

Sandwich panels with mineral wool insulation core

Environmental product declaration summary

Alajärvi plant

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ENVIRONMENTAL DATA FOR RUUKKI SPA SANDWICH PANELS MANUFACTURED IN ALAJÄRVI, FINLAND

INTRODUCTION

Welcome to the summary document of Ruukki Sandwich Panels' Environmental Product Declarations (EPDs). In an era where environmental concerns are at the forefront of decision-making processes, understanding the impact of construction materials is of utmost importance. Ruukki Sandwich Panels, a leading provider of sustainable building solutions, is committed to transparency and providing accurate information about the environmental performance of their products.

EPDs offer valuable insights into the environmental impact of construction materials throughout their life cycle. They provide a comprehensive assessment of various factors, such as raw material extraction, manufacturing processes, energy consumption, emissions, and waste generation. By analyzing this data, stakeholders can make informed decisions to minimize their environmental footprint and prioritize sustainability without compromising on quality, durability, or aesthetics.

RUUKKI® LOWCARBON PRODUCTS

The summary document includes results also for Ruukki LowCarbon sandwich panels that are part of Ruukki® LowCarbon sustainable product offering. Ruukki LowCarbon sandwich panels consist of mineral wool insulating core bonded between two colour-coated steel sheets made from SSAB Zero™ recycled steel.

CARBON FOOTPRINT AND CIRCULARITY AS MAIN DRIVERS

This document focuses on two key environmental indicators: Global Warming Potential Values (GWP) and recycled content. Additionally in GWP results, Module D, which represents future benefits beyond the system boundary, is further divided into two categories: recycling potential and energy recovery potential.

The GWP values provide a comprehensive assessment of the environmental impact of Ruukki Construction's mineral wool panels. By evaluating factors such as raw material extraction, manufacturing processes, and transportation, the GWP indicator offers valuable insights into the panels' global environmental footprint. GWP values are presented for product stage A1-A3, construction stage A4-A5, use stage B2 and end of life stage C1-C4. Based on the new EN 15804+A2 standard, the GWP is split into several different subcategories. In this document, we present the most used GWP categories: GWP-total and GWP-fossil. GWP-total takes into account the biogenic carbon storage that is for example in the packaging pallets of Ruukki's product packaging. GWP-fossil does not take into account the biogenic carbon storage. The biogenic carbon storage is released when the pallets are incinerated.

Module D, divided into recycling potential and energy recovery potential, presents a forward-looking perspective on the environmental benefits of Ruukki Construction's mineral wool panels after their life-cycle. The recycling potential category assesses the panels' potential for future recycling, promoting resource efficiency and waste reduction. The energy recovery potential category evaluates the panels' ability to be used as an energy source through energy recovery processes.

Furthermore, the recycled content, also known as secondary material content, of these mineral wool panels is a crucial aspect of their sustainability profile. This indicator quantifies the proportion of recycled materials used in the manufacturing process of the sandwich panel, highlighting the product's contribution to the circular economy and reduced reliance on virgin resources.

By examining these environmental indicators and categories, this summary document provides a comprehensive understanding of Ruukki Construction's mineral wool panels' environmental performance. Through a commitment to sustainable manufacturing and innovative design, Ruukki Construction aims to minimize their environmental impact while providing high-quality construction solutions.

This summary is based on full EPDs, made according to standard EN 15804+A2, and are available through the EPD Hub website (use "Ruukki" in search field): <https://manage.epdhub.com/>

The EPDs can also be accessed by clicking the sandwich panel name in the tables below. The link will forward you to the right EPD on the EPD Hub website.

RUUKKI LOWCARBON SANDWICH PANEL VALUES ARE PRESENTED IN TABLE 1 AND 2.
VALUES FOR RUUKKI'S STANDARD SANDWICH PANELS ARE PRESENTED IN TABLE 3, 4 AND 5.

Table 1: GWP-total and GWP-fossil values for 1 m² of Ruukki LowCarbon sandwich panel.

Panel type and thickness	Unit	A1	A2	A3	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	D1*	D2*
GWP-total															
SPA E Life 150 LowCarbon	kg CO ₂ e/m ²	19,60	0,65	0,15	20,40	1,34	3,13	1,25	0,08	0,10	0,17	0,06	-2,92	-2,46	-0,46
SPA E Life 200 LowCarbon	kg CO ₂ e/m ²	22,30	0,75	0,17	23,20	1,53	3,35	1,25	0,08	0,11	0,17	0,07	-3,03	-2,50	-0,53
SPA E Life 230 LowCarbon	kg CO ₂ e/m ²	24,40	0,83	0,17	25,40	1,68	3,53	1,25	0,08	0,12	0,17	0,09	-3,11	-2,53	-0,58
SPA EE 230 LowCarbon	kg CO ₂ e/m ²	16,80	0,98	0,19	17,90	1,87	3,53	1,25	0,08	0,14	0,17	0,11	-3,22	-2,57	-0,65
SPA F&S 230 LowCarbon	kg CO ₂ e/m ²	21,00	1,43	0,29	22,80	2,73	4,33	1,25	0,08	0,20	0,17	0,18	-3,69	-2,75	-0,94
GWP-fossil															
SPA E Life 150 LowCarbon	kg CO ₂ e/m ²	19,60	0,65	1,01	21,20	1,34	2,27	1,13	0,08	0,10	0,19	0,06	-2,92	-2,45	-0,46
SPA E Life 200 LowCarbon	kg CO ₂ e/m ²	22,30	0,75	1,15	24,20	1,53	2,36	1,13	0,08	0,11	0,19	0,08	-3,03	-2,49	-0,53
SPA E Life 230 LowCarbon	kg CO ₂ e/m ²	24,30	0,83	1,27	26,40	1,68	2,42	1,13	0,08	0,12	0,19	0,09	-3,10	-2,52	-0,58
SPA EE 230 LowCarbon	kg CO ₂ e/m ²	16,70	0,98	1,41	19,10	1,87	2,31	1,13	0,08	0,14	0,19	0,11	-3,21	-2,56	-0,64
SPA F&S 230 LowCarbon	kg CO ₂ e/m ²	21,00	1,43	2,06	24,50	2,73	2,56	1,13	0,08	0,20	0,19	0,18	-3,68	-2,74	-0,94

*D1: Recycling, D2: Energy recovery, D = D1+D2

Table 2: Recycled material content of 1 m² of Ruukki LowCarbon sandwich panel (secondary material inputs, based on standard EN 15804+A2).

Panel type and thickness	Panel weight [kg]	Secondary material (A1-A3) [kg]	Secondary material [%]
SPA E Life 150 LowCarbon	18,39	16,6	90
SPA E Life 200 LowCarbon	20,99	18,6	88,2
SPA E Life 230 LowCarbon	22,99	20,1	87,1
SPA EE 230 LowCarbon	26,74	9,94	36,7
SPA F&S 230 LowCarbon	38,24	9,99	25,7

Table 3: GWP–total values for 1 m² of a sandwich panel.

Panel type and thickness	Unit	A1	A2	A3	A1–A3	A4	A5	B2	C1	C2	C3	C4	D	D1*	D2*
SPA E Life 150	kg CO ₂ e/m²	34,80	0,378	0,094	35,30	0,835	3,17	1,20	0,11	0,085	0,199	0,051	-17,0	-16,6	-0,4
SPA E Life 200	kg CO ₂ e/m²	37,30	0,414	0,121	37,90	0,953	3,37	1,20	0,11	0,096	0,199	0,065	-17,1	-16,7	-0,4
SPA E Life 230	kg CO ₂ e/m²	39,30	0,442	0,161	39,90	1,04	3,52	1,20	0,11	0,105	0,199	0,075	-17,2	-16,7	-0,5
SPA E 100	kg CO ₂ e/m²	28,90	0,504	0,109	29,50	0,807	3,02	1,20	0,062	0,082	0,199	0,048	-17,0	-16,6	-0,4
SPA E 125	kg CO ₂ e/m²	29,80	0,577	0,125	30,50	0,916	3,17	1,20	0,062	0,093	0,199	0,06	-17,1	-16,7	-0,4
SPA E 150	kg CO ₂ e/m²	30,60	0,647	0,141	31,40	1,02	3,32	1,20	0,062	0,103	0,199	0,072	-17,2	-16,7	-0,5
SPA E 175	kg CO ₂ e/m²	31,30	0,701	0,131	32,10	1,10	3,43	1,20	0,062	0,111	0,199	0,082	-17,3	-16,8	-0,5
SPA E 200	kg CO ₂ e/m²	32,00	0,765	0,179	33,00	1,20	3,57	1,20	0,062	0,121	0,199	0,093	-17,4	-16,9	-0,5
SPA E 230	kg CO ₂ e/m²	33,10	0,853	0,176	34,10	1,33	3,74	1,20	0,062	0,134	0,199	0,107	-17,6	-17,0	-0,6
SPA EE 200	kg CO ₂ e/m²	31,00	0,683	0,148	31,90	1,08	3,40	1,20	0,062	0,109	0,199	0,079	-17,3	-16,8	-0,5
SPA EE 230	kg CO ₂ e/m²	31,70	0,741	0,145	32,60	1,16	3,55	1,20	0,062	0,117	0,199	0,088	-17,4	-16,9	-0,5
SPA EE 300	kg CO ₂ e/m²	33,60	0,899	0,191	34,70	1,40	3,86	1,20	0,062	0,141	0,199	0,115	-17,7	-17,0	-0,7
SPA F&S 100	kg CO ₂ e/m²	30,10	0,607	0,126	30,90	0,962	3,24	1,20	0,062	0,097	0,199	0,066	-17,1	-16,7	-0,4
SPA F&S 125	kg CO ₂ e/m²	31,30	0,708	0,137	32,20	1,11	3,43	1,20	0,062	0,112	0,199	0,083	-17,3	-16,8	-0,5
SPA F&S 150	kg CO ₂ e/m²	32,50	0,808	0,153	33,50	1,26	3,70	1,20	0,062	0,127	0,199	0,1	-17,5	-16,9	-0,6
SPA F&S 175	kg CO ₂ e/m²	33,50	0,887	0,176	34,50	1,38	3,86	1,20	0,062	0,139	0,199	0,113	-17,7	-17,0	-0,7
SPA F&S 200	kg CO ₂ e/m²	34,50	0,975	0,216	35,70	1,51	4,02	1,20	0,062	0,152	0,199	0,128	-17,8	-17,1	-0,7
SPA F&S 230	kg CO ₂ e/m²	36,00	1,10	0,217	37,40	1,70	4,31	1,20	0,062	0,171	0,199	0,149	-18,0	-17,2	-0,8
SPA I 100	kg CO ₂ e/m²	28,90	0,504	0,109	29,50	0,807	3,02	1,20	0,062	0,082	0,199	0,048	-17,0	-16,6	-0,4
SPA I 125	kg CO ₂ e/m²	29,80	0,577	0,125	30,50	0,916	3,17	1,20	0,062	0,093	0,199	0,06	-17,1	-16,7	-0,4
SPA I 150	kg CO ₂ e/m²	30,60	0,647	0,141	31,40	1,02	3,32	1,20	0,062	0,103	0,199	0,072	-17,2	-16,7	-0,5

*D1: Recycling, D2: Energy recovery, D = D1+D2

Table 4: GWP–fossil values for 1 m² of a sandwich panel.

Panel type and thickness	Unit	A1	A2	A3	A1–A3	A4	A5	B2	C1	C2	C3	C4	D	D1*	D2*
SPA E Life 150	kg CO ₂ e/m²	35,10	0,337	0,885	36,30	0,842	2,40	1,10	0,106	0,084	0,211	0,051	-17,0	-16,6	-0,4
SPA E Life 200	kg CO ₂ e/m²	37,80	0,414	1,01	39,20	0,961	2,49	1,10	0,106	0,096	0,211	0,064	-17,1	-16,7	-0,4
SPA E Life 230	kg CO ₂ e/m²	39,80	0,442	1,10	41,40	1,05	2,56	1,10	0,106	0,105	0,211	0,075	-17,2	-16,7	-0,5
SPA E 100	kg CO ₂ e/m²	28,90	0,504	0,851	30,30	0,814	2,27	1,10	0,06	0,082	0,211	0,048	-16,9	-16,6	-0,3
SPA E 125	kg CO ₂ e/m²	29,80	0,576	0,966	31,30	0,924	2,32	1,10	0,06	0,093	0,211	0,06	-17,1	-16,7	-0,4
SPA E 150	kg CO ₂ e/m²	30,60	0,646	1,08	32,40	1,03	2,37	1,10	0,06	0,103	0,211	0,072	-17,2	-16,7	-0,5
SPA E 175	kg CO ₂ e/m²	31,30	0,701	1,17	33,20	1,11	2,41	1,10	0,06	0,111	0,211	0,081	-17,3	-16,8	-0,5
SPA E 200	kg CO ₂ e/m²	32,10	0,764	1,27	34,10	1,21	2,46	1,10	0,06	0,121	0,211	0,092	-17,4	-16,9	-0,5
SPA E 230	kg CO ₂ e/m²	33,20	0,852	1,41	35,40	1,34	2,52	1,10	0,06	0,134	0,211	0,107	-17,6	-17,0	-0,6
SPA EE 200	kg CO ₂ e/m²	31,10	0,683	1,14	32,90	1,08	2,40	1,10	0,06	0,109	0,211	0,078	-17,3	-16,8	-0,5
SPA EE 230	kg CO ₂ e/m²	31,80	0,74	1,23	33,80	1,17	2,44	1,10	0,06	0,117	0,211	0,088	-17,4	-16,9	-0,5
SPA EE 300	kg CO ₂ e/m²	33,70	0,898	1,48	36,10	1,41	2,55	1,10	0,06	0,141	0,211	0,115	-17,7	-17,0	-0,7
SPA F&S 100	kg CO ₂ e/m²	30,20	0,607	1,02	31,80	0,97	2,35	1,10	0,06	0,097	0,211	0,065	-17,1	-16,7	-0,4
SPA F&S 125	kg CO ₂ e/m²	31,40	0,707	1,17	33,30	1,12	2,42	1,10	0,06	0,112	0,211	0,083	-17,3	-16,8	-0,5
SPA F&S 150	kg CO ₂ e/m²	32,60	0,807	1,34	34,80	1,27	2,48	1,10	0,06	0,127	0,211	0,1	-17,5	-16,9	-0,6
SPA F&S 175	kg CO ₂ e/m²	33,60	0,886	1,46	35,90	1,39	2,54	1,10	0,06	0,139	0,211	0,113	-17,7	-17,0	-0,7
SPA F&S 200	kg CO ₂ e/m²	34,60	0,974	1,60	37,20	1,52	2,60	1,10	0,06	0,152	0,211	0,128	-17,8	-17,1	-0,7
SPA F&S 230	kg CO ₂ e/m²	36,20	1,10	1,80	39,10	1,71	2,69	1,10	0,06	0,171	0,211	0,149	-18,1	-17,2	-0,8
SPA I 100	kg CO ₂ e/m²	28,90	0,504	0,851	30,30	0,814	2,27	1,10	0,06	0,082	0,211	0,048	-16,9	-16,6	-0,3
SPA I 125	kg CO ₂ e/m²	29,80	0,576	0,966	31,30	0,924	2,32	1,10	0,06	0,093	0,211	0,06	-17,1	-16,7	-0,4
SPA I 150	kg CO ₂ e/m²	30,60	0,646	1,08	32,40	1,03	2,37	1,10	0,06	0,103	0,211	0,072	-17,2	-16,7	-0,5

*D1: Recycling, D2: Energy recovery, D = D1+D2

Table 5: Recycled material content of 1 m² of sandwich panel (secondary material inputs, based on standard EN 15804+A2).

Panel type and thickness	Panel weight [kg]	Secondary material (A1-A3) [kg]	Secondary material [%]
SPA E Life 150	18,39	7,05	38,3
SPA E Life 200	20,99	9,01	42,9
SPA E Life 230	22,99	10,5	45,8
SPA E 100	17,79	0,308	1,73
SPA E 125	20,19	0,309	1,53
SPA E 150	22,49	0,309	1,37
SPA E 175	24,29	0,309	1,27
SPA E 200	26,39	0,31	1,17
SPA E 230	29,29	0,31	1,06
SPA EE 200	23,69	0,309	1,31
SPA EE 230	25,59	0,309	1,21
SPA EE 300	30,79	0,31	1,01
SPA F&S 100	21,19	0,309	1,46
SPA F&S 125	24,49	0,309	1,26
SPA F&S 150	27,79	0,31	1,11
SPA F&S 175	30,39	0,31	1,02
SPA F&S 200	33,29	0,31	0,933
SPA F&S 230	37,39	0,311	0,832
SPA I 100	17,79	0,308	1,73
SPA I 125	20,19	0,309	1,53
SPA I 150	22,49	0,309	1,37

We make steel-based products for walls and roofs, for both commercial buildings and private homes. We're a supplier of high-quality products, systems and solutions, developed sustainably and to live up to the highest demands on durability in harsh conditions.

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