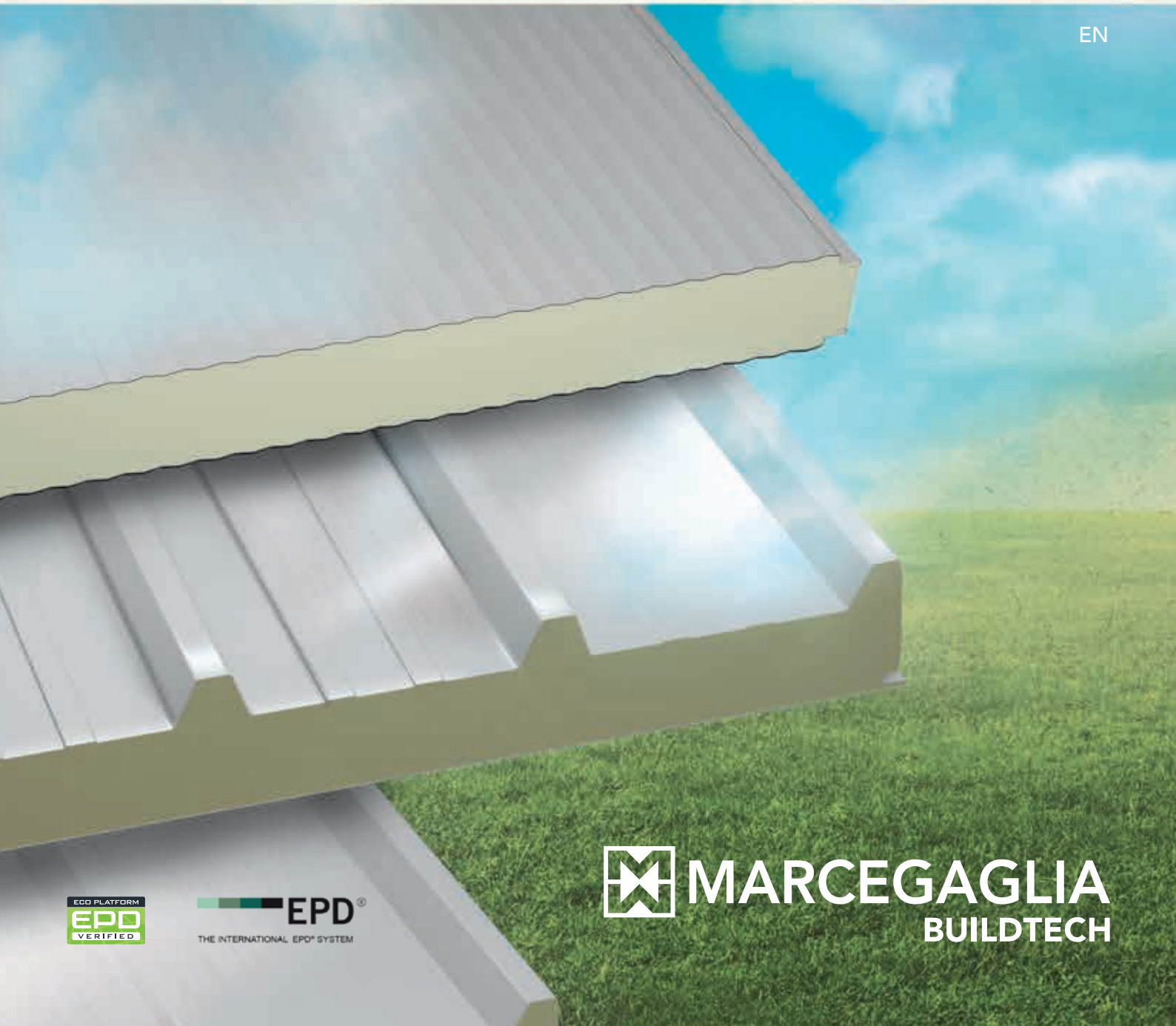
PROGRAMME HOLDER
EPD International AB

EN



MARCEGAGLIA BUILDTECH

ECO PLATFORM EPD VERIFIED

EPD® THE INTERNATIONAL EPD® SYSTEM

Our steel, your life

Sustainability objectives such as respect for the environment and the protection of its workers have always been priorities, and Marcegaglia has been committed over the years to promoting constant innovation in the context of production efficiency, in the safety of its facilities, and environmental protection. These objectives are pursued by adopting the best technologies available, investing in R&D, ongoing training, and the close involvement of its collaborators, thereby tracing a strategic path towards an increasing awareness of sustainability which permeates all of the group's activities, in order to strengthen its "green" spirit and maximize its positive impact on employees, the community, and the environment.

SUMMARY

1. THE COMPANY

Marcegaglia Buildtech is a part of the Marcegaglia group, a leader in the European and world steel processing sector. A **unique business and manufacturing model**, a typical expression of Italian family entrepreneurship, capable of combining its operational capacity with a significant presence in the international market alongside multinationals.

Marcegaglia Buildtech is a **global partner in civil and industrial construction**, thanks to the development of custom steel solutions. The expertise developed in the construction sector allows the company to offer a range of finished goods and complete solutions with a high technical value: insulated and sectional panels, safety barriers, and construction equipments.

The Marcegaglia Buildtech range of **insulated panels** is produced in the largest and most modern specialist Italian plant, in Pozzolo Formigaro (Alessandria).

Furthermore, Marcegaglia Buildtech is the leading manufacturer of **steel road** safety barriers, entirely manufactured at the Pozzolo Formigaro plant.

Lastly, the company is the steel partner for a wide range of construction equipments and scaffolding systems made in Graffignana (Lodi) plant.

2. THE PRODUCT

Thanks to its metal building enveloping departement, Marcegaglia Buildtech can offer the market **a wide range of insulated panels** for roofs, walls, sectional doors and corrugated sheets. The range is enhanced with **insulated panels for special applications**, including cold rooms (refrigerator panels), **sound-absorbing panels** and **insulated roofing panels**.
The products considered in this study are commonly referred to as **sandwich panels** and consist of a composite panel of **one or two sheet metal faces** (mainly steel, but also aluminium) joined together by a **core of expanded polyurethane foam or glued mineral wool**.

In particular, the following are examined:

- **insulated wall panels with PIR/PUR insulating material;**
- **insulated roofing panels with PIR/PUR insulating material;**
- **insulated wall panels with mineral wool insulating material;**
- **insulated roofing panels with mineral wool insulating material;**
- **insulated wall panels with sound-absorbing mineral wool insulating material;**
- **insulated roofing panels with sound-absorbing mineral wool insulating material.**

All panels do not contain SVHC Substances of Very High Concern covered by ECHA's Candidate List in concentrations greater than 0.1% by mass.

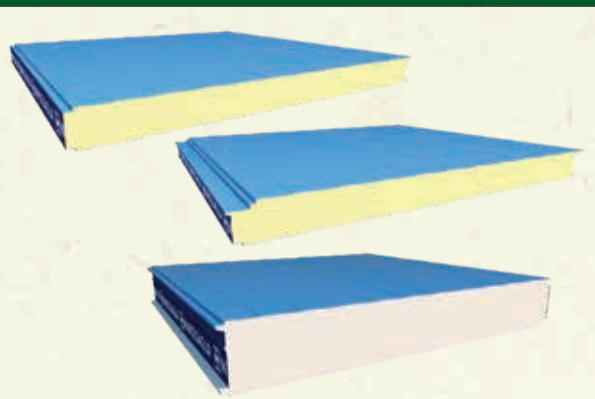
CFC and HCFC free polyurethane formulations are used which produce an antigroscopic, anti-mold and high content of closed cell (> 95%) insulating foam. For fire performance requirements, particularly **high performance foams with reaction to fire** are used. Thermal conductivity assumes a value λ = 0,021 W/mK.

The **mineral wool** used is of the **biosoluble, anigroscopic, non-rot and non-combustible** type (European class A1 of reaction to fire). Thermal conductivity assumes a value λ = 0,041 W/mK (correctly measured in the direction of the fibers).

The panels examined have an estimated life cycle of **50 years** [Ref.: Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR)] and are equipped with **CE marking**: in this way, the company provides certified compliance with the legislative requirements on health and safety and environmental protection.

From the company website **marcegagliabuildtech.it**, it is possible to download product catalogs which contain an exhaustive description of their technical characteristics.

POLYURETHANE INSULATED WALL PANEL

MB WALL MB HIDDEN FIX MB COLD-PRO	PANEL THICKNESS (mm)	INTERNAL SUPPORT THICKNESS (mm)	EXTERNAL SUPPORT THICKNESS (mm)
	40	0,4	0,5
	50	0,4	0,5
	60	0,4	0,5
	80	0,4	0,5
	100	0,4	0,5
	120	0,4	0,5
	150	0,4	0,5
	180	0,4	0,5
	200	0,4	0,5

CONTENT INFORMATION

PANEL THICKNESS (mm)	WEIGHT (kg/m²)	WEIGHT OF THE METAL SUPPORTS (%)	WEIGHT OF THE INSULATING MATERIAL (%)	THERMAL TRANSMITTANCE U (W/ m² K)
40	8,39	82%	18%	0,50
50	8,78	78%	22%	0,41
60	9,17	75%	25%	0,34
80	9,95	69%	31%	0,26
100	10,73	64%	36%	0,21
120	11,51	60%	40%	0,17
150	12,68	54%	46%	0,14
180	13,85	50%	50%	0,11
200	14,63	47%	53%	0,10

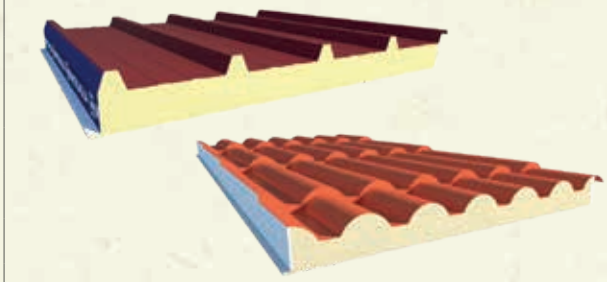
POLYURETHANE INSULATED WALL PANEL

CONTENT INFORMATION

PANEL THICKNESS (mm)	PRODUCT COMPONENTS	SHEET STEEL	POLYURETHANE FOAM	TOTAL
40	weight (kg/m²)	6,86	1,52	**8,39**
	(%)	82	18	**100**
50	weight (kg/m²)	6,86	1,91	**8,78**
	(%)	78	22	**100**
60	weight (kg/m²)	6,86	2,3	**9,17**
	(%)	75	25	**100**
80	weight (kg/m²)	6,86	3,08	**9,95**
	(%)	69	31	**100**
100	weight (kg/m²)	6,86	3,86	**10,73**
	(%)	64	36	**100**
120	weight (kg/m²)	6,86	4,64	**11,51**
	(%)	60	40	**100**
150	weight (kg/m²)	6,86	5,81	**12,68**
	(%)	54	46	**100**
180	weight (kg/m²)	6,86	6,98	**13,85**
	(%)	50	50	**100**
200	weight (kg/m²)	6,86	7,76	**14,63**
	(%)	47	53	**100**
POST CONSUMER	(%)	28,9	0	-
RENEWABLE MATERIAL	(%)	0	0	-

PANEL THICKNESS (mm)	PACKAGING MATERIALS	POLYETHYLENE	CARDBOARD	POLYSTYRENE	POLYURETHANE	TOTAL
40	weight (kg/m²)	0,059	0,037	0,023	0,006	**0,125**
	(%)	48	29	19	5	**100**
50	weight (kg/m²)	0,063	0,046	0,029	0,007	**0,145**
	(%)	44	31	20	5	**100**
60	weight (kg/m²)	0,068	0,055	0,035	0,009	**0,166**
	(%)	41	33	21	5	**100**
80	weight (kg/m²)	0,076	0,073	0,046	0,012	**0,207**
	(%)	37	35	22	6	**100**
100	weight (kg/m²)	0,085	0,091	0,058	0,014	**0,248**
	(%)	34	37	23	6	**100**
120	weight (kg/m²)	0,093	0,11	0,069	0,017	**0,289**
	(%)	32	38	24	6	**100**
150	weight (kg/m²)	0,106	0,137	0,087	0,022	**0,351**
	(%)	30	39	25	6	**100**
180	weight (kg/m²)	0,119	0,164	0,104	0,026	**0,413**
	(%)	29	40	25	6	**100**
200	weight (kg/m²)	0,127	0,183	0,115	0,029	**0,454**
	(%)	28	40	25	6	**100**

POLYURETHANE INSULATED ROOFING PANEL

MB ROOF MB COPPO	PANEL THICKNESS (mm)	INTERNAL SUPPORT THICKNESS (mm)	EXTERNAL SUPPORT THICKNESS (mm)
	40	0,4	0,5
	50	0,4	0,5
	60	0,4	0,5
	80	0,4	0,5
	100	0,4	0,5
	120	0,4	0,5
	150	0,4	0,5

CONTENT INFORMATION

PANEL THICKNESS (mm)	WEIGHT (kg/m²)	WEIGHT OF THE METAL SUPPORTS (%)	WEIGHT OF THE INSULATING MATERIAL (%)	THERMAL TRANSMITTANCE U (W/ m² K)
40	9,06	83%	17%	0,51
50	9,45	80%	20%	0,41
60	9,84	77%	23%	0,34
80	10,62	71%	29%	0,26
100	11,4	66%	34%	0,21
120	12,18	62%	38%	0,17
150	13,35	56%	44%	0,14

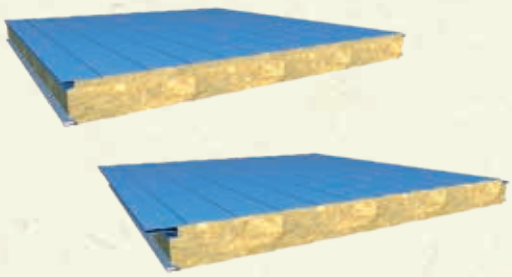
POLYURETHANE INSULATED ROOFING PANEL

CONTENT INFORMATION

PANEL THICKNESS (mm)	PRODUCT COMPONENTS	SHEET STEEL	POLYURETHANE FOAM	TOTAL
40	weight (kg/m²)	7,53	1,52	**9,06**
	(%)	83	17	**100**
50	weight (kg/m²)	7,53	1,91	**9,45**
	(%)	80	20	**100**
60	weight (kg/m²)	7,53	2,3	**9,84**
	(%)	77	23	**100**
80	weight (kg/m²)	7,53	3,08	**10,62**
	(%)	71	29	**100**
100	weight (kg/m²)	7,53	3,86	**11,4**
	(%)	66	34	**100**
120	weight (kg/m²)	7,53	4,64	**12,18**
	(%)	62	38	**100**
150	weight (kg/m²)	7,53	5,81	**13,35**
	(%)	56	44	**100**
POST CONSUMER	(%)	28,9	0	-
RENEWABLE MATERIAL	(%)	0	0	-

PANEL THICKNESS (mm)	PACKAGING MATERIALS	POLYETHYLENE	CARDBOARD	POLYSTYRENE	POLYURETHANE	TOTAL
40	weight (kg/m²)	0,059	0,037	0,023	0,006	**0,125**
	(%)	48	29	19	5	**100**
50	weight (kg/m²)	0,063	0,046	0,029	0,007	**0,145**
	(%)	43	32	20	5	**100**
60	weight (kg/m²)	0,068	0,055	0,035	0,009	**0,166**
	(%)	41	33	21	5	**100**
80	weight (kg/m²)	0,076	0,073	0,046	0,012	**0,207**
	(%)	37	35	22	6	**100**
100	weight (kg/m²)	0,085	0,091	0,058	0,014	**0,248**
	(%)	34	37	23	6	**100**
120	weight (kg/m²)	0,093	0,11	0,069	0,017	**0,289**
	(%)	32	38	24	6	**100**
150	weight (kg/m²)	0,106	0,137	0,087	0,022	**0,351**
	(%)	30	39	25	6	**100**

MINERAL WOOL INSULATED WALL PANEL

MB FIRE-PRO WALL MB FIRE-PRO HIDDEN FIX	PANEL THICKNESS (mm)	INTERNAL SUPPORT THICKNESS (mm)	EXTERNAL SUPPORT THICKNESS (mm)
	50	0,6	0,6
	60	0,6	0,6
	80	0,6	0,6
	100	0,6	0,6
	120	0,6	0,6
	150	0,6	0,6
	170	0,6	0,6
	200	0,6	0,6

CONTENT INFORMATION

PANEL THICKNESS (mm)	WEIGHT (kg/m²)	WEIGHT OF THE METAL SUPPORTS (%)	WEIGHT OF THE INSULATING MATERIAL (%)	THERMAL TRANSMITTANCE U (W/ m² K)
50	14,43	66%	34%	0,74
60	15,43	62%	38%	0,63
80	17,43	55%	45%	0,48
100	19,43	49%	51%	0,39
120	21,43	45%	55%	0,33
150	24,43	39%	61%	0,03
170	26,43	36%	64%	0,23
200	29,43	32%	68%	0,20

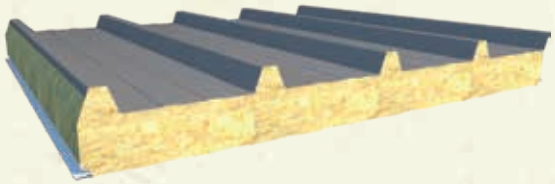
MINERAL WOOL INSULATED WALL PANEL

CONTENT INFORMATION

PANEL THICKNESS (mm)	PRODUCT COMPONENTS	SHEET STEEL	ROCK WOOL	TOTAL
50	weight (kg/m²)	9,55	4,88	**14,43**
	(%)	66	34	**100**
60	weight (kg/m²)	9,55	5,88	**15,43**
	(%)	62	38	**100**
80	weight (kg/m²)	9,55	7,88	**17,43**
	(%)	55	45	**100**
100	weight (kg/m²)	9,55	9,88	**19,43**
	(%)	49	51	**100**
120	weight (kg/m²)	9,55	11,88	**21,43**
	(%)	45	55	**100**
150	weight (kg/m²)	9,55	14,88	**24,43**
	(%)	39	61	**100**
170	weight (kg/m²)	9,55	16,88	**26,43**
	(%)	36	64	**100**
200	weight (kg/m²)	9,55	19,88	**29,43**
	(%)	32	68	**100**
POST CONSUMER	(%)	28,9	>2	-
RENEWABLE MATERIAL	(%)	0	0	-

PANEL THICKNESS (mm)	PACKAGING MATERIALS	POLYETHYLENE	CARDBOARD	POLYSTYRENE	TOTAL
50	weight (kg/m²)	0,058	0,046	0,029	**0,132**
	(%)	44	35	22	**100**
60	weight (kg/m²)	0,061	0,055	0,035	**0,15**
	(%)	40	36	23	**100**
80	weight (kg/m²)	0,067	0,073	0,046	**0,186**
	(%)	36	39	25	**100**
100	weight (kg/m²)	0,073	0,091	0,058	**0,222**
	(%)	33	41	26	**100**
120	weight (kg/m²)	0,08	0,11	0,069	**0,258**
	(%)	31	42	27	**100**
150	weight (kg/m²)	0,089	0,137	0,087	**0,312**
	(%)	28	44	28	**100**
170	weight (kg/m²)	0,095	0,155	0,098	**0,348**
	(%)	27	45	28	**100**
200	weight (kg/m²)	0,104	0,183	0,115	**0,402**
	(%)	26	45	29	**100**

MINERAL WOOL INSULATED ROOFING PANEL

MB FIRE-PRO ROOF	PANEL THICKNESS (mm)	INTERNAL SUPPORT THICKNESS (mm)	EXTERNAL SUPPORT THICKNESS (mm)
	50	0,6	0,6
	60	0,6	0,6
	80	0,6	0,6
	100	0,6	0,6
	120	0,6	0,6
	150	0,6	0,6
	170	0,6	0,6
	200	0,6	0,6

CONTENT INFORMATION

PANEL THICKNESS (mm)	WEIGHT (kg/m²)	WEIGHT OF THE METAL SUPPORTS (%)	WEIGHT OF THE INSULATING MATERIAL (%)	THERMAL TRANSMITTANCE U (W/ m² K)
50	15,16	68%	32%	0,77
60	16,16	64%	36%	0,65
80	18,16	57%	43%	0,50
100	20,16	51%	49%	0,40
120	22,16	46%	54%	0,34
150	25,16	41%	59%	0,27
170	27,16	38%	62%	0,24
200	30,16	34%	66%	0,20

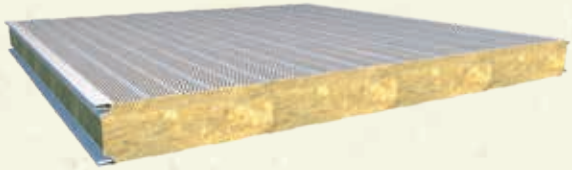
MINERAL WOOL INSULATED ROOFING PANEL

CONTENT INFORMATION

PANEL THICKNESS (mm)	PRODUCT COMPONENTS	SHEET STEEL	ROCK WOOL	TOTAL
50	weight (kg/m²)	10,28	4,88	**15,16**
	(%)	68	32	**100**
60	weight (kg/m²)	10,28	5,88	**16,16**
	(%)	64	36	**100**
80	weight (kg/m²)	10,28	7,88	**18,16**
	(%)	57	43	**100**
100	weight (kg/m²)	10,28	9,88	**20,16**
	(%)	51	49	**100**
120	weight (kg/m²)	10,28	11,88	**22,16**
	(%)	46	54	**100**
150	weight (kg/m²)	10,28	14,88	**25,16**
	(%)	41	59	**100**
170	weight (kg/m²)	10,28	16,88	**27,16**
	(%)	38	62	**100**
200	weight (kg/m²)	10,28	19,88	**30,16**
	(%)	34	66	**100**
POST CONSUMER	(%)	28,9	>2	-
RENEWABLE MATERIAL	(%)	0	0	-

PANEL THICKNESS (mm)	PACKAGING MATERIALS	POLYETHYLENE	CARDBOARD	POLYSTYRENE	TOTAL
50	weight (kg/m²)	0,058	0,046	0,029	**0,132**
	(%)	44	35	22	**100**
60	weight (kg/m²)	0,061	0,055	0,035	**0,15**
	(%)	40	36	23	**100**
80	weight (kg/m²)	0,067	0,073	0,046	**0,186**
	(%)	36	39	25	**100**
100	weight (kg/m²)	0,073	0,091	0,058	**0,222**
	(%)	33	41	26	**100**
120	weight (kg/m²)	0,08	0,11	0,069	**0,258**
	(%)	31	42	27	**100**
150	weight (kg/m²)	0,089	0,137	0,087	**0,312**
	(%)	28	44	28	**100**
170	weight (kg/m²)	0,095	0,155	0,098	**0,348**
	(%)	27	45	28	**100**
200	weight (kg/m²)	0,104	0,183	0,115	**0,402**
	(%)	26	45	29	**100**

MINERAL WOOL SOUND-ABSORBING INSULATED WALL PANEL

MB WALL SOUND	PANEL THICKNESS (mm)	INTERNAL SUPPORT THICKNESS (mm)	EXTERNAL SUPPORT THICKNESS (mm)
	50	0,6	0,6
	60	0,6	0,6
	80	0,6	0,6
	100	0,6	0,6
	120	0,6	0,6
	150	0,6	0,6
	170	0,6	0,6
	200	0,6	0,6

CONTENT INFORMATION

PANEL THICKNESS (mm)	WEIGHT (kg/m²)	WEIGHT OF THE METAL SUPPORTS (%)	WEIGHT OF THE INSULATING MATERIAL (%)	THERMAL TRANSMITTANCE U (W/ m² K)
50	14,43	66%	34%	0,76
60	15,43	62%	38%	0,64
80	17,43	55%	45%	0,49
100	19,43	49%	51%	0,40
120	21,43	45%	55%	0,34
150	24,43	39%	61%	0,27
170	26,43	36%	64%	0,24
200	29,43	32%	68%	0,2

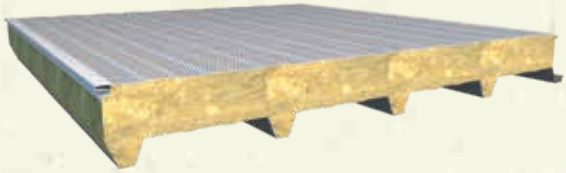
MINERAL WOOL SOUND-ABSORBING INSULATED WALL PANEL

CONTENT INFORMATION

PANEL THICKNESS (mm)	PRODUCT COMPONENTS	SHEET STEEL	ROCK WOOL	TOTAL
50	weight (kg/m²)	9,55	4,88	**14,43**
	(%)	66	34	**100**
60	weight (kg/m²)	9,55	5,88	**15,43**
	(%)	62	38	**100**
80	weight (kg/m²)	9,55	7,88	**17,43**
	(%)	55	45	**100**
100	weigh (kg/m²)	9,55	9,88	**19,43**
	(%)	49	51	**100**
120	weight (kg/m²)	9,55	11,88	**21,43**
	(%)	45	55	**100**
150	weigh (kg/m²)	9,55	14,88	**24,43**
	(%)	39	61	**100**
170	weight (kg/m²)	9,55	16,88	**26,43**
	(%)	36	64	**100**
200	weight (kg/m²)	9,55	19,88	**29,43**
	(%)	32	68	**100**
POST CONSUMER	(%)	28,9	>2	-
RENEWABLE MATERIAL	(%)	0	0	-

PANEL THICKNESS (mm)	PACKAGING MATERIALS	POLYETHYLENE	CARDBOARD	POLYSTYRENE	POLYPROPYLENE	TOTAL
50	weight (kg/m²)	0,058	0,046	0,029	0,03	**0,162**
	(%)	36	28	18	18	**100**
60	weight (kg/m²)	0,061	0,055	0,035	0,03	**0,18**
	(%)	34	30	19	17	**100**
80	weight (kg/m²)	0,067	0,073	0,046	0,03	**0,216**
	(%)	31	34	21	14	**100**
100	weight (kg/m²)	0,073	0,091	0,058	0,03	**0,252**
	(%)	29	36	23	12	**100**
120	weight (kg/m²)	0,08	0,11	0,069	0,03	**0,288**
	(%)	28	38	24	10	**100**
150	weight (kg/m²)	0,089	0,137	0,087	0,03	**0,342**
	(%)	26	40	25	9	**100**
170	weight (kg/m²)	0,095	0,155	0,098	0,03	**0,378**
	(%)	25	41	26	8	**100**
200	weight (kg/m²)	0,104	0,183	0,115	0,03	**0,432**
	(%)	24	42	27	7	**100**

MINERAL WOOL SOUND-ABSORBING INSULATED ROOFING PANEL

MB ROOF SOUND	PANEL THICKNESS (mm)	INTERNAL SUPPORT THICKNESS (mm)	EXTERNAL SUPPORT THICKNESS (mm)
	50	0,6	0,6
	60	0,6	0,6
	80	0,6	0,6
	100	0,6	0,6
	120	0,6	0,6
	150	0,6	0,6
	170	0,6	0,6
	200	0,6	0,6

CONTENT INFORMATION

PANEL THICKNESS (mm)	WEIGHT (kg/m²)	WEIGHT OF THE METAL SUPPORTS (%)	WEIGHT OF THE INSULATING MATERIAL (%)	THERMAL TRANSMITTANCE U (W/ m² K)
50	15,16	68%	32%	0,70
60	16,16	64%	36%	0,6
80	18,16	57%	43%	0,47
100	20,16	51%	49%	0,38
120	22,16	46%	54%	0,32
150	25,16	41%	59%	0,26
170	27,16	38%	62%	0,24
200	30,16	34%	66%	0,2

MINERAL WOOL SOUND-ABSORBING INSULATED ROOFING PANEL

CONTENT INFORMATION

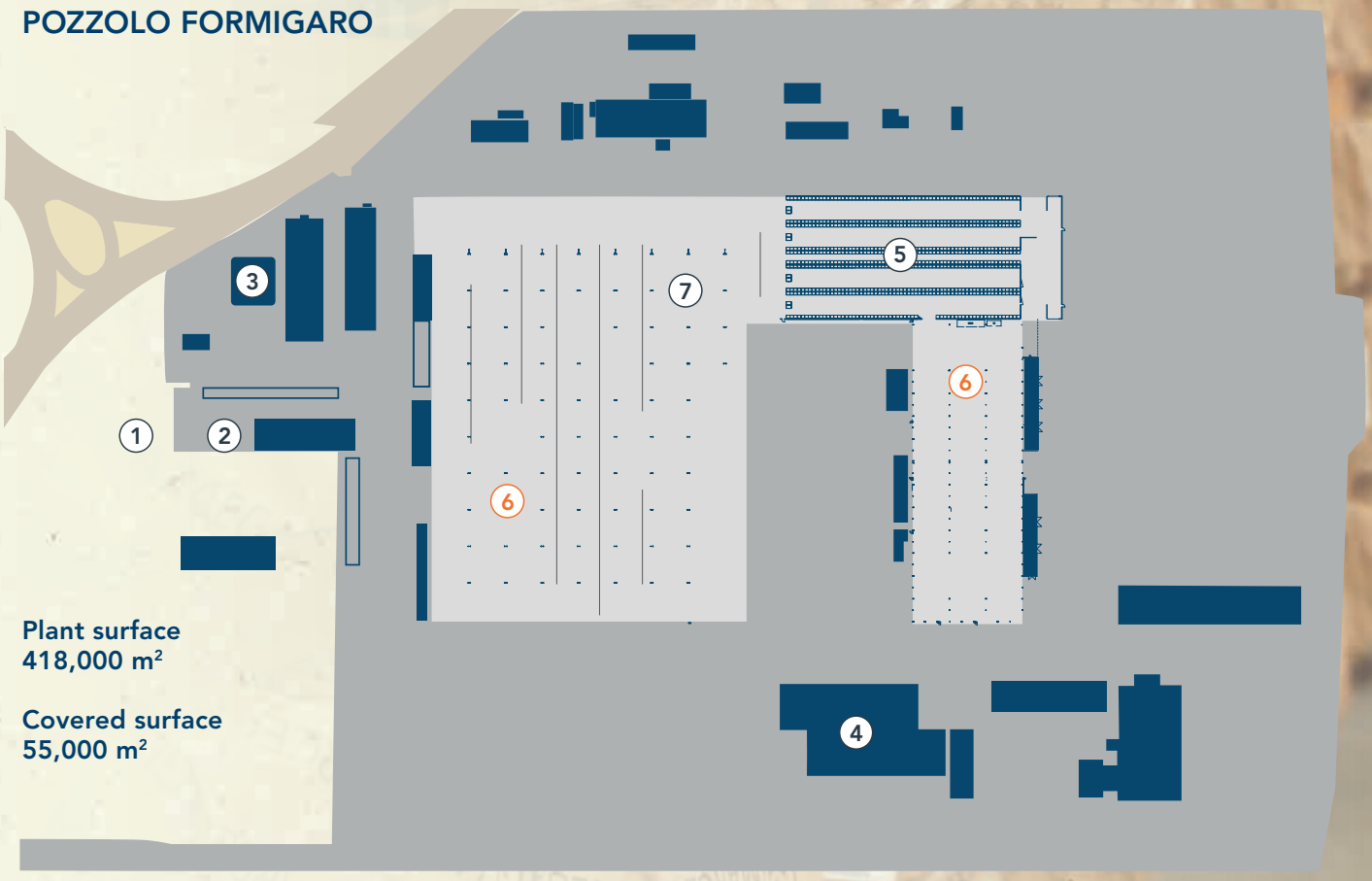
PANEL THICKNESS (mm)	PRODUCT COMPONENTS	SHEET STEEL	ROCK WOOL	TOTAL
50	weight (kg/m²)	9,55	4,88	**14,43**
	(%)	66	34	**100**
60	weight (kg/m²)	9,55	5,88	**15,43**
	(%)	62	38	**100**
80	weight (kg/m²)	9,55	7,88	**17,43**
	(%)	55	45	**100**
100	weight (kg/m²)	9,55	9,88	**19,43**
	(%)	49	51	**100**
120	weight (kg/m²)	9,55	11,88	**21,43**
	(%)	45	55	**100**
150	weight (kg/m²)	9,55	14,88	**24,43**
	(%)	39	61	**100**
170	weight (kg/m²)	9,55	16,88	**26,43**
	(%)	36	64	**100**
200	weight (kg/m²)	9,55	19,88	**29,43**
	(%)	32	68	**100**
POST CONSUMER	(%)	28,9	>2	-
RENEWABLE MATERIAL	(%)	0	0	-

PANEL THICKNESS (mm)	PACKAGING MATERIALS	POLYETHYLENE	CARDBOARD	POLYSTYRENE	POLYPROPYLENE	TOTAL
50	weight (kg/m²)	0,058	0,046	0,029	0,03	**0,162**
	(%)	36	28	18	18	**100**
60	weight (kg/m²)	0,061	0,055	0,035	0,03	**0,18**
	(%)	34	30	19	17	**100**
80	weight (kg/m²)	0,067	0,073	0,046	0,03	**0,216**
	(%)	31	34	21	14	**100**
100	weight (kg/m²)	0,073	0,091	0,058	0,03	**0,252**
	(%)	29	36	23	12	**100**
120	weight (kg/m²)	0,08	0,11	0,069	0,03	**0,288**
	(%)	28	38	24	10	**100**
150	weight (kg/m²)	0,089	0,137	0,087	0,03	**0,342**
	(%)	26	40	25	9	**100**
170	weight (kg/m²)	0,095	0,155	0,098	0,03	**0,378**
	(%)	25	41	26	8	**100**
200	weight (kg/m²)	0,104	0,183	0,115	0,03	**0,432**
	(%)	24	42	27	7	**100**

3. THE PRODUCTION SITE

Starting from a supply chain of steel semi-finished and finished products, the Marcegaglia Buildtech plant in **Pozzolo Formigaro** (Alessandria) manufactures insulated panels in mineral wool and polyurethane foam specifically designed for use in civil and industrial construction, in particular for roofs and walls.
The site, **extended and refurbished** using the latest manufacturing technologies to ensure maximum product performance, has a surface area of some **418,000 m²**, of which 55,000 are covered.

POZZOLO FORMIGARO



Plant surface
418,000 m²

Covered surface
55,000 m²

1. Entrance
2. Offices
3. Utilities
4. Main storage
5. Coils storage
6. Panels and corrugated sheets production area
7. Safety barriers production area

4. PLANT CERTIFICATION

Marcegaglia Buildtech, in accordance with its **Policy for the Protection of the Health and Safety of Workers and the Environment**, has implemented and maintains an active **quality management system** that meets the requirements of UNI EN ISO 9001:2015 (certificate no. 12370/05/S - expiry 22/05/2022), an **environmental management policy** complying with the requirements of UNI EN ISO 14001:2015 (certificate no. EMS-7290/S - expiry 25/07/2024), and an **occupational health and safety management system** meeting the requirements of UNI ISO 45001:2018 (certificate no. OHS-3387 - expiry 25/07/2024).

SYSTEM CERTIFICATIONS

QUALITY MANAGEMENT SYSTEM
RINA

ISO 9001:2015

ENVIRONMENTAL MANAGEMENT SYSTEM
RINA

ISO 14001:2015

ENVIRONMENTAL MANAGEMENT SYSTEM
IQNET

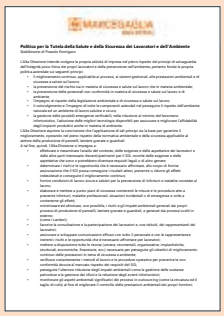
ISO 14001:2015

HEALTH AND SAFETY MANAGEMENT SYSTEM
RINA

ISO 45001:2018

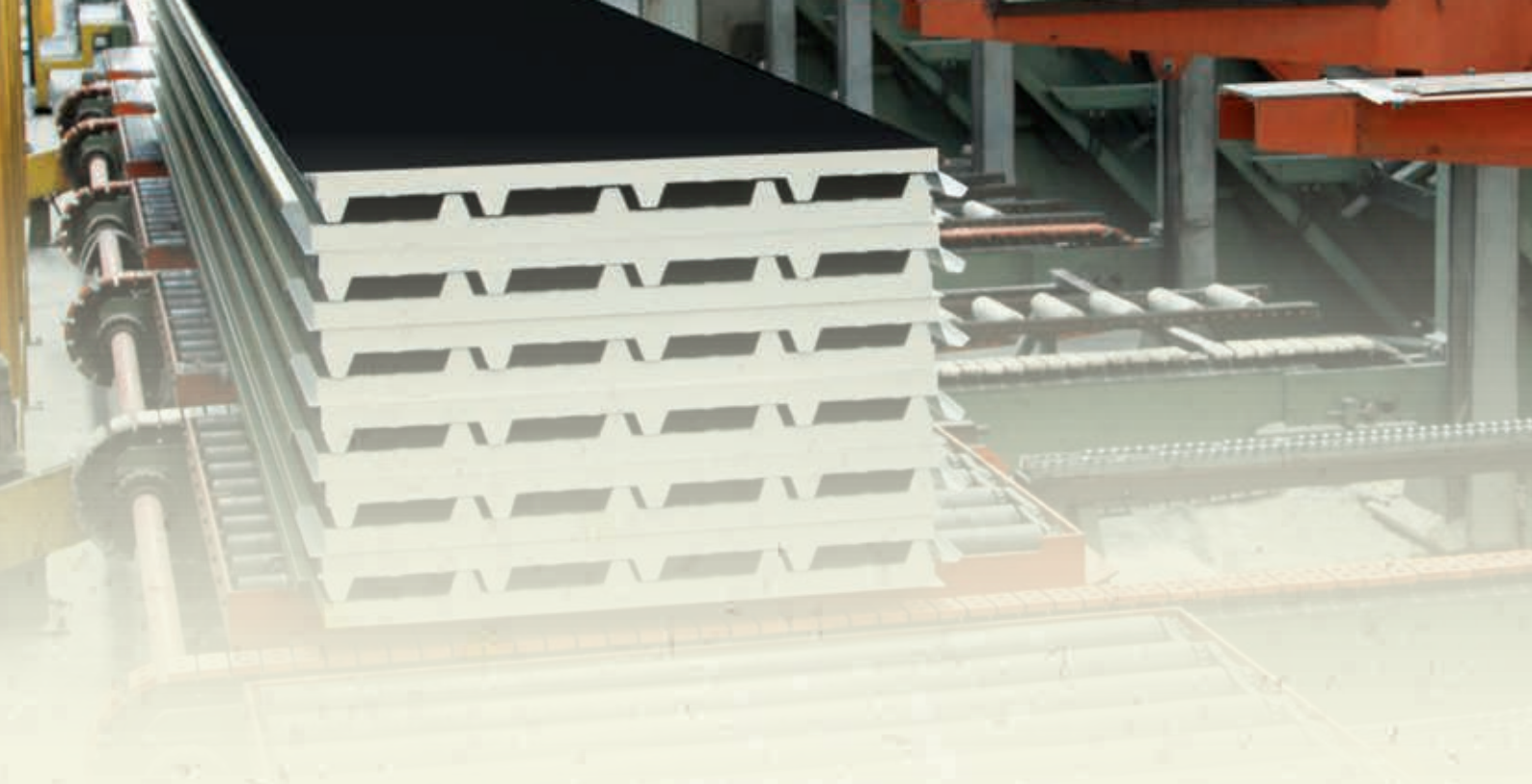
HEALTH AND SAFETY MANAGEMENT SYSTEM
IQNET

ISO 45001:2018



WORKER HEALTH / SAFETY AND ENVIRONMENT POLICY

The company's management systems are a testimony to the corporate commitment to continuously improving its performance with regards to the environment and safety, for example in the way it manages hazardous substances and the waste produced from its activities. In the context of the environmental management policy, there is also an appropriate data management procedure to **study product life cycles**. The company has new improvement objectives aimed at increasing their performance year on year.



5. THE PROCESS

The **production cycle** begins with the **arrival of raw materials** to the company by road or rail.
The raw materials consist of:

- coils and strips arriving from the other companies of the Marcegaglia group;
- polyol, catalyst, pentane (expanding) and isocyanate (MDI) for making the polyurethane insulation;
- adhesion promoter;
- mineral wool in mattresses;
- non-woven fabric for sound-absorbing panels;
- polyol mix for bonding wool-sheet strips;
- packaging materials such as sponges, adhesive tape, polystyrene blocks, packaging film, protective cardboard.

In detail, the processing cycle takes place through the phases described below.

• UNWINDING OF COILS
Each of the two metal sheets (steel, aluminum), supplied in coils, is carried out on special reels, electronically controlled to ensure constant power and voltage; an automatic accumulation and crimping system allows the continuous change of the reels without interrupting the production.

• PROTECTIVE FILM APPLICATION
A devolving and application system spreads an adhesive film over the entire pre-painted metal surface to protect it from damage to the paint both in the production phase and later for the various handling and installation phases.

• PROFILING OF SHEETS
The sheets are profiled according to the various shapes through two interchangeable roller profiling trains, always under electronic speed control.

• HEATING SHEETS
The profiled sheets are preheated through an oven with separate chambers and an electronic temperature control system, which allows, in the simple passage, to reach the temperature necessary to favor the adhesion of the polyurethane foam in the subsequent phases (approximately 40 ° C).

• FOAMING
This is followed by a 5-component special execution high-pressure foaming station (polyol, isocyanate, blowing agent, reaction catalysts and additives) with a distribution portal equipped with a mixing head and comb distributor.
This spreads uniformly on the lower sheet the mixture of chemical components which react to form the expanded polyurethane resin.
The head is fed by dosing groups which, by taking the components from tanks at controlled pressure and temperature, supply the exact quantity necessary for the reaction, by means of high pressure pumps with adjustable flow rate. A special computer and related electronic equipment manage the flow rate and temperature parameters of the components as well as the flow rate / production speed ratio.
The recipe varies according to the type of panel (wall, roof, thickness, etc.) and the type of polyurethane to be made. In some cases, to give the panel high fire resistance characteristics, mineral wool is used instead of polyurethane with a special machine.

• PRESS AND HEAT TREATMENT

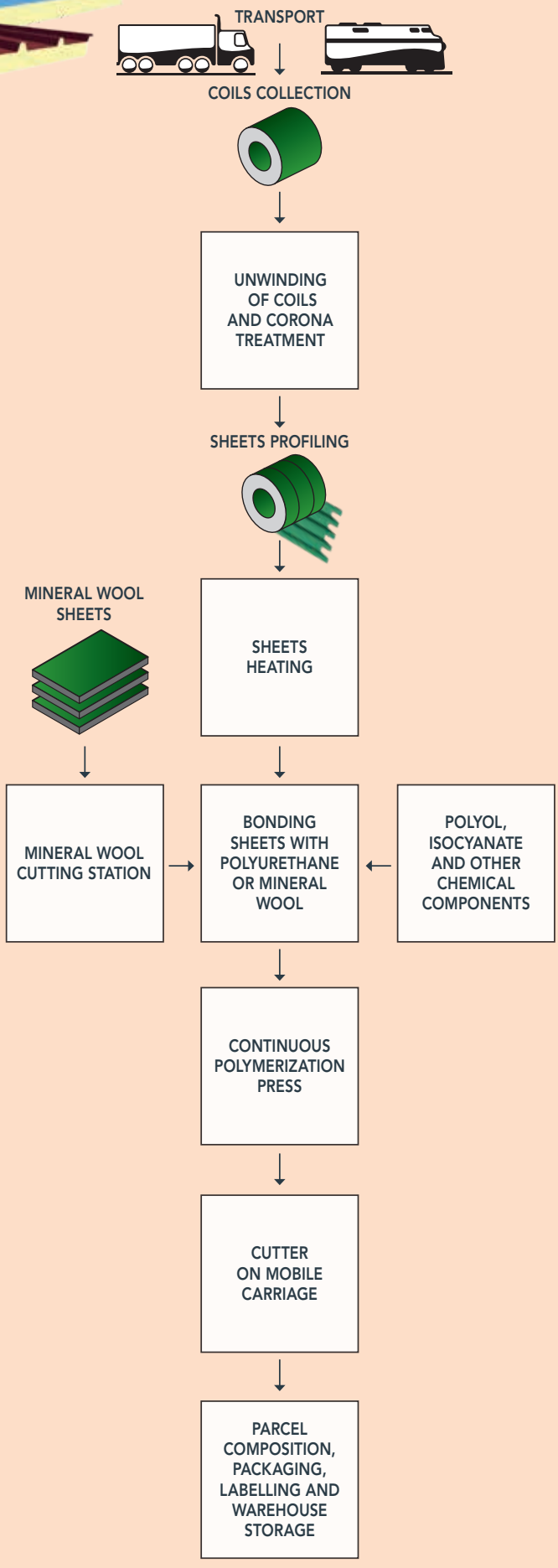
After the foaming phase, the pair of sheets with interposed expanding components are inserted into a continuous press consisting of a double conveyor belt with metal plates and interchangeable counter-shapes.
Here the growth and maturation of the polyurethane foam and calibration take place to the finished thickness of the panel. The upper belt is therefore movable in height to allow the production of various panel thicknesses, while a pair of vertical axis catenaries contain the foam on the sides.
The entire double belt is enclosed in an insulated tunnel equipped with a heating system.

• CUT TO MEASURE

This is followed by the automatic cutting-to-size system in speed; this is a moving cutter on a carriage controlled by an electronic system, for carrying out the cut continuously at the predetermined size, after reaching the speed of synchronism with the line.

• PACKAGING AND SHIPPING IN WAREHOUSE

A system of motorized chains and roller conveyors sends the packs thus formed to an automatic packaging system.
Here the polystyrene spacers are applied for storage and the whole is wound in a spiral with an extensible polyethylene film, which guarantees its stability and compactness during transport.
Finally, the packs thus packed are transferred by means of special conveyors and lifting means to the warehouse awaiting shipment.



** To obtain the values per unit of thermal resistance, it is necessary to multiply each indicator by the thermal transmittance value U, shown in the tables in the "Information on the product content" paragraph (see tables from page 6 to page 15).*

6. THE METHODOLOGY

Due to the fact that, at the end of the analyzed production cycle, there is no finished product, meant as a piece or unit, the environmental performances have been assessed taking **1 square metre of insulated panel**, with specific thermal resistance, depending on the thickness of the panel, as the functional unit.*

To collect, analyze and monitor performance, **SimaPro rel. 9.2.0.1. software** has been used.
The data used is representative of the **year 2020** and were provided by the company (**primary data**).
Secondary data, on the other hand, comes from the Ecoinvent database (Ref.: database v.3.7.1, March 2021).

A mass-based allocation was made for energy consumption, emissions, waste and water discharges.

The study is "**from cradle to gate with options** (A1-A3 + A4 + C1-C4 + D)", as shown in the following table (reference: PCR 2019: 14 "Construction products" version 1.11), valid until 20/12/2024.

Modules A1-A3 include material procurement (raw and auxiliary materials) and manufacturing processes.
Module A4 examines the distribution of the finished product to the customer, considering an average delivery distance of the same equal to 400 km.
The **C1-C4 modules** consider the transport, the treatment and the disposal of the panel components at the end of their life. These operations are not directly controllable by the company: in this regard, literature data relating to the construction sector are therefore used, considering an average distance of 50 km to transport the panel from the place where it was decommissioned to the recovery center. It is emphasized that the insulated panels supplied by the company, regardless of the type of insulation, can be disassembled in order also to facilitate the subsequent recovery of the components.
Module D considers the steel deriving from the demolition process of the panels after their use and destined for recycling. The calculation of the environmental benefits is based on the indications provided by the document "Product Category Rules for Type III environmental product declaration of construction products to EN 15804: 2012 - Par. 6.3.4.6. Benefits and loads beyond the product system boundary, information Module D".

		MODULE	Modules declared	Geography	Specific data	Variations product	Variaition site
PRODUCT STAGE	Raw material supply	A1	X	GLO	>90%	Not relevant	Not relevant
	Transport	A2	X	IT	>90%	Not relevant	Not relevant
	Manufacturing	A3	X	IT	>90%	Not relevant	Not relevant
CONSTRUCTION PROCESS STAGE	Transport	A4	X	IT	>90%	Not relevant	Not relevant
	Construction installation	A5	ND	-	>90%	Not relevant	Not relevant
USE STAGE	Use	B1	ND	-	-	-	-
	Maintenance	B2	ND	-	-	-	-
	Repair	B3	ND	-	-	-	-
	Replacement	B4	ND	-	-	-	-
	Refurbishment	B5	ND	-	-	-	-
	Operational energy use	B6	ND	-	-	-	-
	Operational water use	B7	ND	-	-	-	-
END OF LIFE STAGE	De-construction demolition	C1	X	GLO	-	-	-
	Transport	C2	X	GLO	-	-	-
	Waste processing	C3	X	GLO	-	-	-
	Disposal	C4	X	GLO	-	-	-
FRESOURCE RECOVERY STAGE	Reuse, recovery, recycling potential	D	X	IT	-	-	-

LEGEND: X = Module considered, ND = Module not declared, GLO = Global, IT = Italy

7. POTENTIAL ENVIRONMENTAL IMPACTS

Air quality monitoring programs, the quality of working environments and individual issuing points are active in respect to the prescriptions of the authorizations issued by the competent regional authorities.

All emissions generated by processing are **conveyed into the atmosphere** and where necessary are equipped with adequate **abatement systems** before they are released into the environment.

During the **manufacturing process of the insulation panels**:
- no flame retardants subject to restrictions or prohibitions provided for by applicable national or community regulations are used;
- no blowing agents with an ozone reduction potential greater than zero are used;
- no lead catalysts are used;
- the mineral wool used complies with note Q or note R referred to in Regulation (EC) no. 1272/2008 (CLP) and subsequent amendments (29).

The impact categories are:
- **global warming**: the increase of the average temperature of the surface of the Earth, attributed in large part to increasing quantities of atmospheric emissions of greenhouse gases;
- the **distribution of the ozone layer**, linked to the agents issued by human activity, primarily chlorine and bromine;
- **photochemical oxidation**, a complex mixture of atmospheric pollutants consisting of ozone and other oxidizing chemical substances, nitrogen dioxide (NO2) and fine particles;
- **atmospheric acidification**: acid rain, due to emissions derived from the use of fossil fuels;
- the **eutrophication of water**: an excess increase in plant organisms in aquatic ecosystems;
- the **depletion of abiotic fossil resources and otherwise**.

IMPACT CATEGORY	ABB.	UNIT
Climate change - total	GWP - t	kg CO_2 eq
Climate change - Fossil	GWP - fossil	kg CO_2 eq
Climate change - Biogenic	GWP - biogenic	kg CO_2 eq
Climate change - Land use and LU change	GWP - luluc	kg CO_2 eq
Climate change - Greenhouse Gases	GWP - GHG	kg CO_2 eq
Ozone depletion	ODP	kg CFC11 eq
Photochemical ozone formation	POCP	kg NMVOC eq
Acidification of land and water	AP	mol H+ eq
Eutrophication	EP - freshwater EP - marine EP - terrestrial	kg P eq kg N eq mol N eq
Water use	WDP	m^3 depriv.
Resource use, fossils	ADP - F	MJ
Resource use, minerals and metals	ADP - MM	kg Sb eq

8. RESOURCE USE

The resources used to transform steel products have always been a priority for Marcegaglia.
The company has carried out and periodically updates an **Energy Diagnosis** of its site to identify the most relevant systems in terms of energy as well as define opportunities for improvement in order to reduce the energy consumption determined by carrying out its business over time.

Regardless of the type of panel considered, the most impacting elements are the **steel sheet** that covers the insulating material, as well as the **polyol** and **isocyanate** used for the generation of the polyurethane foam. For insulated panels in **mineral wool**, the latter always has a significant impact after the steel sheet.

The **steel** used for the metal supports of the insulating panels has a **recycled content of 28.9%**.
The **mineral wool** used has a **recycled content greater than 25%**.

The company is able to provide insulated panels in **polyurethane foam** with the latter characterized by a **recycled content greater than 1%**.

It is emphasized that the **different types** of insulated panels in mineral wool (sound-absorbing and not) do not show significant differences in what are the elements that make up the overall impact.
The insulated panels in **sound-absorbing** mineral wool are characterized in their process from a part of **non-woven fabric**, absent in the non-sound-absorbing ones, however this additional element represents less than 0.2% of the total impact.

The impacts of **energy consumption** (natural gas, electricity) are negligible as they represent a marginal percentage of the total impact.

The amount of energy resources used shall be taken into account in calculating the **resources used** (from renewable and non-renewable sources), the **depletion of fossil fuels** and the **volume of fresh water taken**.

IMPACT CATEGORY	ABB.	UNIT
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ
Use of renewable primary energy resources used as raw materials	PERM	MJ
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	PERT	MJ
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	PENRT	MJ
Use of secondary material	SM	kg
Use of renewable secondary fuels	RSF	MJ
Use of non-renewable secondary fuels	NRSF	MJ
Use of net fresh water	FW	m^3

9. WASTE PRODUCTION

In this analysis, the generation of waste is examined, subdividing it into three categories: **hazardous**, **non-hazardous** and **radioactive waste**.

IMPACT CATEGORY	ABB.	UNIT
Hazardous waste disposed	HW	kg
Non-hazardous waste disposed	NHW	kg
Radioactive waste disposed	RW	kg

10. OUTPUT FLOWS

Steel falls into the category of durable goods and is considered to be a **permanent material**. It can be **regenerated** and **reused over and over again** without ever losing any of its original properties, resistance, and durability, allowing it to have a **very long life cycle**, ample opportunities for **industrial synergies**, the possibility to be easily separated from other materials, as a result of its magnetic characteristics and specific weight. Marcegaglia Buildtech has always paid particular attention to **waste reduction** thanks to specific policies in the management of processes: metal waste is a durable material that can be recast over and over again without losing its properties.

It is specified that the types of wall and roofing panels are designed and manufactured to be **disassembled and reused**. With particular reference to the individual parts that make up the panels, it is specified that they may, after separation, be d**estined for recycling, recovery or disposal** depending on the type of material and in particular it should be noted that, in line with what is indicated in the "Report special waste" of ISPRA - No. 321/2020:
- the amount of **steel destined for recycling** is **89%**;
- the quantity of **mineral wool destined for recycling** is equal to **76.3%**.

IMPACT CATEGORY	ABB.	UNIT
Reuse	REUSE	kg
Materials for recycling	RECYCLE	kg
Materials for energy recovery	EN-REC	kg
Exported energy - electricity	EE-E	MJ
Exported energy - thermal energy	EE-T	MJ

POLYURETHANE INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL - MB HIDDEN FIX - MB COLD-PRO

ROOFING PANEL: MB ROOF - MB COPPO

Nominal thickness 40 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	3,00E+01	2,76E+01	3,31E-01	3,07E-01	1,60E-01	3,28E+00	-6,16E+00	-5,59E+00
GWP - fossil	kg CO_2 eq	2,97E+01	2,73E+01	3,30E-01	3,06E-01	1,60E-01	3,28E+00	-6,11E+00	-5,55E+00
GWP - biogenic	kg CO_2 eq	4,28E-03	8,06E-03	6,93E-04	6,42E-04	1,80E-04	8,72E-04	-4,14E-02	-3,76E-02
GWP - luluc	kg CO_2 eq	2,75E-01	2,51E-01	9,17E-05	8,50E-05	2,09E-05	4,51E-05	-5,59E-03	-5,07E-03
GWP - GHG	kg CO_2 eq	2,94E+01	2,70E+01	3,28E-01	3,04E-01	1,59E-01	3,25E+00	5,95E+00	-5,40E+00
ODP	kg CFC-11 eq	2,44E-06	2,25E-06	7,84E-08	7,26E-08	3,54E-08	4,94E-08	-3,57E-07	-3,24E-07
POCP	kg NMVOC eq	9,82E-02	9,03E-02	2,78E-03	2,58E-03	2,00E-03	5,32E-03	-2,56E-02	-2,33E-02
AP	mol H+ eq	1,34E-01	1,23E-01	2,29E-03	2,12E-03	1,52E-03	4,16E-03	-2,94E-02	-2,67E-02
EP - freshwater	kg P eq	1,26E-02	1,16E-02	2,14E-05	1,98E-05	6,26E-06	2,23E-05	-3,26E-03	-2,96E-03
EP - marine	kg N eq	4,17E-02	3,83E-02	9,05E-04	8,38E-04	6,62E-04	2,71E-03	-8,09E-03	-7,34E-03
EP - terrestrial	mol N eq	2,35E-01	2,16E-01	9,90E-03	9,17E-03	7,25E-03	2,13E-02	-6,56E-02	-5,96E-02
WDP	m^3 depriv.	1,10E+01	1,02E+01	1,63E-02	1,51E-02	4,13E-03	2,03E-01	-1,87E+00	-1,69E+00
ADP - F	MJ	4,23E+02	3,88E+02	5,20E+00	4,81E+00	2,28E+00	3,96E+00	-6,99E+01	-6,34E+01
ADP - MM	kg Sb eq	5,09E-04	4,66E-04	7,70E-07	7,13E-07	1,44E-07	5,06E-07	-5,60E-05	-5,08E-05
PERE	MJ	3,20E+01	2,95E+01	7,97E-02	7,38E-02	2,07E-02	7,17E-02	-7,21E+00	-6,55E+00
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	3,20E+01	2,95E+01	7,97E-02	7,38E-02	2,07E-02	7,17E-02	-7,21E+00	-6,55E+00
PENRE	MJ	4,45E+02	4,09E+02	5,14E+00	4,76E+00	2,25E+00	4,11E+00	-8,23E+01	-7,47E+01
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	4,45E+02	4,09E+02	5,14E+00	4,76E+00	2,25E+00	4,11E+00	-8,23E+01	-7,47E+01
SM	kg	1,18E+00	1,08E+00	0,00E+00	0,00E+00	1,12E-03	1,98E-03	-3,76E+00	-3,41E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,34E-01	2,15E-01	1,16E-03	1,08E-03	3,30E-04	6,65E-03	-1,43E-01	-1,30E-01
HW	kg	1,60E+00	1,48E+00	0,00E+00	0,00E+00	1,11E-03	4,43E-03	-7,09E-01	-6,44E-01
NHW	kg	5,53E+00	5,11E+00	0,00E+00	0,00E+00	4,84E-03	1,61E+00	-4,43E+00	-4,02E+00
RW	kg	6,61E-03	6,12E-03	0,00E+00	0,00E+00	2,00E-04	2,33E-04	-2,88E-03	-2,62E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	4,68E-02	4,32E-02	0,00E+00	0,00E+00	1,08E-03	1,70E-03	-4,61E+00	-4,19E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

POLYURETHANE INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL - MB HIDDEN FIX - MB COLD-PRO

ROOFING PANEL: MB ROOF - MB COPPO

Nominal thickness 50 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	3,21E+01	2,96E+01	3,46E-01	3,21E-01	1,67E-01	1,55E-01	-6,16E+00	-5,59E+00
GWP - fossil	kg CO_2 eq	3,18E+01	2,93E+01	3,45E-01	3,20E-01	1,67E-01	1,55E-01	-6,11E+00	-5,55E+00
GWP - biogenic	kg CO_2 eq	3,86E-02	4,11E-02	7,23E-04	6,71E-04	1,88E-04	1,75E-04	-4,14E-02	-3,76E-02
GWP - luluc	kg CO_2 eq	2,77E-01	2,52E-01	9,57E-05	8,89E-05	2,18E-05	2,03E-05	-5,59E-03	-5,07E-03
GWP - GHG	kg CO_2 eq	3,14E+01	2,89E+01	3,42E-01	3,18E-01	1,65E-01	1,54E-01	5,95E+00	-5,40E+00
ODP	kg CFC-11 eq	2,78E-06	2,58E-06	8,18E-08	7,60E-08	3,69E-08	3,43E-08	-3,57E-07	-3,24E-07
POCP	kg NMVOC eq	1,07E-01	9,87E-02	2,90E-03	2,70E-03	2,08E-03	1,94E-03	-2,56E-02	-2,33E-02
AP	mol H+ eq	1,46E-01	1,35E-01	2,39E-03	2,22E-03	1,59E-03	1,48E-03	-2,94E-02	-2,67E-02
EP - freshwater	kg P eq	1,33E-02	1,22E-02	2,23E-05	2,08E-05	6,53E-06	6,07E-06	-3,26E-03	-2,96E-03
EP - marine	kg N eq	4,55E-02	4,19E-02	9,44E-04	8,77E-04	6,91E-04	6,42E-04	-8,09E-03	-7,34E-03
EP - terrestrial	mol N eq	2,57E-01	2,37E-01	1,03E-02	9,60E-03	7,56E-03	7,03E-03	-6,56E-02	-5,96E-02
WDP	m^3 depriv.	1,28E+01	1,19E+01	1,70E-02	1,58E-02	4,31E-03	4,00E-03	-1,87E+00	-1,69E+00
ADP - F	MJ	4,67E+02	4,31E+02	5,42E+00	5,04E+00	2,38E+00	2,21E+00	-6,99E+01	-6,34E+01
ADP - MM	kg Sb eq	5,33E-04	4,89E-04	8,03E-07	7,46E-07	1,50E-07	1,40E-07	-5,60E-05	-5,08E-05
PERE	MJ	3,50E+01	4,08E+01	8,32E-02	7,74E-02	2,16E-02	2,01E-02	-7,21E+00	-6,55E+00
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	3,50E+01	4,08E+01	8,32E-02	7,74E-02	2,16E-02	2,01E-02	-7,21E+00	-6,55E+00
PENRE	MJ	4,90E+02	4,52E+02	5,36E+00	4,98E+00	2,35E+00	2,18E+00	-8,23E+01	-7,47E+01
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	4,90E+02	4,52E+02	5,36E+00	4,98E+00	2,35E+00	2,18E+00	-8,23E+01	-7,47E+01
SM	kg	1,19E+00	1,09E+00	0,00E+00	0,00E+00	1,17E-03	1,09E-03	-3,76E+00	-3,41E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,51E-01	2,31E-01	1,21E-03	1,13E-03	3,44E-04	3,20E-04	-1,43E-01	-1,30E-01
HW	kg	1,89E+00	1,76E+00	0,00E+00	0,00E+00	1,16E-03	1,08E-03	-7,09E-01	-6,44E-01
NHW	kg	6,16E+00	5,73E+00	0,00E+00	0,00E+00	5,05E-03	4,69E-03	-4,43E+00	-4,02E+00
RW	kg	7,70E-03	7,17E-03	0,00E+00	0,00E+00	2,08E-04	1,94E-04	-2,88E-03	-2,62E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	5,38E-02	5,00E-02	0,00E+00	0,00E+00	1,12E-03	1,04E-03	-4,61E+00	-4,19E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

POLYURETHANE INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL - MB HIDDEN FIX - MB COLD-PRO

ROOFING PANEL: MB ROOF - MB COPPO

Nominal thickness 60 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	3,42E+01	3,15E+01	3,60E-01	3,35E-01	1,74E-01	1,62E-01	-6,16E+00	-5,59E+00
GWP - fossil	kg CO_2 eq	3,39E+01	3,12E+01	3,59E-01	3,35E-01	1,74E-01	1,62E-01	-6,11E+00	-5,55E+00
GWP - biogenic	kg CO_2 eq	7,34E-02	7,34E-02	7,52E-04	7,01E-04	1,96E-04	1,82E-04	-4,14E-02	-3,76E-02
GWP - luluc	kg CO_2 eq	2,78E-01	2,53E-01	9,96E-05	9,29E-05	2,27E-05	2,12E-05	-5,59E-03	-5,07E-03
GWP - GHG	kg CO_2 eq	3,34E+01	3,07E+01	3,56E-01	3,32E-01	1,72E-01	1,60E-01	-5,95E+00	-5,40E+00
ODP	kg CFC-11 eq	3,12E-06	2,90E-06	8,51E-08	7,93E-08	3,84E-08	3,58E-08	-3,57E-07	-3,24E-07
POCP	kg NMVOC eq	1,16E-01	1,07E-01	3,02E-03	2,82E-03	2,17E-03	2,02E-03	-2,56E-02	-2,33E-02
AP	mol H+ eq	1,58E-01	1,46E-01	2,49E-03	2,32E-03	1,66E-03	1,54E-03	-2,94E-02	-2,67E-02
EP - freshwater	kg P eq	1,41E-02	1,29E-02	2,33E-05	2,17E-05	6,80E-06	6,34E-06	-3,26E-03	-2,96E-03
EP - marine	kg N eq	4,94E-02	4,55E-02	9,83E-04	9,16E-04	7,19E-04	6,70E-04	-8,09E-03	-7,34E-03
EP - terrestrial	mol N eq	2,80E-01	2,59E-01	1,08E-02	1,00E-02	7,87E-03	7,34E-03	-6,56E-02	-5,96E-02
WDP	m^3 depriv.	1,46E+01	1,36E+01	1,77E-02	1,65E-02	4,48E-03	4,18E-03	-1,87E+00	-1,69E+00
ADP - F	MJ	5,12E+02	4,73E+02	5,64E+00	5,26E+00	2,48E+00	2,31E+00	-6,99E+01	-6,34E+01
ADP - MM	kg Sb eq	5,57E-04	5,11E-04	8,37E-07	7,80E-07	1,57E-07	1,46E-07	-5,60E-05	-5,08E-05
PERE	MJ	3,81E+01	3,52E+01	8,66E-02	8,07E-02	2,25E-02	2,10E-02	-7,21E+00	-6,55E+00
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	3,81E+01	3,52E+01	8,66E-02	8,07E-02	2,25E-02	2,10E-02	-7,21E+00	-6,55E+00
PENRE	MJ	5,35E+02	4,94E+02	5,58E+00	5,20E+00	2,44E+00	2,28E+00	-8,23E+01	-7,47E+01
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	5,35E+02	4,94E+02	5,58E+00	5,20E+00	2,44E+00	2,28E+00	-8,23E+01	-7,47E+01
SM	kg	1,20E+00	1,10E+00	0,00E+00	0,00E+00	1,22E-03	1,14E-03	-3,76E+00	-3,41E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,67E-01	2,46E-01	1,26E-03	1,18E-03	3,58E-04	3,34E-04	-1,43E-01	-1,30E-01
HW	kg	2,19E+00	2,04E+00	0,00E+00	0,00E+00	1,21E-03	1,13E-03	-7,09E-01	-6,44E-01
NHW	kg	6,81E+00	6,33E+00	0,00E+00	0,00E+00	5,26E-03	4,90E-03	-4,43E+00	-4,02E+00
RW	kg	8,81E-03	8,20E-03	0,00E+00	0,00E+00	2,17E-04	2,02E-04	-2,88E-03	-2,62E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	6,10E-02	5,66E-02	0,00E+00	0,00E+00	1,17E-03	1,09E-03	-4,61E+00	-4,19E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

POLYURETHANE INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL - MB HIDDEN FIX - MB COLD-PRO

ROOFING PANEL: MB ROOF - MB COPPO

Nominal thickness 80 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	3,84E+01	3,55E+01	3,88E-01	3,64E-01	1,88E-01	1,76E-01	-6,16E+00	-5,59E+00
GWP - fossil	kg CO_2 eq	3,79E+01	3,51E+01	3,87E-01	3,63E-01	1,87E-01	1,76E-01	-6,11E+00	-5,55E+00
GWP - biogenic	kg CO_2 eq	1,42E-01	1,39E-01	8,12E-04	7,61E-04	2,11E-04	1,98E-04	-4,14E-02	-3,76E-02
GWP - luluc	kg CO_2 eq	2,80E-01	2,56E-01	1,08E-04	1,01E-04	2,45E-05	2,29E-05	-5,59E-03	-5,07E-03
GWP - GHG	kg CO_2 eq	3,73E+01	3,45E+01	3,85E-01	3,60E-01	1,86E-01	1,74E-01	-5,95E+00	-5,40E+00
ODP	kg CFC-11 eq	3,80E-06	3,55E-06	9,19E-08	8,61E-08	4,15E-08	3,89E-08	-3,57E-07	-3,24E-07
POCP	kg NMVOC eq	1,33E-01	1,24E-01	3,26E-03	3,05E-03	2,34E-03	2,20E-03	-2,56E-02	-2,33E-02
AP	mol H+ eq	1,82E-01	1,69E-01	2,69E-03	2,52E-03	1,79E-03	1,67E-03	-2,94E-02	-2,67E-02
EP - freshwater	kg P eq	1,55E-02	1,43E-02	2,51E-05	2,35E-05	7,34E-06	6,88E-06	-3,26E-03	-2,96E-03
EP - marine	kg N eq	5,69E-02	5,28E-02	1,06E-03	9,94E-04	7,76E-04	7,27E-04	-8,09E-03	-7,34E-03
EP - terrestrial	mol N eq	3,25E-01	3,02E-01	1,16E-02	1,09E-02	8,50E-03	7,96E-03	-6,56E-02	-5,96E-02
WDP	m^3 depriv.	1,80E+01	1,69E+01	1,91E-02	1,79E-02	4,84E-03	4,53E-03	-1,87E+00	-1,69E+00
ADP - F	MJ	5,98E+02	5,57E+02	6,09E+00	5,71E+00	2,67E+00	2,50E+00	-6,99E+01	-6,34E+01
ADP - MM	kg Sb eq	6,03E-04	5,55E-04	9,03E-07	8,46E-07	1,69E-07	1,58E-07	-5,60E-05	-5,08E-05
PERE	MJ	4,40E+01	4,10E+01	9,35E-02	8,76E-02	2,43E-02	2,28E-02	-7,21E+00	-6,55E+00
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	4,40E+01	4,10E+01	9,35E-02	8,76E-02	2,43E-02	2,28E-02	-7,21E+00	-6,55E+00
PENRE	MJ	6,22E+02	5,79E+02	6,02E+00	5,64E+00	2,64E+00	2,47E+00	-8,23E+01	-7,47E+01
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	6,22E+02	5,79E+02	6,02E+00	5,64E+00	2,64E+00	2,47E+00	-8,23E+01	-7,47E+01
SM	kg	1,22E+00	1,11E+00	0,00E+00	0,00E+00	1,32E-03	1,23E-03	-3,76E+00	-3,41E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	3,00E-01	2,77E-01	1,36E-03	1,28E-03	3,87E-04	3,62E-04	-1,43E-01	-1,30E-01
HW	kg	2,76E+00	2,59E+00	0,00E+00	0,00E+00	1,31E-03	1,22E-03	-7,09E-01	-6,44E-01
NHW	kg	8,08E+00	7,55E+00	0,00E+00	0,00E+00	5,67E-03	5,31E-03	-4,43E+00	-4,02E+00
RW	kg	1,10E-02	1,03E-02	0,00E+00	0,00E+00	2,34E-04	2,19E-04	-2,88E-03	-2,62E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	7,49E-02	7,00E-02	0,00E+00	0,00E+00	1,26E-03	1,18E-03	-4,61E+00	-4,19E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

POLYURETHANE INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL - MB HIDDEN FIX - MB COLD-PRO
ROOFING PANEL: MB ROOF - MB COPPO
Nominal thickness 100 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	4,25E+01	3,96E+01	4,17E-01	3,92E-01	2,02E-01	1,90E-01	-6,16E+00	-5,59E+00
GWP - fossil	kg CO_2 eq	4,20E+01	3,92E+01	4,16E-01	3,91E-01	2,01E-01	1,89E-01	-6,11E+00	-5,55E+00
GWP - biogenic	kg CO_2 eq	2,09E-01	2,07E-01	8,72E-04	8,21E-04	2,27E-04	2,13E-04	-4,14E-02	-3,76E-02
GWP - luluc	kg CO_2 eq	2,82E-01	2,58E-01	1,15E-04	1,09E-04	2,63E-05	2,47E-05	-5,59E-03	-5,07E-03
GWP - GHG	kg CO_2 eq	4,12E+01	3,84E+01	4,13E-01	3,89E-01	1,99E-01	1,88E-01	-5,95E+00	-5,40E+00
ODP	kg CFC-11 eq	4,46E-06	4,22E-06	9,86E-08	9,28E-08	4,45E-08	4,19E-08	-3,57E-07	-3,24E-07
POCP	kg NMVOC eq	1,51E-01	1,41E-01	3,50E-03	3,29E-03	2,52E-03	2,37E-03	-2,56E-02	-2,33E-02
AP	mol H+ eq	2,06E-01	1,93E-01	2,88E-03	2,71E-03	1,92E-03	1,80E-03	-2,94E-02	-2,67E-02
EP - freshwater	kg P eq	1,69E-02	1,57E-02	2,69E-05	2,54E-05	7,88E-06	7,42E-06	-3,26E-03	-2,96E-03
EP - marine	kg N eq	6,44E-02	6,03E-02	1,14E-03	1,07E-03	8,33E-04	7,84E-04	-8,09E-03	-7,34E-03
EP - terrestrial	mol N eq	3,69E-01	3,46E-01	1,25E-02	1,17E-02	9,12E-03	8,59E-03	-6,56E-02	-5,96E-02
WDP	m^3 depriv.	2,15E+01	2,04E+01	2,05E-02	1,93E-02	5,20E-03	4,89E-03	-1,87E+00	-1,69E+00
ADP - F	MJ	6,86E+02	6,46E+02	6,54E+00	6,15E+00	2,87E+00	2,70E+00	-6,99E+01	-6,34E+01
ADP - MM	kg Sb eq	6,50E-04	6,02E-04	9,69E-07	9,12E-07	1,81E-07	1,71E-07	-5,60E-05	-5,08E-05
PERE	MJ	4,99E+01	4,69E+01	1,00E-01	9,44E-02	2,61E-02	2,46E-02	-7,21E+00	-6,55E+00
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	4,99E+01	4,69E+01	1,00E-01	9,44E-02	2,61E-02	2,46E-02	-7,21E+00	-6,55E+00
PENRE	MJ	7,11E+02	6,68E+02	6,46E+00	6,08E+00	2,83E+00	2,66E+00	-8,23E+01	-7,47E+01
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	7,11E+02	6,68E+02	6,46E+00	6,08E+00	2,83E+00	2,66E+00	-8,23E+01	-7,47E+01
SM	kg	1,24E+00	1,13E+00	0,00E+00	0,00E+00	1,41E-03	1,33E-03	-3,76E+00	-3,41E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	3,32E-01	3,10E-01	1,46E-03	1,38E-03	4,15E-04	3,91E-04	-1,43E-01	-1,30E-01
HW	kg	3,34E+00	3,17E+00	0,00E+00	0,00E+00	1,40E-03	1,32E-03	-7,09E-01	-6,44E-01
NHW	kg	9,34E+00	8,81E+00	0,00E+00	0,00E+00	6,09E-03	5,73E-03	-4,43E+00	-4,02E+00
RW	kg	1,31E-02	1,24E-02	0,00E+00	0,00E+00	2,51E-04	2,37E-04	-2,88E-03	-2,62E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	8,88E-02	8,39E-02	0,00E+00	0,00E+00	1,35E-03	1,27E-03	-4,61E+00	-4,19E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

POLYURETHANE INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL - MB HIDDEN FIX - MB COLD-PRO
ROOFING PANEL: MB ROOF - MB COPPO
Nominal thickness 120 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	4,67E+01	4,36E+01	4,45E-01	4,21E-01	2,15E-01	2,03E-01	-6,16E+00	-5,59E+00
GWP - fossil	kg CO_2 eq	4,61E+01	4,31E+01	4,44E-01	4,20E-01	2,15E-01	2,03E-01	-6,11E+00	-5,55E+00
GWP - biogenic	kg CO_2 eq	2,79E-01	2,72E-01	9,31E-04	8,80E-04	2,42E-04	2,29E-04	-4,14E-02	-3,76E-02
GWP - luluc	kg CO_2 eq	2,85E-01	2,60E-01	1,23E-04	1,17E-04	2,81E-05	2,65E-05	-5,59E-03	-5,07E-03
GWP - GHG	kg CO_2 eq	4,52E+01	4,22E+01	4,41E-01	4,17E-01	2,13E-01	2,01E-01	-5,95E+00	-5,40E+00
ODP	kg CFC-11 eq	5,15E-06	4,86E-06	1,05E-07	9,96E-08	4,76E-08	4,50E-08	-3,57E-07	-3,24E-07
POCP	kg NMVOC eq	1,69E-01	1,58E-01	3,74E-03	3,53E-03	2,69E-03	2,54E-03	-2,56E-02	-2,33E-02
AP	mol H+ eq	2,31E-01	2,16E-01	3,08E-03	2,91E-03	2,05E-03	1,94E-03	-2,94E-02	-2,67E-02
EP - freshwater	kg P eq	1,84E-02	1,71E-02	2,88E-05	2,72E-05	8,42E-06	7,95E-06	-3,26E-03	-2,96E-03
EP - marine	kg N eq	7,21E-02	6,76E-02	1,22E-03	1,15E-03	8,90E-04	8,41E-04	-8,09E-03	-7,34E-03
EP - terrestrial	mol N eq	4,15E-01	3,89E-01	1,33E-02	1,26E-02	9,75E-03	9,21E-03	-6,56E-02	-5,96E-02
WDP	m^3 depriv.	2,51E+01	2,38E+01	2,19E-02	2,07E-02	5,55E-03	5,25E-03	-1,87E+00	-1,69E+00
ADP - F	MJ	7,77E+02	7,31E+02	6,99E+00	6,60E+00	3,07E+00	2,90E+00	-6,99E+01	-6,34E+01
ADP - MM	kg Sb eq	6,97E-04	6,47E-04	1,04E-06	9,79E-07	1,94E-07	1,83E-07	-5,60E-05	-5,08E-05
PERE	MJ	5,60E+01	5,26E+01	1,07E-01	1,01E-01	2,79E-02	2,64E-02	-7,21E+00	-6,55E+00
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	5,60E+01	5,26E+01	1,07E-01	1,01E-01	2,79E-02	2,64E-02	-7,21E+00	-6,55E+00
PENRE	MJ	8,02E+02	7,53E+02	6,91E+00	6,53E+00	3,02E+00	2,86E+00	-8,23E+01	-7,47E+01
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	8,02E+02	7,53E+02	6,91E+00	6,53E+00	3,02E+00	2,86E+00	-8,23E+01	-7,47E+01
SM	kg	1,25E+00	1,15E+00	0,00E+00	0,00E+00	1,51E-03	1,43E-03	-3,76E+00	-3,41E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	3,65E-01	3,41E-01	1,56E-03	1,48E-03	4,44E-04	4,19E-04	-1,43E-01	-1,30E-01
HW	kg	3,93E+00	3,72E+00	0,00E+00	0,00E+00	1,50E-03	1,42E-03	-7,09E-01	-6,44E-01
NHW	kg	1,06E+01	1,00E+01	0,00E+00	0,00E+00	6,51E-03	6,15E-03	-4,43E+00	-4,02E+00
RW	kg	1,53E-02	1,45E-02	0,00E+00	0,00E+00	2,69E-04	2,54E-04	-2,88E-03	-2,62E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	1,03E-01	9,74E-02	0,00E+00	0,00E+00	1,45E-03	1,37E-03	-4,61E+00	-4,19E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

POLYURETHANE INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL - MB HIDDEN FIX - MB COLD-PRO
ROOFING PANEL: MB ROOF - MB COPPO
Nominal thickness 150 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	5,27E+01	4,96E+01	4,88E-01	4,64E-01	2,36E-01	2,24E-01	-6,16E+00	-5,59E+00
GWP - fossil	kg CO_2 eq	5,20E+01	4,89E+01	4,87E-01	4,63E-01	2,36E-01	2,24E-01	-6,11E+00	-5,55E+00
GWP - biogenic	kg CO_2 eq	3,77E-01	3,70E-01	1,02E-03	9,70E-04	2,66E-04	2,52E-04	-4,14E-02	-3,76E-02
GWP - luluc	kg CO_2 eq	2,88E-01	2,63E-01	1,35E-04	1,28E-04	3,08E-05	2,92E-05	-5,59E-03	-5,07E-03
GWP - GHG	kg CO_2 eq	5,09E+01	4,79E+01	4,84E-01	4,59E-01	2,34E-01	2,22E-01	5,95E+00	-5,40E+00
ODP	kg CFC-11 eq	6,12E-06	5,82E-06	1,16E-07	1,10E-07	5,22E-08	4,95E-08	-3,57E-07	-3,24E-07
POCP	kg NMVOC eq	1,94E-01	1,83E-01	4,10E-03	3,89E-03	2,95E-03	2,80E-03	-2,56E-02	-2,33E-02
AP	mol H+ eq	2,65E-01	2,51E-01	3,38E-03	3,21E-03	2,25E-03	2,13E-03	-2,94E-02	-2,67E-02
EP - freshwater	kg P eq	2,04E-02	1,91E-02	3,16E-05	3,00E-05	9,23E-06	8,76E-06	-3,26E-03	-2,96E-03
EP - marine	kg N eq	8,29E-02	7,83E-02	1,33E-03	1,27E-03	9,76E-04	9,27E-04	-8,09E-03	-7,34E-03
EP - terrestrial	mol N eq	4,79E-01	4,53E-01	1,46E-02	1,39E-02	1,07E-02	1,01E-02	-6,56E-02	-5,96E-02
WDP	m^3 depriv.	3,01E+01	2,88E+01	2,40E-02	2,28E-02	6,08E-03	5,78E-03	-1,87E+00	-1,69E+00
ADP - F	MJ	9,04E+02	8,58E+02	7,66E+00	7,27E+00	3,36E+00	3,19E+00	-6,99E+01	-6,34E+01
ADP - MM	kg Sb eq	7,64E-04	7,13E-04	1,13E-06	1,08E-06	2,13E-07	2,02E-07	-5,60E-05	-5,08E-05
PERE	MJ	6,46E+01	6,12E+01	1,18E-01	1,12E-01	3,06E-02	2,90E-02	-7,21E+00	-6,55E+00
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	6,46E+01	6,12E+01	1,18E-01	1,12E-01	3,06E-02	2,90E-02	-7,21E+00	-6,55E+00
PENRE	MJ	9,30E+02	8,81E+02	7,57E+00	7,19E+00	3,32E+00	3,15E+00	-8,23E+01	-7,47E+01
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	9,30E+02	8,81E+02	7,57E+00	7,19E+00	3,32E+00	3,15E+00	-8,23E+01	-7,47E+01
SM	kg	1,28E+00	1,17E+00	0,00E+00	0,00E+00	1,66E-03	1,57E-03	-3,76E+00	-3,41E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	4,12E-01	3,88E-01	1,71E-03	1,63E-03	4,86E-04	4,62E-04	-1,43E-01	-1,30E-01
HW	kg	4,76E+00	4,55E+00	0,00E+00	0,00E+00	1,64E-03	1,56E-03	-7,09E-01	-6,44E-01
NHW	kg	1,25E+01	1,19E+01	0,00E+00	0,00E+00	7,13E-03	6,77E-03	-4,43E+00	-4,02E+00
RW	kg	1,85E-02	1,76E-02	0,00E+00	0,00E+00	2,94E-04	2,80E-04	-2,88E-03	-2,62E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	1,23E-01	1,17E-01	0,00E+00	0,00E+00	1,59E-03	1,51E-03	-4,61E+00	-4,19E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

POLYURETHANE INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL - MB HIDDEN FIX - MB COLD-PRO
ROOFING PANEL: MB ROOF - MB COPPO
Nominal thickness 180 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	n.p.	5,55E+01	n.p.	5,06E-01	n.p.	2,45E-01	n.p.	-5,59E+00
GWP - fossil	kg CO_2 eq	n.p.	5,48E+01	n.p.	5,05E-01	n.p.	2,45E-01	n.p.	-5,55E+00
GWP - biogenic	kg CO_2 eq	n.p.	4,68E-01	n.p.	1,06E-03	n.p.	2,75E-04	n.p.	-3,76E-02
GWP - luluc	kg CO_2 eq	n.p.	2,67E-01	n.p.	1,40E-04	n.p.	3,19E-05	n.p.	-5,07E-03
GWP - GHG	kg CO_2 eq	n.p.	5,35E+01	n.p.	5,02E-01	n.p.	2,42E-01	n.p.	-5,40E+00
ODP	kg CFC-11 eq	n.p.	6,80E-06	n.p.	1,20E-07	n.p.	5,41E-08	n.p.	-3,24E-07
POCP	kg NMVOC eq	n.p.	2,08E-01	n.p.	4,25E-03	n.p.	3,06E-03	n.p.	-2,33E-02
AP	mol H+ eq	n.p.	2,85E-01	n.p.	3,50E-03	n.p.	2,33E-03	n.p.	-2,67E-02
EP - freshwater	kg P eq	n.p.	2,12E-02	n.p.	3,27E-05	n.p.	9,57E-06	n.p.	-2,96E-03
EP - marine	kg N eq	n.p.	8,92E-02	n.p.	1,38E-03	n.p.	1,01E-03	n.p.	-7,34E-03
EP - terrestrial	mol N eq	n.p.	5,18E-01	n.p.	1,51E-02	n.p.	1,11E-02	n.p.	-5,96E-02
WDP	m^3 depriv.	n.p.	3,38E+01	n.p.	2,49E-02	n.p.	6,31E-03	n.p.	-1,69E+00
ADP - F	MJ	n.p.	9,85E+02	n.p.	7,94E+00	n.p.	3,49E+00	n.p.	-6,34E+01
ADP - MM	kg Sb eq	n.p.	7,80E-04	n.p.	1,18E-06	n.p.	2,21E-07	n.p.	-5,08E-05
PERE	MJ	n.p.	6,97E+01	n.p.	1,22E-01	n.p.	3,17E-02	n.p.	-6,55E+00
PERM	MJ	n.p.	0	n.p.	0	n.p.	0	n.p.	0
PERT	MJ	n.p.	6,97E+01	n.p.	1,22E-01	n.p.	3,17E-02	n.p.	-6,55E+00
PENRE	MJ	n.p.	1,01E+03	n.p.	7,85E+00	n.p.	3,44E+00	n.p.	-7,47E+01
PENRM	MJ	n.p.	0	n.p.	0	n.p.	0	n.p.	0
PENRT	MJ	n.p.	1,01E+03	n.p.	7,85E+00	n.p.	3,44E+00	n.p.	-7,47E+01
SM	kg	n.p.	1,19E+00	n.p.	0,00E+00	n.p.	1,72E-03	n.p.	-3,41E+00
RSF	MJ	n.p.	0	n.p.	0	n.p.	0	n.p.	0
NRSF	MJ	n.p.	0	n.p.	0	n.p.	0	n.p.	0
FW	m^3	n.p.	4,35E-01	n.p.	1,78E-03	n.p.	5,05E-04	n.p.	-1,30E-01
HW	kg	n.p.	5,38E+00	n.p.	0,00E+00	n.p.	1,70E-03	n.p.	-6,44E-01
NHW	kg	n.p.	1,37E+01	n.p.	0,00E+00	n.p.	7,40E-03	n.p.	-4,02E+00
RW	kg	n.p.	2,07E-02	n.p.	0,00E+00	n.p.	3,05E-04	n.p.	-2,62E-03
REUSE	kg	n.p.	0	n.p.	0	n.p.	0	n.p.	0
RECYCLE	kg	n.p.	1,51E-01	n.p.	0,00E+00	n.p.	1,74E-03	n.p.	-4,19E+00
EN-REC	kg	n.p.	0	n.p.	0	n.p.	0	n.p.	0
EE-E	MJ	n.p.	0	n.p.	0	n.p.	0	n.p.	0
EE-T	MJ	n.p.	0	n.p.	0	n.p.	0	n.p.	0

POLYURETHANE INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL - MB HIDDEN FIX - MB COLD-PRO
ROOFING PANEL: MB ROOF - MB COPPO
Nominal thickness 200 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	n.p.	5,95E+01	n.p.	5,35E-01	n.p.	2,59E-01	n.p.	-5,59E+00
GWP - fossil	kg CO_2 eq	n.p.	5,87E+01	n.p.	5,34E-01	n.p.	2,58E-01	n.p.	-5,55E+00
GWP - biogenic	kg CO_2 eq	n.p.	5,34E-01	n.p.	1,12E-03	n.p.	2,91E-04	n.p.	-3,76E-02
GWP - luluc	kg CO_2 eq	n.p.	2,69E-01	n.p.	1,48E-04	n.p.	3,37E-05	n.p.	-5,07E-03
GWP - GHG	kg CO_2 eq	n.p.	5,73E+01	n.p.	5,30E-01	n.p.	2,56E-01	n.p.	-5,40E+00
ODP	kg CFC-11 eq	n.p.	7,44E-06	n.p.	1,27E-07	n.p.	5,72E-08	n.p.	-3,24E-07
POCP	kg NMVOC eq	n.p.	2,25E-01	n.p.	4,49E-03	n.p.	3,23E-03	n.p.	-2,33E-02
AP	mol H+ eq	n.p.	3,08E-01	n.p.	3,70E-03	n.p.	2,46E-03	n.p.	-2,67E-02
EP - freshwater	kg P eq	n.p.	2,25E-02	n.p.	3,46E-05	n.p.	1,01E-05	n.p.	-2,96E-03
EP - marine	kg N eq	n.p.	9,64E-02	n.p.	1,46E-03	n.p.	1,07E-03	n.p.	-7,34E-03
EP - terrestrial	mol N eq	n.p.	5,61E-01	n.p.	1,60E-02	n.p.	1,17E-02	n.p.	-5,96E-02
WDP	m^3 depriv.	n.p.	3,72E+01	n.p.	2,63E-02	n.p.	6,67E-03	n.p.	-1,69E+00
ADP - F	MJ	n.p.	1,07E+03	n.p.	8,39E+00	n.p.	3,68E+00	n.p.	-6,34E+01
ADP - MM	kg Sb eq	n.p.	8,25E-04	n.p.	1,24E-06	n.p.	2,33E-07	n.p.	-5,08E-05
PERE	MJ	n.p.	7,55E+01	n.p.	1,29E-01	n.p.	3,35E-02	n.p.	-6,55E+00
PERM	MJ	n.p.	0	n.p.	0	n.p.	0	n.p.	0
PERT	MJ	n.p.	7,55E+01	n.p.	1,29E-01	n.p.	3,35E-02	n.p.	-6,55E+00
PENRE	MJ	n.p.	1,09E+03	n.p.	8,30E+00	n.p.	3,63E+00	n.p.	-7,47E+01
PENRM	MJ	n.p.	0	n.p.	0	n.p.	0	n.p.	0
PENRT	MJ	n.p.	1,09E+03	n.p.	8,30E+00	n.p.	3,63E+00	n.p.	-7,47E+01
SM	kg	n.p.	1,21E+00	n.p.	0,00E+00	n.p.	1,81E-03	n.p.	-3,41E+00
RSF	MJ	n.p.	0	n.p.	0	n.p.	0	n.p.	0
NRSF	MJ	n.p.	0	n.p.	0	n.p.	0	n.p.	0
FW	m^3	n.p.	4,66E-01	n.p.	1,88E-03	n.p.	5,33E-04	n.p.	-1,30E-01
HW	kg	n.p.	5,93E+00	n.p.	0,00E+00	n.p.	1,80E-03	n.p.	-6,44E-01
NHW	kg	n.p.	1,55E+01	n.p.	0,00E+00	n.p.	3,37E-02	n.p.	-4,32E+00
RW	kg	n.p.	2,28E-02	n.p.	0,00E+00	n.p.	3,23E-04	n.p.	-2,62E-03
REUSE	kg	n.p.	0	n.p.	0	n.p.	0	n.p.	0
RECYCLE	kg	n.p.	1,51E-01	n.p.	0,00E+00	n.p.	1,74E-03	n.p.	-4,19E+00
EN-REC	kg	n.p.	0	n.p.	0	n.p.	0	n.p.	0
EE-E	MJ	n.p.	0	n.p.	0	n.p.	0	n.p.	0
EE-T	MJ	n.p.	0	n.p.	0	n.p.	0	n.p.	0

MINERAL WOOL INSULATED WALL/ROOFING PANEL

WALL PANEL: MB FIRE-PRO WALL - MB FIRE-PRO HIDDEN FIX
ROOFING PANEL: MB FIRE-PRO ROOF
Nominal thickness 50 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	3,87E+01	3,60E+01	5,54E-01	5,28E-01	2,68E-01	2,55E-01	-1,26E+01	-1,20E+01
GWP - fossil	kg CO_2 eq	3,86E+01	3,59E+01	5,53E-01	5,26E-01	2,68E-01	2,55E-01	-1,27E+01	-1,21E+01
GWP - biogenic	kg CO_2 eq	-2,81E-01	-2,49E-01	1,16E-03	1,10E-03	3,02E-04	2,87E-04	6,48E-02	6,89E-02
GWP - luluc	kg CO_2 eq	3,71E-01	3,44E-01	1,54E-04	1,46E-04	3,50E-05	3,33E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	3,83E+01	3,56E+01	5,49E-01	5,23E-01	2,65E-01	2,53E-01	-1,24E+01	-1,18E+01
ODP	kg CFC-11 eq	2,06E-06	1,93E-06	1,31E-07	1,25E-07	5,92E-08	5,64E-08	-6,55E-07	-6,20E-07
POCP	kg NMVOC eq	1,13E-01	1,05E-01	4,65E-03	4,43E-03	3,34E-03	3,18E-03	-4,50E-02	-4,25E-02
AP	mol H+ eq	1,94E-01	1,79E-01	3,83E-03	3,65E-03	2,55E-03	2,43E-03	-8,32E-02	-8,03E-02
EP - freshwater	kg P eq	1,40E-02	1,31E-02	3,58E-05	3,41E-05	1,05E-05	9,97E-06	-4,49E-03	-4,17E-03
EP - marine	kg N eq	4,59E-02	4,27E-02	1,51E-03	1,44E-03	1,11E-03	1,05E-03	-1,46E-02	-1,38E-02
EP - terrestrial	mol N eq	3,94E-01	3,62E-01	1,66E-02	1,58E-02	1,21E-02	1,15E-02	-2,02E-01	-1,96E-01
WDP	m^3 depriv.	8,79E+00	8,38E+00	2,73E-02	2,60E-02	6,91E-03	6,58E-03	-2,82E+00	-2,64E+00
ADP - F	MJ	4,74E+02	4,42E+02	8,69E+00	8,28E+00	3,82E+00	3,63E+00	-1,50E+02	-1,43E+02
ADP - MM	kg Sb eq	5,85E-04	5,45E-04	1,29E-06	1,23E-06	2,41E-07	2,30E-07	-7,72E-05	-7,18E-05
PERE	MJ	3,52E+01	3,29E+01	1,33E-01	1,27E-01	3,47E-02	3,30E-02	-1,22E+01	-1,15E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	3,52E+01	3,29E+01	1,33E-01	1,27E-01	3,47E-02	3,30E-02	-1,22E+01	-1,15E+01
PENRE	MJ	4,96E+02	4,62E+02	8,57E+00	8,16E+00	3,75E+00	3,57E+00	-1,66E+02	-1,58E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	4,96E+02	4,62E+02	8,57E+00	8,16E+00	3,75E+00	3,57E+00	-1,66E+02	-1,58E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	1,88E-03	1,79E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,70E-01	1,61E+01	1,95E-03	1,79E-01	5,52E-04	4,69E-02	-2,03E-01	-9,75E+00
HW	kg	8,25E-01	7,81E-01	0,00E+00	0,00E+00	1,87E-03	1,78E-03	-9,76E-01	-9,06E-01
NHW	kg	4,78E+00	4,50E+00	0,00E+00	0,00E+00	8,10E-03	7,71E-03	-6,10E+00	-5,67E+00
RW	kg	3,98E-03	3,75E-03	0,00E+00	0,00E+00	3,34E-04	3,18E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,08E-02	2,90E-02	0,00E+00	0,00E+00	1,80E-03	1,71E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL INSULATED WALL/ROOFING PANEL

WALL PANEL: MB FIRE-PRO WALL - MB FIRE-PRO HIDDEN FIX
ROOFING PANEL: MB FIRE-PRO ROOF
Nominal thickness 60 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	3,99E+01	3,72E+01	5,91E-01	5,64E-01	2,86E-01	2,73E-01	-1,35E+01	-1,29E+01
GWP - fossil	kg CO_2 eq	3,99E+01	3,71E+01	5,89E-01	5,63E-01	2,85E-01	2,72E-01	-1,36E+01	-1,30E+01
GWP - biogenic	kg CO_2 eq	-3,10E-01	-2,78E-01	1,24E-03	1,18E-03	3,21E-04	3,07E-04	8,98E-02	9,38E-02
GWP - luluc	kg CO_2 eq	3,71E-01	3,44E-01	1,64E-04	1,56E-04	3,73E-05	3,56E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	3,95E+01	3,68E+01	5,85E-01	5,59E-01	2,83E-01	2,70E-01	-1,33E+01	-1,27E+01
ODP	kg CFC-11 eq	2,12E-06	1,98E-06	1,40E-07	1,34E-07	6,31E-08	6,03E-08	-6,89E-07	-6,54E-07
POCP	kg NMVOC eq	1,16E-01	1,08E-01	4,96E-03	4,74E-03	3,57E-03	3,40E-03	-4,70E-02	-4,45E-02
AP	mol H+ eq	2,06E-01	1,91E-01	4,09E-03	3,90E-03	2,72E-03	2,60E-03	-9,19E-02	-8,90E-02
EP - freshwater	kg P eq	1,41E-02	1,31E-02	3,82E-05	3,65E-05	1,12E-05	1,07E-05	-4,49E-03	-4,17E-03
EP - marine	kg N eq	4,70E-02	4,38E-02	1,61E-03	1,54E-03	1,18E-03	1,13E-03	-1,54E-02	-1,46E-02
EP - terrestrial	mol N eq	4,24E-01	3,92E-01	1,77E-02	1,69E-02	1,29E-02	1,23E-02	-2,25E-01	-2,19E-01
WDP	m^3 depriv.	8,90E+00	8,49E+00	2,91E-02	2,78E-02	7,36E-03	7,03E-03	-2,87E+00	-2,69E+00
ADP - F	MJ	4,89E+02	4,57E+02	9,27E+00	8,85E+00	4,07E+00	3,88E+00	-1,61E+02	-1,54E+02
ADP - MM	kg Sb eq	5,86E-04	5,45E-04	1,37E-06	1,31E-06	2,57E-07	2,46E-07	-7,73E-05	-7,18E-05
PERE	MJ	3,61E+01	3,38E+01	1,42E-01	1,36E-01	3,70E-02	3,53E-02	-1,27E+01	-1,20E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	3,61E+01	3,38E+01	1,42E-01	1,36E-01	3,70E-02	3,53E-02	-1,27E+01	-1,20E+01
PENRE	MJ	5,12E+02	4,78E+02	9,14E+00	8,72E+00	4,00E+00	3,82E+00	-1,77E+02	-1,69E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	5,12E+02	4,78E+02	9,14E+00	8,72E+00	4,00E+00	3,82E+00	-1,77E+02	-1,69E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	2,00E-03	1,91E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,72E-01	6,86E-02	2,07E-03	3,59E-04	5,89E-04	1,21E-04	-2,04E-01	-2,02E-02
HW	kg	8,28E-01	7,85E-01	0,00E+00	0,00E+00	1,99E-03	1,90E-03	-9,76E-01	-9,06E-01
NHW	kg	4,84E+00	4,56E+00	0,00E+00	0,00E+00	8,63E-03	8,24E-03	-6,10E+00	-5,67E+00
RW	kg	4,00E-03	3,77E-03	0,00E+00	0,00E+00	3,56E-04	3,40E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,09E-02	2,91E-02	0,00E+00	0,00E+00	1,92E-03	1,83E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL INSULATED WALL/ROOFING PANEL

WALL PANEL: MB FIRE-PRO WALL - MB FIRE-PRO HIDDEN FIX
ROOFING PANEL: MB FIRE-PRO ROOF
Nominal thickness 80 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	4,23E+01	3,96E+01	6,64E-01	6,37E-01	3,21E-01	3,08E-01	-1,52E+01	-1,46E+01
GWP - fossil	kg CO_2 eq	4,23E+01	3,96E+01	6,62E-01	6,36E-01	3,21E-01	3,08E-01	-1,53E+01	-1,48E+01
GWP - biogenic	kg CO_2 eq	-3,68E-01	-3,36E-01	1,39E-03	1,33E-03	3,61E-04	3,47E-04	1,40E-01	1,44E-01
GWP - luluc	kg CO_2 eq	3,71E-01	3,45E-01	1,84E-04	1,76E-04	4,19E-05	4,02E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	4,19E+01	3,92E+01	6,58E-01	6,31E-01	3,18E-01	3,05E-01	-1,50E+01	-1,44E+01
ODP	kg CFC-11 eq	2,24E-06	2,11E-06	1,57E-07	1,51E-07	7,10E-08	6,81E-08	-7,56E-07	-7,21E-07
POCP	kg NMVOC eq	1,22E-01	1,14E-01	5,58E-03	5,35E-03	4,01E-03	3,85E-03	-5,10E-02	-4,85E-02
AP	mol H+ eq	2,29E-01	2,14E-01	4,59E-03	4,41E-03	3,05E-03	2,93E-03	-1,09E-01	-1,07E-01
EP - freshwater	kg P eq	1,41E-02	1,31E-02	4,29E-05	4,12E-05	1,26E-05	1,20E-05	-4,49E-03	-4,17E-03
EP - marine	kg N eq	4,92E-02	4,60E-02	1,81E-03	1,74E-03	1,33E-03	1,27E-03	-1,68E-02	-1,60E-02
EP - terrestrial	mol N eq	4,85E-01	4,53E-01	1,98E-02	1,90E-02	1,45E-02	1,39E-02	-2,71E-01	-2,64E-01
WDP	m^3 depriv.	9,13E+00	8,72E+00	3,27E-02	3,14E-02	8,28E-03	7,94E-03	-2,98E+00	-2,80E+00
ADP - F	MJ	5,21E+02	4,89E+02	1,04E+01	1,00E+01	4,57E+00	4,39E+00	-1,82E+02	-1,76E+02
ADP - MM	kg Sb eq	5,86E-04	5,46E-04	1,54E-06	1,48E-06	2,89E-07	2,77E-07	-7,74E-05	-7,19E-05
PERE	MJ	3,78E+01	3,55E+01	1,60E-01	1,53E-01	4,16E-02	3,99E-02	-1,36E+01	-1,29E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	3,78E+01	3,55E+01	1,60E-01	1,53E-01	4,16E-02	3,99E-02	-1,36E+01	-1,29E+01
PENRE	MJ	5,43E+02	5,10E+02	1,03E+01	9,85E+00	4,50E+00	4,32E+00	-1,99E+02	-1,91E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	5,43E+02	5,10E+02	1,03E+01	9,85E+00	4,50E+00	4,32E+00	-1,99E+02	-1,91E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	2,25E-03	2,16E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,76E-01	2,59E-01	2,33E-03	2,24E-03	6,62E-04	6,35E-04	-2,07E-01	-1,93E-01
HW	kg	8,36E-01	7,93E-01	0,00E+00	0,00E+00	2,23E-03	2,15E-03	-9,76E-01	-9,06E-01
NHW	kg	4,98E+00	4,69E+00	0,00E+00	0,00E+00	9,70E-03	9,31E-03	-6,10E+00	-5,67E+00
RW	kg	4,04E-03	3,82E-03	0,00E+00	0,00E+00	4,00E-04	3,84E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,12E-02	2,94E-02	0,00E+00	0,00E+00	2,16E-03	2,07E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL INSULATED WALL/ROOFING PANEL

WALL PANEL: MB FIRE-PRO WALL - MB FIRE-PRO HIDDEN FIX
ROOFING PANEL: MB FIRE-PRO ROOF
Nominal thickness 100 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	4,47E+01	4,19E+01	7,37E-01	7,10E-01	3,56E-01	3,43E-01	-1,69E+01	-1,63E+01
GWP - fossil	kg CO_2 eq	4,47E+01	4,20E+01	7,35E-01	7,09E-01	3,56E-01	3,43E-01	-1,71E+01	-1,65E+01
GWP - biogenic	kg CO_2 eq	-4,27E-01	-3,95E-01	1,54E-03	1,49E-03	4,01E-04	3,86E-04	1,90E-01	1,94E-01
GWP - luluc	kg CO_2 eq	3,71E-01	3,45E-01	2,04E-04	1,97E-04	4,65E-05	4,48E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	4,43E+01	4,16E+01	7,30E-01	7,04E-01	3,53E-01	3,40E-01	-1,68E+01	-1,62E+01
ODP	kg CFC-11 eq	2,36E-06	2,23E-06	1,74E-07	1,68E-07	7,88E-08	7,59E-08	-8,23E-07	-7,88E-07
POCP	kg NMVOC eq	1,28E-01	1,20E-01	6,19E-03	5,97E-03	4,45E-03	4,29E-03	-5,50E-02	-5,25E-02
AP	mol H+ eq	2,52E-01	2,37E-01	5,10E-03	4,91E-03	3,39E-03	3,27E-03	-1,27E-01	-1,24E-01
EP - freshwater	kg P eq	1,41E-02	1,32E-02	4,77E-05	4,59E-05	1,39E-05	1,34E-05	-4,49E-03	-4,17E-03
EP - marine	kg N eq	5,14E-02	4,82E-02	2,01E-03	1,94E-03	1,47E-03	1,42E-03	-1,82E-02	-1,74E-02
EP - terrestrial	mol N eq	5,46E-01	5,15E-01	2,20E-02	2,12E-02	1,61E-02	1,55E-02	-3,17E-01	-3,10E-01
WDP	m^3 depriv.	9,36E+00	8,95E+00	3,63E-02	3,50E-02	9,19E-03	8,86E-03	-3,08E+00	-2,90E+00
ADP - F	MJ	5,52E+02	5,21E+02	1,16E+01	1,11E+01	5,07E+00	4,89E+00	-2,04E+02	-1,98E+02
ADP - MM	kg Sb eq	5,87E-04	5,47E-04	1,71E-06	1,65E-06	3,21E-07	3,09E-07	-7,74E-05	-7,20E-05
PERE	MJ	3,95E+01	3,72E+01	1,77E-01	1,71E-01	4,62E-02	4,45E-02	-1,45E+01	-1,38E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	3,95E+01	3,72E+01	1,77E-01	1,71E-01	4,62E-02	4,45E-02	-1,45E+01	-1,38E+01
PENRE	MJ	5,75E+02	5,41E+02	1,14E+01	1,10E+01	4,99E+00	4,81E+00	-2,21E+02	-2,13E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	5,75E+02	5,41E+02	1,14E+01	1,10E+01	4,99E+00	4,81E+00	-2,21E+02	-2,13E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	2,50E-03	2,41E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,81E-01	2,63E-01	2,59E-03	2,49E-03	7,34E-04	7,08E-04	-2,09E-01	-1,95E-01
HW	kg	8,44E-01	8,01E-01	0,00E+00	0,00E+00	2,48E-03	2,39E-03	-9,76E-01	-9,06E-01
NHW	kg	5,10E+00	4,82E+00	0,00E+00	0,00E+00	1,08E-02	1,04E-02	-6,10E+00	-5,67E+00
RW	kg	4,09E-03	3,87E-03	0,00E+00	0,00E+00	4,44E-04	4,28E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,14E-02	2,96E-02	0,00E+00	0,00E+00	2,39E-03	2,31E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL INSULATED WALL/ROOFING PANEL

WALL PANEL: MB FIRE-PRO WALL - MB FIRE-PRO HIDDEN FIX
ROOFING PANEL: MB FIRE-PRO ROOF
Nominal thickness 120 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	4,71E+01	4,43E+01	8,10E-01	7,84E-01	3,92E-01	3,79E-01	-1,86E+01	-1,80E+01
GWP - fossil	kg CO_2 eq	4,72E+01	4,44E+01	8,08E-01	7,82E-01	3,91E-01	3,78E-01	-1,89E+01	-1,83E+01
GWP - biogenic	kg CO_2 eq	-4,85E-01	-4,53E-01	1,69E-03	1,64E-03	4,41E-04	4,26E-04	2,39E-01	2,44E-01
GWP - luluc	kg CO_2 eq	3,71E-01	3,45E-01	2,24E-04	2,17E-04	5,11E-05	4,94E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	4,68E+01	4,40E+01	8,03E-01	7,76E-01	3,88E-01	3,75E-01	-1,85E+01	-1,79E+01
ODP	kg CFC-11 eq	2,48E-06	2,35E-06	1,92E-07	1,85E-07	8,66E-08	8,37E-08	-8,90E-07	-8,56E-07
POCP	kg NMVOC eq	1,34E-01	1,26E-01	6,80E-03	6,58E-03	4,89E-03	4,73E-03	-5,90E-02	-5,65E-02
AP	mol H+ eq	2,75E-01	2,60E-01	5,60E-03	5,42E-03	3,73E-03	3,60E-03	-1,44E-01	-1,42E-01
EP - freshwater	kg P eq	1,42E-02	1,32E-02	5,24E-05	5,07E-05	1,53E-05	1,48E-05	-4,49E-03	-4,17E-03
EP - marine	kg N eq	5,36E-02	5,04E-02	2,21E-03	2,14E-03	1,62E-03	1,57E-03	-1,97E-02	-1,89E-02
EP - terrestrial	mol N eq	6,08E-01	5,76E-01	2,42E-02	2,34E-02	1,77E-02	1,71E-02	-3,62E-01	-3,56E-01
WDP	m^3 depriv.	9,59E+00	9,18E+00	3,99E-02	3,86E-02	1,01E-02	9,77E-03	-3,18E+00	-3,00E+00
ADP - F	MJ	5,84E+02	5,52E+02	1,27E+01	1,23E+01	5,58E+00	5,39E+00	-2,26E+02	-2,19E+02
ADP - MM	kg Sb eq	5,88E-04	5,47E-04	1,88E-06	1,82E-06	3,53E-07	3,41E-07	-7,75E-05	-7,21E-05
PERE	MJ	4,13E+01	3,90E+01	1,95E-01	1,89E-01	5,08E-02	4,91E-02	-1,54E+01	-1,47E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	4,13E+01	3,90E+01	1,95E-01	1,89E-01	5,08E-02	4,91E-02	-1,54E+01	-1,47E+01
PENRE	MJ	6,06E+02	5,73E+02	1,25E+01	1,21E+01	5,49E+00	5,31E+00	-2,43E+02	-2,35E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	6,06E+02	5,73E+02	1,25E+01	1,21E+01	5,49E+00	5,31E+00	-2,43E+02	-2,35E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	2,75E-03	2,66E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,85E-01	2,68E-01	2,84E-03	2,75E-03	8,07E-04	7,81E-04	-2,12E-01	-1,98E-01
HW	kg	8,52E-01	8,09E-01	0,00E+00	0,00E+00	2,73E-03	2,64E-03	-9,76E-01	-9,06E-01
NHW	kg	5,24E+00	4,95E+00	0,00E+00	0,00E+00	1,18E-02	1,14E-02	-6,10E+00	-5,67E+00
RW	kg	4,13E-03	3,91E-03	0,00E+00	0,00E+00	4,89E-04	4,72E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,16E-02	2,98E-02	0,00E+00	0,00E+00	2,63E-03	2,54E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL INSULATED WALL/ROOFING PANEL

WALL PANEL: MB FIRE-PRO WALL - MB FIRE-PRO HIDDEN FIX
ROOFING PANEL: MB FIRE-PRO ROOF
Nominal thickness 150 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	5,06E+01	4,79E+01	9,20E-01	8,93E-01	4,45E-01	4,32E-01	-2,12E+01	-2,06E+01
GWP - fossil	kg CO_2 eq	5,09E+01	4,81E+01	9,18E-01	8,91E-01	4,44E-01	4,31E-01	-2,15E+01	-2,09E+01
GWP - biogenic	kg CO_2 eq	-5,72E-01	-5,40E-01	1,92E-03	1,87E-03	5,00E-04	4,86E-04	3,14E-01	3,18E-01
GWP - luluc	kg CO_2 eq	3,71E-01	3,45E-01	2,55E-04	2,47E-04	5,80E-05	5,63E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	5,04E+01	4,76E+01	9,11E-01	8,85E-01	4,40E-01	4,27E-01	-2,11E+01	-2,05E+01
ODP	kg CFC-11 eq	2,67E-06	2,53E-06	2,18E-07	2,11E-07	9,83E-08	9,55E-08	-9,91E-07	-9,56E-07
POCP	kg NMVOC eq	1,43E-01	1,36E-01	7,72E-03	7,50E-03	5,55E-03	5,39E-03	-6,49E-02	-6,24E-02
AP	mol H+ eq	3,09E-01	2,94E-01	6,36E-03	6,18E-03	4,23E-03	4,11E-03	-1,71E-01	-1,68E-01
EP - freshwater	kg P eq	1,42E-02	1,33E-02	5,95E-05	5,77E-05	1,74E-05	1,69E-05	-4,49E-03	-4,17E-03
EP - marine	kg N eq	5,68E-02	5,37E-02	2,51E-03	2,44E-03	1,84E-03	1,79E-03	-2,18E-02	-2,10E-02
EP - terrestrial	mol N eq	7,00E-01	6,68E-01	2,75E-02	2,67E-02	2,01E-02	1,95E-02	-4,31E-01	-4,25E-01
WDP	m^3 depriv.	9,94E+00	9,54E+00	4,53E-02	4,40E-02	1,15E-02	1,11E-02	-3,34E+00	-3,16E+00
ADP - F	MJ	6,32E+02	6,00E+02	1,44E+01	1,40E+01	6,33E+00	6,15E+00	-2,59E+02	-2,52E+02
ADP - MM	kg Sb eq	5,89E-04	5,48E-04	2,14E-06	2,08E-06	4,01E-07	3,89E-07	-7,77E-05	-7,22E-05
PERE	MJ	4,38E+01	4,16E+01	2,21E-01	2,15E-01	5,76E-02	5,60E-02	-1,68E+01	-1,61E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	4,38E+01	4,16E+01	2,21E-01	2,15E-01	5,76E-02	5,60E-02	-1,68E+01	-1,61E+01
PENRE	MJ	6,54E+02	6,20E+02	1,42E+01	1,38E+01	6,23E+00	6,05E+00	-2,75E+02	-2,67E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	6,54E+02	6,20E+02	1,42E+01	1,38E+01	6,23E+00	6,05E+00	-2,75E+02	-2,67E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	3,12E-03	3,03E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,91E-01	8,53E-02	3,23E-03	5,69E-04	9,17E-04	1,92E-04	-2,15E-01	-3,13E-02
HW	kg	8,64E-01	8,21E-01	0,00E+00	0,00E+00	3,10E-03	3,01E-03	-9,76E-01	-9,06E-01
NHW	kg	5,43E+00	5,15E+00	0,00E+00	0,00E+00	1,34E-02	1,30E-02	-6,10E+00	-5,67E+00
RW	kg	4,20E-03	3,98E-03	0,00E+00	0,00E+00	5,55E-04	5,39E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,20E-02	3,01E-02	0,00E+00	0,00E+00	2,99E-03	2,90E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL INSULATED WALL/ROOFING PANEL

WALL PANEL: MB FIRE-PRO WALL - MB FIRE-PRO HIDDEN FIX
ROOFING PANEL: MB FIRE-PRO ROOF
Nominal thickness 170 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	5,30E+01	5,03E+01	9,93E-01	9,66E-01	4,80E-01	4,67E-01	-2,29E+01	-2,23E+01
GWP - fossil	kg CO_2 eq	5,33E+01	5,05E+01	9,91E-01	9,64E-01	4,80E-01	4,67E-01	-2,33E+01	-2,27E+01
GWP - biogenic	kg CO_2 eq	-6,31E-01	-5,99E-01	2,08E-03	2,02E-03	5,40E-04	5,26E-04	3,64E-01	3,68E-01
GWP - luluc	kg CO_2 eq	3,71E-01	3,45E-01	2,75E-04	2,68E-04	6,26E-05	6,10E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	5,28E+01	5,00E+01	9,84E-01	9,57E-01	4,75E-01	4,62E-01	-2,28E+01	-2,22E+01
ODP	kg CFC-11 eq	2,78E-06	2,65E-06	2,35E-07	2,29E-07	1,06E-07	1,03E-07	-1,06E-06	-1,02E-06
POCP	kg NMVOC eq	1,50E-01	1,42E-01	8,34E-03	8,11E-03	5,99E-03	5,83E-03	-6,89E-02	-6,64E-02
AP	mol H+ eq	3,32E-01	3,17E-01	6,87E-03	6,68E-03	4,57E-03	4,45E-03	-1,88E-01	-1,85E-01
EP - freshwater	kg P eq	1,42E-02	1,33E-02	6,42E-05	6,25E-05	1,88E-05	1,83E-05	-4,49E-03	-4,18E-03
EP - marine	kg N eq	5,90E-02	5,58E-02	2,71E-03	2,64E-03	1,98E-03	1,93E-03	-2,32E-02	-2,25E-02
EP - terrestrial	mol N eq	7,61E-01	7,29E-01	2,97E-02	2,89E-02	2,17E-02	2,11E-02	-4,77E-01	-4,70E-01
WDP	m^3 depriv.	1,02E+01	9,76E+00	4,89E-02	4,76E-02	1,24E-02	1,20E-02	-3,44E+00	-3,26E+00
ADP - F	MJ	6,63E+02	6,31E+02	1,56E+01	1,52E+01	6,84E+00	6,65E+00	-2,81E+02	-2,74E+02
ADP - MM	kg Sb eq	5,89E-04	5,49E-04	2,31E-06	2,25E-06	4,32E-07	4,21E-07	-7,78E-05	-7,23E-05
PERE	MJ	4,56E+01	4,33E+01	2,39E-01	2,33E-01	6,22E-02	6,05E-02	-1,78E+01	-1,71E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	4,56E+01	4,33E+01	2,39E-01	2,33E-01	6,22E-02	6,05E-02	-1,78E+01	-1,71E+01
PENRE	MJ	6,85E+02	6,51E+02	1,54E+01	1,49E+01	6,73E+00	6,55E+00	-2,97E+02	-2,89E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	6,85E+02	6,51E+02	1,54E+01	1,49E+01	6,73E+00	6,55E+00	-2,97E+02	-2,89E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	3,37E-03	3,28E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,95E-01	2,78E-01	3,49E-03	3,39E-03	9,89E-04	9,63E-04	-2,18E-01	-2,04E-01
HW	kg	8,72E-01	8,29E-01	0,00E+00	0,00E+00	3,34E-03	3,25E-03	-9,76E-01	-9,06E-01
NHW	kg	5,56E+00	5,27E+00	0,00E+00	0,00E+00	1,45E-02	1,41E-02	-6,10E+00	-5,67E+00
RW	kg	4,25E-03	4,02E-03	0,00E+00	0,00E+00	5,99E-04	5,83E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,22E-02	3,03E-02	0,00E+00	0,00E+00	3,22E-03	3,14E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL INSULATED WALL/ROOFING PANEL

WALL PANEL: MB FIRE-PRO WALL - MB FIRE-PRO HIDDEN FIX
ROOFING PANEL: MB FIRE-PRO ROOF
Nominal thickness 200 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	5,66E+01	5,39E+01	1,10E+00	1,08E+00	5,33E-01	5,20E-01	-2,55E+01	-2,49E+01
GWP - fossil	kg CO_2 eq	5,69E+01	5,42E+01	1,10E+00	1,07E+00	5,32E-01	5,20E-01	-2,59E+01	-2,53E+01
GWP - biogenic	kg CO_2 eq	-7,18E-01	-6,86E-01	2,31E-03	2,25E-03	6,00E-04	5,85E-04	4,39E-01	4,43E-01
GWP - luluc	kg CO_2 eq	3,72E-01	3,45E-01	3,05E-04	2,98E-04	6,96E-05	6,79E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	5,64E+01	5,36E+01	1,09E+00	1,07E+00	5,28E-01	5,15E-01	-2,54E+01	-2,48E+01
ODP	kg CFC-11 eq	2,97E-06	2,83E-06	2,61E-07	2,55E-07	1,18E-07	1,15E-07	-1,16E-06	-1,12E-06
POCP	kg NMVOC eq	1,59E-01	1,51E-01	9,26E-03	9,04E-03	6,65E-03	6,49E-03	-7,49E-02	-7,24E-02
AP	mol H+ eq	3,67E-01	3,52E-01	7,63E-03	7,44E-03	5,07E-03	4,95E-03	-2,14E-01	-2,12E-01
EP - freshwater	kg P eq	1,43E-02	1,33E-02	7,13E-05	6,96E-05	2,08E-05	2,03E-05	-4,49E-03	-4,18E-03
EP - marine	kg N eq	6,23E-02	5,91E-02	3,01E-03	2,94E-03	2,20E-03	2,15E-03	-2,54E-02	-2,46E-02
EP - terrestrial	mol N eq	8,52E-01	8,21E-01	3,30E-02	3,22E-02	2,41E-02	2,35E-02	-5,46E-01	-5,39E-01
WDP	m^3 depriv.	1,05E+01	1,01E+01	5,43E-02	5,30E-02	1,37E-02	1,34E-02	-3,60E+00	-3,42E+00
ADP - F	MJ	7,11E+02	6,79E+02	1,73E+01	1,69E+01	7,59E+00	7,41E+00	-3,14E+02	-3,07E+02
ADP - MM	kg Sb eq	5,90E-04	5,50E-04	2,56E-06	2,50E-06	4,80E-07	4,69E-07	-7,79E-05	-7,24E-05
PERE	MJ	4,82E+01	4,59E+01	2,65E-01	2,59E-01	6,91E-02	6,74E-02	-1,92E+01	-1,85E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	4,82E+01	4,59E+01	2,65E-01	2,59E-01	6,91E-02	6,74E-02	-1,92E+01	-1,85E+01
PENRE	MJ	7,32E+02	6,99E+02	1,71E+01	1,66E+01	7,47E+00	7,29E+00	-3,30E+02	-3,22E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	7,32E+02	6,99E+02	1,71E+01	1,66E+01	7,47E+00	7,29E+00	-3,30E+02	-3,22E+02
SM	kg	0,00E+00	1,47E+00	0,00E+00	0,00E+00	0,00E+00	3,65E-03	0,00E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	3,02E-01	2,84E-01	3,87E-03	3,78E-03	1,10E-03	1,07E-03	-2,21E-01	-2,07E-01
HW	kg	8,84E-01	8,41E-01	0,00E+00	0,00E+00	3,71E-03	3,62E-03	-9,76E-01	-9,06E-01
NHW	kg	5,75E+00	5,47E+00	0,00E+00	0,00E+00	1,61E-02	1,57E-02	-6,10E+00	-5,67E+00
RW	kg	4,31E-03	4,09E-03	0,00E+00	0,00E+00	6,65E-04	6,49E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,25E-02	3,07E-02	0,00E+00	0,00E+00	3,58E-03	3,49E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL SOUND-ABSORBING INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL SOUND

ROOFING PANEL: MB ROOF SOUND

Nominal thickness 50 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	3,88E+01	3,61E+01	5,54E-01	5,28E-01	2,68E-01	2,55E-01	-1,26E+01	-1,20E+01
GWP - fossil	kg CO_2 eq	3,87E+01	3,60E+01	5,53E-01	5,26E-01	2,68E-01	2,55E-01	-1,27E+01	-1,21E+01
GWP - biogenic	kg CO_2 eq	-2,80E-01	-2,48E-01	1,16E-03	1,10E-03	3,02E-04	2,87E-04	6,48E-02	6,89E-02
GWP - luluc	kg CO_2 eq	3,71E-01	3,44E-01	1,54E-04	1,46E-04	3,50E-05	3,33E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	3,84E+01	3,57E+01	5,49E-01	5,23E-01	2,65E-01	2,53E-01	-1,24E+01	-1,18E+01
ODP	kg CFC-11 eq	2,06E-06	1,93E-06	1,31E-07	1,25E-07	5,92E-08	5,64E-08	-6,55E-07	-6,20E-07
POCP	kg NMVOC eq	1,13E-01	1,05E-01	4,65E-03	4,43E-03	3,34E-03	3,18E-03	-4,50E-02	-4,25E-02
AP	mol H+ eq	1,94E-01	1,79E-01	3,83E-03	3,65E-03	2,55E-03	2,43E-03	-8,32E-02	-8,03E-02
EP - freshwater	kg P eq	1,40E-02	1,31E-02	3,58E-05	3,41E-05	1,05E-05	9,97E-06	-4,49E-03	-4,17E-03
EP - marine	kg N eq	4,59E-02	4,28E-02	1,51E-03	1,44E-03	1,11E-03	1,05E-03	-1,46E-02	-1,38E-02
EP - terrestrial	mol N eq	3,94E-01	3,62E-01	1,66E-02	1,58E-02	1,21E-02	1,15E-02	-2,02E-01	-1,96E-01
WDP	m^3 depriv.	8,83E+00	8,42E+00	2,73E-02	2,60E-02	6,91E-03	6,58E-03	-2,82E+00	-2,64E+00
ADP - F	MJ	4,76E+02	4,44E+02	8,69E+00	8,28E+00	3,82E+00	3,63E+00	-1,50E+02	-1,43E+02
ADP - MM	kg Sb eq	5,86E-04	5,45E-04	1,29E-06	1,23E-06	2,41E-07	2,30E-07	-7,72E-05	-7,18E-05
PERE	MJ	3,52E+01	3,30E+01	1,33E-01	1,27E-01	3,47E-02	3,30E-02	-1,22E+01	-1,15E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	3,52E+01	3,30E+01	1,33E-01	1,27E-01	3,47E-02	3,30E-02	-1,22E+01	-1,15E+01
PENRE	MJ	5,03E+02	4,69E+02	8,60E+00	8,18E+00	3,76E+00	3,58E+00	-1,67E+02	-1,59E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	5,03E+02	4,69E+02	8,60E+00	8,18E+00	3,76E+00	3,58E+00	-1,67E+02	-1,59E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	1,88E-03	1,79E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,62E-01	2,53E-01	1,95E-03	1,85E-03	5,52E-04	5,26E-04	-1,98E-01	-1,89E-01
HW	kg	8,29E-01	7,85E-01	0,00E+00	0,00E+00	1,87E-03	1,78E-03	-9,76E-01	-9,06E-01
NHW	kg	4,79E+00	4,51E+00	0,00E+00	0,00E+00	8,10E-03	7,71E-03	-6,10E+00	-5,67E+00
RW	kg	3,99E-03	3,77E-03	0,00E+00	0,00E+00	3,34E-04	3,18E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,09E-02	2,91E-02	0,00E+00	0,00E+00	1,80E-03	1,71E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL SOUND-ABSORBING INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL SOUND

ROOFING PANEL: MB ROOF SOUND

Nominal thickness 60 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	4,00E+01	3,72E+01	5,91E-01	5,64E-01	2,86E-01	2,73E-01	-1,35E+01	-1,29E+01
GWP - fossil	kg CO_2 eq	3,99E+01	3,72E+01	5,89E-01	5,63E-01	2,85E-01	2,72E-01	-1,36E+01	-1,30E+01
GWP - biogenic	kg CO_2 eq	-3,10E-01	-2,78E-01	1,24E-03	1,18E-03	3,21E-04	3,07E-04	8,98E-02	9,38E-02
GWP - luluc	kg CO_2 eq	3,71E-01	3,44E-01	1,64E-04	1,56E-04	3,73E-05	3,56E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	3,96E+01	3,69E+01	5,85E-01	5,59E-01	2,83E-01	2,70E-01	-1,33E+01	-1,27E+01
ODP	kg CFC-11 eq	2,12E-06	1,98E-06	1,40E-07	1,34E-07	6,31E-08	6,03E-08	-6,89E-07	-6,54E-07
POCP	kg NMVOC eq	1,16E-01	1,08E-01	4,96E-03	4,74E-03	3,57E-03	3,40E-03	-4,70E-02	-4,45E-02
AP	mol H+ eq	2,06E-01	1,91E-01	4,09E-03	3,90E-03	2,72E-03	2,60E-03	-9,19E-02	-8,90E-02
EP - freshwater	kg P eq	1,41E-02	1,31E-02	3,82E-05	3,65E-05	1,12E-05	1,07E-05	-4,49E-03	-4,17E-03
EP - marine	kg N eq	4,70E-02	4,38E-02	1,61E-03	1,54E-03	1,18E-03	1,13E-03	-1,54E-02	-1,46E-02
EP - terrestrial	mol N eq	4,25E-01	3,93E-01	1,77E-02	1,69E-02	1,29E-02	1,23E-02	-2,25E-01	-2,19E-01
WDP	m^3 depriv.	8,94E+00	8,54E+00	2,91E-02	2,78E-02	7,36E-03	7,03E-03	-2,87E+00	-2,69E+00
ADP - F	MJ	4,91E+02	4,60E+02	9,27E+00	8,85E+00	4,07E+00	3,88E+00	-1,61E+02	-1,54E+02
ADP - MM	kg Sb eq	5,86E-04	5,46E-04	1,37E-06	1,31E-06	2,57E-07	2,46E-07	-7,73E-05	-7,18E-05
PERE	MJ	3,61E+01	3,38E+01	1,42E-01	1,36E-01	3,70E-02	3,53E-02	-1,27E+01	-1,20E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	3,61E+01	3,38E+01	1,42E-01	1,36E-01	3,70E-02	3,53E-02	-1,27E+01	-1,20E+01
PENRE	MJ	5,19E+02	4,85E+02	9,16E+00	8,75E+00	4,01E+00	3,83E+00	-1,78E+02	-1,70E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	5,19E+02	4,85E+02	9,16E+00	8,75E+00	4,01E+00	3,83E+00	-1,78E+02	-1,70E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	2,00E-03	1,91E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,72E-01	2,55E-01	2,07E-03	1,98E-03	5,89E-04	5,62E-04	-2,04E-01	-1,90E-01
HW	kg	8,32E-01	7,89E-01	0,00E+00	0,00E+00	1,99E-03	1,90E-03	-9,76E-01	-9,06E-01
NHW	kg	4,85E+00	4,57E+00	0,00E+00	0,00E+00	8,63E-03	8,24E-03	-6,10E+00	-5,67E+00
RW	kg	4,01E-03	3,79E-03	0,00E+00	0,00E+00	3,56E-04	3,40E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,10E-02	2,92E-02	0,00E+00	0,00E+00	1,92E-03	1,83E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL SOUND-ABSORBING INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL SOUND

ROOFING PANEL: MB ROOF SOUND

Nominal thickness 80 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	4,24E+01	3,96E+01	6,64E-01	6,37E-01	3,21E-01	3,08E-01	-1,52E+01	-1,46E+01
GWP - fossil	kg CO_2 eq	4,24E+01	3,96E+01	6,62E-01	6,36E-01	3,21E-01	3,08E-01	-1,53E+01	-1,48E+01
GWP - biogenic	kg CO_2 eq	-3,68E-01	-3,36E-01	1,39E-03	1,33E-03	3,61E-04	3,47E-04	1,40E-01	1,44E-01
GWP - luluc	kg CO_2 eq	3,71E-01	3,45E-01	1,84E-04	1,76E-04	4,19E-05	4,02E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	4,20E+01	3,93E+01	6,58E-01	6,31E-01	3,18E-01	3,05E-01	-1,50E+01	-1,44E+01
ODP	kg CFC-11 eq	2,24E-06	2,11E-06	1,57E-07	1,51E-07	7,10E-08	6,81E-08	-7,56E-07	-7,21E-07
POCP	kg NMVOC eq	1,22E-01	1,14E-01	5,58E-03	5,35E-03	4,01E-03	3,85E-03	-5,10E-02	-4,85E-02
AP	mol H+ eq	2,29E-01	2,14E-01	4,59E-03	4,41E-03	3,05E-03	2,93E-03	-1,09E-01	-1,07E-01
EP - freshwater	kg P eq	1,41E-02	1,32E-02	4,29E-05	4,12E-05	1,26E-05	1,20E-05	-4,49E-03	-4,17E-03
EP - marine	kg N eq	4,92E-02	4,60E-02	1,81E-03	1,74E-03	1,33E-03	1,27E-03	-1,68E-02	-1,60E-02
EP - terrestrial	mol N eq	4,86E-01	4,54E-01	1,98E-02	1,90E-02	1,45E-02	1,39E-02	-2,71E-01	-2,64E-01
WDP	m^3 depriv.	9,17E+00	8,77E+00	3,27E-02	3,14E-02	8,28E-03	7,94E-03	-2,98E+00	-2,80E+00
ADP - F	MJ	5,23E+02	4,91E+02	1,04E+01	1,00E+01	4,57E+00	4,39E+00	-1,82E+02	-1,76E+02
ADP - MM	kg Sb eq	5,87E-04	5,46E-04	1,54E-06	1,48E-06	2,89E-07	2,77E-07	-7,74E-05	-7,19E-05
PERE	MJ	3,78E+01	3,56E+01	1,60E-01	1,53E-01	4,16E-02	3,99E-02	-1,36E+01	-1,29E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	3,78E+01	3,56E+01	1,60E-01	1,53E-01	4,16E-02	3,99E-02	-1,36E+01	-1,29E+01
PENRE	MJ	5,50E+02	5,16E+02	1,03E+01	9,88E+00	4,51E+00	4,33E+00	-2,00E+02	-1,92E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	5,50E+02	5,16E+02	1,03E+01	9,88E+00	4,51E+00	4,33E+00	-2,00E+02	-1,92E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	2,25E-03	2,16E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,77E-01	2,59E-01	2,33E-03	2,24E-03	6,62E-04	6,35E-04	-2,07E-01	-1,93E-01
HW	kg	8,41E-01	7,97E-01	0,00E+00	0,00E+00	2,23E-03	2,15E-03	-9,76E-01	-9,06E-01
NHW	kg	4,99E+00	4,70E+00	0,00E+00	0,00E+00	9,70E-03	9,31E-03	-6,10E+00	-5,67E+00
RW	kg	4,06E-03	3,83E-03	0,00E+00	0,00E+00	4,00E-04	3,84E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,13E-02	2,95E-02	0,00E+00	0,00E+00	2,16E-03	2,07E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL SOUND-ABSORBING INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL SOUND

ROOFING PANEL: MB ROOF SOUND

Nominal thickness 100 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	4,47E+01	4,20E+01	7,37E-01	7,10E-01	3,56E-01	3,43E-01	-1,69E+01	-1,63E+01
GWP - fossil	kg CO_2 eq	4,48E+01	4,20E+01	7,35E-01	7,09E-01	3,56E-01	3,43E-01	-1,71E+01	-1,65E+01
GWP - biogenic	kg CO_2 eq	-4,26E-01	-3,94E-01	1,54E-03	1,49E-03	4,01E-04	3,86E-04	1,90E-01	1,94E-01
GWP - luluc	kg CO_2 eq	3,71E-01	3,45E-01	2,04E-04	1,97E-04	4,65E-05	4,48E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	4,44E+01	4,17E+01	7,30E-01	7,04E-01	3,53E-01	3,40E-01	-1,68E+01	-1,62E+01
ODP	kg CFC-11 eq	2,36E-06	2,23E-06	1,74E-07	1,68E-07	7,88E-08	7,59E-08	-8,23E-07	-7,88E-07
POCP	kg NMVOC eq	1,28E-01	1,20E-01	6,19E-03	5,97E-03	4,45E-03	4,29E-03	-5,50E-02	-5,25E-02
AP	mol H+ eq	2,52E-01	2,37E-01	5,10E-03	4,91E-03	3,39E-03	3,27E-03	-1,27E-01	-1,24E-01
EP - freshwater	kg P eq	1,41E-02	1,32E-02	4,77E-05	4,59E-05	1,39E-05	1,34E-05	-4,49E-03	-4,17E-03
EP - marine	kg N eq	5,14E-02	4,82E-02	2,01E-03	1,94E-03	1,47E-03	1,42E-03	-1,82E-02	-1,74E-02
EP - terrestrial	mol N eq	5,47E-01	5,15E-01	2,20E-02	2,12E-02	1,61E-02	1,55E-02	-3,17E-01	-3,10E-01
WDP	m^3 depriv.	9,40E+00	9,00E+00	3,63E-02	3,50E-02	9,19E-03	8,86E-03	-3,08E+00	-2,90E+00
ADP - F	MJ	5,55E+02	5,23E+02	1,16E+01	1,11E+01	5,07E+00	4,89E+00	-2,04E+02	-1,98E+02
ADP - MM	kg Sb eq	5,87E-04	5,47E-04	1,71E-06	1,65E-06	3,21E-07	3,09E-07	-7,74E-05	-7,20E-05
PERE	MJ	3,95E+01	3,73E+01	1,77E-01	1,71E-01	4,62E-02	4,45E-02	-1,45E+01	-1,38E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	3,95E+01	3,73E+01	1,77E-01	1,71E-01	4,62E-02	4,45E-02	-1,45E+01	-1,38E+01
PENRE	MJ	5,82E+02	5,48E+02	1,14E+01	1,10E+01	5,01E+00	4,83E+00	-2,21E+02	-2,13E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	5,82E+02	5,48E+02	1,14E+01	1,10E+01	5,01E+00	4,83E+00	-2,21E+02	-2,13E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	2,50E-03	2,41E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,81E-01	2,63E-01	2,59E-03	2,49E-03	7,34E-04	7,08E-04	-2,09E-01	-1,95E-01
HW	kg	8,48E-01	8,05E-01	0,00E+00	0,00E+00	2,48E-03	2,39E-03	-9,76E-01	-9,06E-01
NHW	kg	5,11E+00	4,83E+00	0,00E+00	0,00E+00	1,08E-02	1,04E-02	-6,10E+00	-5,67E+00
RW	kg	4,10E-03	3,88E-03	0,00E+00	0,00E+00	4,44E-04	4,28E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,15E-02	2,97E-02	0,00E+00	0,00E+00	2,39E-03	2,31E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL SOUND-ABSORBING INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL SOUND

ROOFING PANEL: MB ROOF SOUND

Nominal thickness 120 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	4,71E+01	4,44E+01	8,10E-01	7,84E-01	3,92E-01	3,79E-01	-1,86E+01	-1,80E+01
GWP - fossil	kg CO_2 eq	4,72E+01	4,45E+01	8,08E-01	7,82E-01	3,91E-01	3,78E-01	-1,89E+01	-1,83E+01
GWP - biogenic	kg CO_2 eq	-4,84E-01	-4,52E-01	1,69E-03	1,64E-03	4,41E-04	4,26E-04	2,39E-01	2,44E-01
GWP - luluc	kg CO_2 eq	3,71E-01	3,45E-01	2,24E-04	2,17E-04	5,11E-05	4,94E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	4,68E+01	4,41E+01	8,03E-01	7,76E-01	3,88E-01	3,75E-01	-1,85E+01	-1,79E+01
ODP	kg CFC-11 eq	2,49E-06	2,35E-06	1,92E-07	1,85E-07	8,66E-08	8,37E-08	-8,90E-07	-8,56E-07
POCP	kg NMVOC eq	1,34E-01	1,27E-01	6,80E-03	6,58E-03	4,89E-03	4,73E-03	-5,90E-02	-5,65E-02
AP	mol H+ eq	2,75E-01	2,60E-01	5,60E-03	5,42E-03	3,73E-03	3,60E-03	-1,44E-01	-1,42E-01
EP - freshwater	kg P eq	1,42E-02	1,32E-02	5,24E-05	5,07E-05	1,53E-05	1,48E-05	-4,49E-03	-4,17E-03
EP - marine	kg N eq	5,36E-02	5,04E-02	2,21E-03	2,14E-03	1,62E-03	1,57E-03	-1,97E-02	-1,89E-02
EP - terrestrial	mol N eq	6,08E-01	5,76E-01	2,42E-02	2,34E-02	1,77E-02	1,71E-02	-3,62E-01	-3,56E-01
WDP	m^3 depriv.	9,63E+00	9,23E+00	3,99E-02	3,86E-02	1,01E-02	9,77E-03	-3,18E+00	-3,00E+00
ADP - F	MJ	5,86E+02	5,54E+02	1,27E+01	1,23E+01	5,58E+00	5,39E+00	-2,26E+02	-2,19E+02
ADP - MM	kg Sb eq	5,88E-04	5,48E-04	1,88E-06	1,82E-06	3,53E-07	3,41E-07	-7,75E-05	-7,21E-05
PERE	MJ	4,13E+01	3,90E+01	1,95E-01	1,89E-01	5,08E-02	4,91E-02	-1,54E+01	-1,47E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	4,13E+01	3,90E+01	1,95E-01	1,89E-01	5,08E-02	4,91E-02	-1,54E+01	-1,47E+01
PENRE	MJ	6,14E+02	5,80E+02	1,26E+01	1,22E+01	5,50E+00	5,32E+00	-2,43E+02	-2,35E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	6,14E+02	5,80E+02	1,26E+01	1,22E+01	5,50E+00	5,32E+00	-2,43E+02	-2,35E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	2,75E-03	2,66E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,85E-01	2,68E-01	2,84E-03	2,75E-03	8,07E-04	7,81E-04	-2,12E-01	-1,98E-01
HW	kg	8,57E-01	8,13E-01	0,00E+00	0,00E+00	2,73E-03	2,64E-03	-9,76E-01	-9,06E-01
NHW	kg	5,25E+00	4,96E+00	0,00E+00	0,00E+00	1,18E-02	1,14E-02	-6,10E+00	-5,67E+00
RW	kg	4,15E-03	3,92E-03	0,00E+00	0,00E+00	4,89E-04	4,72E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,17E-02	2,99E-02	0,00E+00	0,00E+00	2,63E-03	2,54E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL SOUND-ABSORBING INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL SOUND

ROOFING PANEL: MB ROOF SOUND

Nominal thickness 150 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	5,07E+01	4,80E+01	9,20E-01	8,93E-01	4,45E-01	4,32E-01	-2,12E+01	-2,06E+01
GWP - fossil	kg CO_2 eq	5,09E+01	4,82E+01	9,18E-01	8,91E-01	4,44E-01	4,31E-01	-2,15E+01	-2,09E+01
GWP - biogenic	kg CO_2 eq	-5,72E-01	-5,40E-01	1,92E-03	1,87E-03	5,00E-04	4,86E-04	3,14E-01	3,18E-01
GWP - luluc	kg CO_2 eq	3,71E-01	3,45E-01	2,55E-04	2,47E-04	5,80E-05	5,63E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	5,04E+01	4,77E+01	9,11E-01	8,85E-01	4,40E-01	4,27E-01	-2,11E+01	-2,05E+01
ODP	kg CFC-11 eq	2,67E-06	2,53E-06	2,18E-07	2,11E-07	9,83E-08	9,55E-08	-9,91E-07	-9,56E-07
POCP	kg NMVOC eq	1,44E-01	1,36E-01	7,72E-03	7,50E-03	5,55E-03	5,39E-03	-6,49E-02	-6,24E-02
AP	mol H+ eq	3,10E-01	2,95E-01	6,36E-03	6,18E-03	4,23E-03	4,11E-03	-1,71E-01	-1,68E-01
EP - freshwater	kg P eq	1,42E-02	1,33E-02	5,95E-05	5,77E-05	1,74E-05	1,69E-05	-4,49E-03	-4,17E-03
EP - marine	kg N eq	5,69E-02	5,37E-02	2,51E-03	2,44E-03	1,84E-03	1,79E-03	-2,18E-02	-2,10E-02
EP - terrestrial	mol N eq	7,00E-01	6,68E-01	2,75E-02	2,67E-02	2,01E-02	1,95E-02	-4,31E-01	-4,25E-01
WDP	m^3 depriv.	9,99E+00	9,58E+00	4,53E-02	4,40E-02	1,15E-02	1,11E-02	-3,34E+00	-3,16E+00
ADP - F	MJ	6,34E+02	6,02E+02	1,44E+01	1,40E+01	6,33E+00	6,15E+00	-2,59E+02	-2,52E+02
ADP - MM	kg Sb eq	5,89E-04	5,49E-04	2,14E-06	2,08E-06	4,01E-07	3,89E-07	-7,77E-05	-7,22E-05
PERE	MJ	4,39E+01	4,16E+01	2,21E-01	2,15E-01	5,76E-02	5,60E-02	-1,68E+01	-1,61E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	4,39E+01	4,16E+01	2,21E-01	2,15E-01	5,76E-02	5,60E-02	-1,68E+01	-1,61E+01
PENRE	MJ	6,61E+02	6,27E+02	1,43E+01	1,39E+01	6,25E+00	6,07E+00	-2,76E+02	-2,68E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	6,61E+02	6,27E+02	1,43E+01	1,39E+01	6,25E+00	6,07E+00	-2,76E+02	-2,68E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	3,12E-03	3,03E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,91E-01	2,74E-01	3,23E-03	3,14E-03	9,17E-04	8,90E-04	-2,15E-01	-2,01E-01
HW	kg	8,69E-01	8,25E-01	0,00E+00	0,00E+00	3,10E-03	3,01E-03	-9,76E-01	-9,06E-01
NHW	kg	5,44E+00	5,16E+00	0,00E+00	0,00E+00	1,34E-02	1,30E-02	-6,10E+00	-5,67E+00
RW	kg	4,21E-03	3,99E-03	0,00E+00	0,00E+00	5,55E-04	5,39E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,21E-02	3,02E-02	0,00E+00	0,00E+00	2,99E-03	2,90E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL SOUND-ABSORBING INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL SOUND

ROOFING PANEL: MB ROOF SOUND

Nominal thickness 170 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	5,31E+01	5,03E+01	9,93E-01	9,66E-01	4,80E-01	4,67E-01	-2,29E+01	-2,23E+01
GWP - fossil	kg CO_2 eq	5,33E+01	5,06E+01	9,91E-01	9,64E-01	4,80E-01	4,67E-01	-2,33E+01	-2,27E+01
GWP - biogenic	kg CO_2 eq	-6,30E-01	-5,98E-01	2,08E-03	2,02E-03	5,40E-04	5,26E-04	3,64E-01	3,68E-01
GWP - luluc	kg CO_2 eq	3,71E-01	3,45E-01	2,75E-04	2,68E-04	6,26E-05	6,10E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	5,28E+01	5,01E+01	9,84E-01	9,57E-01	4,75E-01	4,62E-01	-2,28E+01	-2,22E+01
ODP	kg CFC-11 eq	2,79E-06	2,65E-06	2,35E-07	2,29E-07	1,06E-07	1,03E-07	-1,06E-06	-1,02E-06
POCP	kg NMVOC eq	1,50E-01	1,42E-01	8,34E-03	8,11E-03	5,99E-03	5,83E-03	-6,89E-02	-6,64E-02
AP	mol H+ eq	3,33E-01	3,18E-01	6,87E-03	6,68E-03	4,57E-03	4,45E-03	-1,88E-01	-1,85E-01
EP - freshwater	kg P eq	1,42E-02	1,33E-02	6,42E-05	6,25E-05	1,88E-05	1,83E-05	-4,49E-03	-4,18E-03
EP - marine	kg N eq	5,91E-02	5,59E-02	2,71E-03	2,64E-03	1,98E-03	1,93E-03	-2,32E-02	-2,25E-02
EP - terrestrial	mol N eq	7,61E-01	7,29E-01	2,97E-02	2,89E-02	2,17E-02	2,11E-02	-4,77E-01	-4,70E-01
WDP	m^3 depriv.	1,02E+01	9,80E+00	4,89E-02	4,76E-02	1,24E-02	1,20E-02	-3,44E+00	-3,26E+00
ADP - F	MJ	6,65E+02	6,33E+02	1,56E+01	1,52E+01	6,84E+00	6,65E+00	-2,81E+02	-2,74E+02
ADP - MM	kg Sb eq	5,90E-04	5,49E-04	2,31E-06	2,25E-06	4,32E-07	4,21E-07	-7,78E-05	-7,23E-05
PERE	MJ	4,56E+01	4,33E+01	2,39E-01	2,33E-01	6,22E-02	6,05E-02	-1,78E+01	-1,71E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	4,56E+01	4,33E+01	2,39E-01	2,33E-01	6,22E-02	6,05E-02	-1,78E+01	-1,71E+01
PENRE	MJ	6,92E+02	6,58E+02	1,54E+01	1,50E+01	6,74E+00	6,56E+00	-2,98E+02	-2,90E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	6,92E+02	6,58E+02	1,54E+01	1,50E+01	6,74E+00	6,56E+00	-2,98E+02	-2,90E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	3,37E-03	3,28E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2,95E-01	2,78E-01	3,49E-03	3,39E-03	9,89E-04	9,63E-04	-2,18E-01	-2,04E-01
HW	kg	8,76E-01	8,33E-01	0,00E+00	0,00E+00	3,34E-03	3,25E-03	-9,76E-01	-9,06E-01
NHW	kg	5,57E+00	5,28E+00	0,00E+00	0,00E+00	1,45E-02	1,41E-02	-6,10E+00	-5,67E+00
RW	kg	4,26E-03	4,04E-03	0,00E+00	0,00E+00	5,99E-04	5,83E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,23E-02	3,04E-02	0,00E+00	0,00E+00	3,22E-03	3,14E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

MINERAL WOOL SOUND-ABSORBING INSULATED WALL/ROOFING PANEL

WALL PANEL: MB WALL SOUND

ROOFING PANEL: MB ROOF SOUND

Nominal thickness 200 mm

ABB.	UNIT	A1 - A3		A4		C2 - C3 - C4		D	
		C	P	C	P	C	P	C	P
GWP - t	kg CO_2 eq	5,67E+01	5,39E+01	1,10E+00	1,08E+00	5,33E-01	5,20E-01	-2,55E+01	-2,49E+01
GWP - fossil	kg CO_2 eq	5,70E+01	5,43E+01	1,10E+00	1,07E+00	5,32E-01	5,20E-01	-2,59E+01	-2,53E+01
GWP - biogenic	kg CO_2 eq	-7,18E-01	-6,86E-01	2,31E-03	2,25E-03	6,00E-04	5,85E-04	4,39E-01	4,43E-01
GWP - luluc	kg CO_2 eq	3,72E-01	3,46E-01	3,05E-04	2,98E-04	6,96E-05	6,79E-05	-7,69E-03	-7,14E-03
GWP - GHG	kg CO_2 eq	5,64E+01	5,37E+01	1,09E+00	1,07E+00	5,28E-01	5,15E-01	-2,54E+01	2,48E+01
ODP	kg CFC-11 eq	2,97E-06	2,83E-06	2,61E-07	2,55E-07	1,18E-07	1,15E-07	-1,16E-06	-1,12E-06
POCP	kg NMVOC eq	1,59E-01	1,51E-01	9,26E-03	9,04E-03	6,65E-03	6,49E-03	-7,49E-02	-7,24E-02
AP	mol H+ eq	3,67E-01	3,52E-01	7,63E-03	7,44E-03	5,07E-03	4,95E-03	-2,14E-01	-2,12E-01
EP - freshwater	kg P eq	1,43E-02	1,33E-02	7,13E-05	6,96E-05	2,08E-05	2,03E-05	-4,49E-03	-4,18E-03
EP - marine	kg N eq	6,23E-02	5,92E-02	3,01E-03	2,94E-03	2,20E-03	2,15E-03	-2,54E-02	-2,46E-02
EP - terrestrial	mol N eq	8,53E-01	8,21E-01	3,30E-02	3,22E-02	2,41E-02	2,35E-02	-5,46E-01	-5,39E-01
WDP	m^3 depriv.	1,06E+01	1,01E+01	5,43E-02	5,30E-02	1,37E-02	1,34E-02	-3,60E+00	-3,42E+00
ADP - F	MJ	7,13E+02	6,81E+02	1,73E+01	1,69E+01	7,59E+00	7,41E+00	-3,14E+02	-3,07E+02
ADP - MM	kg Sb eq	5,91E-04	5,50E-04	2,56E-06	2,50E-06	4,80E-07	4,69E-07	-7,79E-05	-7,24E-05
PERE	MJ	4,82E+01	4,59E+01	2,65E-01	2,59E-01	6,91E-02	6,74E-02	-1,92E+01	-1,85E+01
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	4,82E+01	4,59E+01	2,65E-01	2,59E-01	6,91E-02	6,74E-02	-1,92E+01	-1,85E+01
PENRE	MJ	7,40E+02	7,06E+02	1,71E+01	1,67E+01	7,49E+00	7,31E+00	-3,31E+02	-3,23E+02
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	7,40E+02	7,06E+02	1,71E+01	1,67E+01	7,49E+00	7,31E+00	-3,31E+02	-3,23E+02
SM	kg	1,58E+00	1,47E+00	0,00E+00	0,00E+00	3,74E-03	3,65E-03	-5,18E+00	-4,81E+00
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	7,44E+01	2,84E-01	8,53E-01	3,78E-03	2,29E-01	1,07E-03	-3,92E+01	-2,07E-01
HW	kg	8,88E-01	8,45E-01	0,00E+00	0,00E+00	3,71E-03	3,62E-03	-9,76E-01	-9,06E-01
NHW	kg	5,76E+00	5,48E+00	0,00E+00	0,00E+00	1,61E-02	1,57E-02	-6,10E+00	-5,67E+00
RW	kg	4,33E-03	4,10E-03	0,00E+00	0,00E+00	6,65E-04	6,49E-04	-3,96E-03	-3,68E-03
REUSE	kg	0	0	0	0	0	0	0	0
RECYCLE	kg	3,26E-02	3,08E-02	0,00E+00	0,00E+00	3,58E-03	3,49E-03	-6,35E+00	-5,90E+00
EN-REC	kg	0	0	0	0	0	0	0	0
EE-E	MJ	0	0	0	0	0	0	0	0
EE-T	MJ	0	0	0	0	0	0	0	0

12. NOTES ON SUSTAINABILITY

It is specified that the types of wall and roof panels are designed and manufactured to be **disassembled** and **reused**.
With particular reference to the individual parts that make up the panels, it is specified that they may, after separation, be destined for **recycling**, **recovery** or **disposal** depending on the type of material and in particular it should be noted that, in line with what is indicated in the "Report special waste" of ISPRA - No. 321/2020:
- the amount of **steel** destined for recycling is **89%**;
- the quantity of **mineral wool** destined for recycling is equal to **76.3%**.

All emissions generated by processing are conveyed into the atmosphere and where necessary are equipped with adequate **abatement systems** before they are released into the environment.

During the manufacturing process of the insulation panels:
- no flame retardants subject to restrictions or prohibitions provided for by applicable national or community regulations are used;
- no blowing agents with an ozone reduction potential greater than zero are used;
- no lead catalysts are used;
- the mineral wool used complies with note Q or note R referred to in Regulation (EC) no. 1272/2008 (CLP) and subsequent amendments (29).

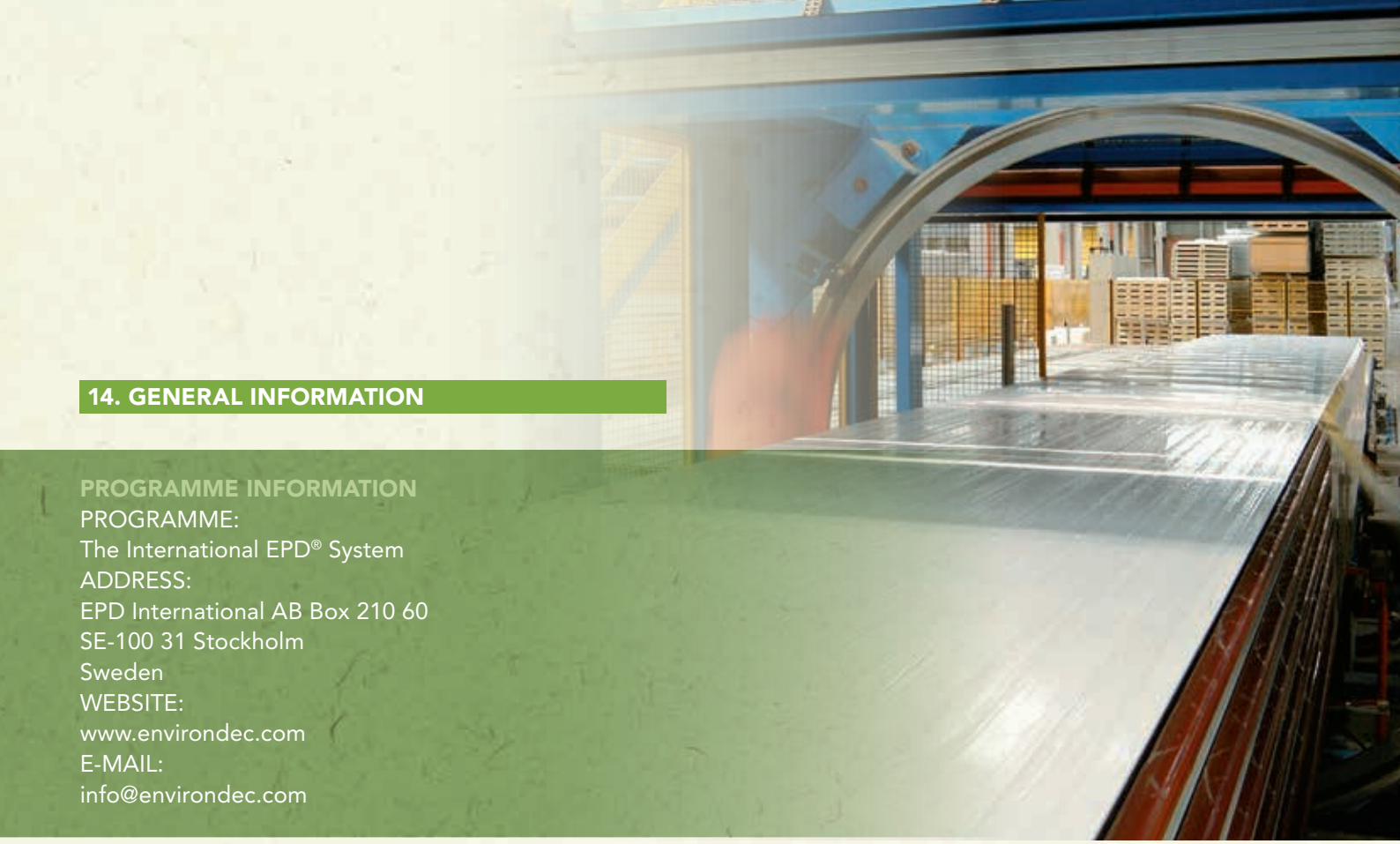
The steel used for the metal supports of the insulating panels has a **recycled content of 28.9%**.

The mineral wool used has a **recycled content greater than 25%**.

The company is able to provide insulated panels in polyurethane foam with the latter characterized by a **recycled content greater than 1%**.

13. REFERENCES

- General Programme Instructions of the International EPD® System. Version 3.01;
- PCR 2019:14 - Version 1.11 "CONSTRUCTION PRODUCTS" - Date 2021-02-05;
- c-PCR-005 "THERMAL INSULATION PRODUCTS" - Date of publication 2019-12-20;
- Product Category Rules for Type III environmental product declaration of construction products to UNI EN 15804:2012;
- Ecoinvent database v.3.7.1 - March 2021;
- http://unstats.un.org/unsd/default.htm;
- UNI EN ISO 14025: 2010 "Environmental labels and declarations - Type III environmental declarations - Principles and procedures";
- UNI EN ISO 14040: 2021 "Environmental management - Life cycle assessment - Principles and framework";
- UNI EN ISO 14044:2021 "Environmental management - Life cycle assessment - Requirements and guidelines";
- UNI EN ISO 15804:2019 "Sustainability of buildings - Environmental product declarations - Development framework rules by product category";
- European Residual Mixes 2019 Association of Issuing Bodies "European Residual Mixes Results of the calculation of Residual Mixes for the calendar year 2019" - version 1.1, 2020-09-08;
- ISPRA "Special waste report" - n° 321/2020 - Ed. 2020;
- Life Cycle Assessment Report "Insulated panels in polyurethane foam and mineral rock wool for roof and wall" - Marcegaglia Buildtech S.r.l. - rev. 2 07/12/2021;
- Life Cycle Assessment Report "Pickled - rolled - galvanized - painted coils" - Marcegaglia Carbon Steel S.p.A. - Ravenna plant - rev.2 07/07/2021.



14. GENERAL INFORMATION

PROGRAMME INFORMATION
PROGRAMME:
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WEBSITE:
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info@environdec.com

CEN standard EN 15804 serves as the Core Product Category Rules (PCR).

Product category rules (PCR):
Construction products, 2019:14, version 1.11,
UN CPC 54, valid until 20-12-2024

PCR review was conducted by:
The Technical Committee of the International EPD® System.
Review chair: Claudia A. Peña - Contact via the Secretariat www.environdec.com/contact

Independent third-party verification of the declaration and data according to ISO 14025:2010:
☐ EPD process verification
☒ EPD verification

Third-party verifier:
Guido Croce
In case of individual verifiers:
Approved by: The International EPD® System Technical Committee, supported by the Secretariat

Procedure for follow-up of data during EPD validity involves third party verifier:
☒ YES
☐ NO

The EPD owner has the sole ownership, liability and responsability for this EPD.

EPDs within the same product category but from different programs may not be comparable.
EPDs of construction products may not be comparable if they do not comply with UNI EN 15804. For further information about comparability, refer to UNI EN 15804 and UNI EN ISO 14025:2010

To obtain more information about this product declaration and/or its configurations, the following references are available:
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