



KNAUF

Life Cycle Impact Reduction Action Plan

For LEED version 4.1 credit:
Environmental Product Declarations, Option 2
(BD+C and ID+C rating systems)

Company:

Knauf di Knauf S.r.l S.a.s

Products Included:

***Diamant 12,5 mm
plasterboards***

Build on us.

Life Cycle Impact Reduction Action Plan Report

Impact information and Reduction Summary

Manufacturer:	Knauf di Knauf S.r.l S.a.s																												
Manufacturer Contact Information:	paola.andrisano@knauf.com																												
Product Name:	DIAMANT 12,5 mm plasterboard, manufactured by Knauf di Knauf S.r.l S.a.s.																												
Product Type:	Commercial Building Product																												
Product Description:	Building product designed for use in the residential sector																												
Location where the product was manufactured:	Castellina Marittima (PI), Italy																												
Title of the Life Cycle Assessment/ Environmental Product Declaration that the Assessment is Based Upon:	Life Cycle Assessment delle lastre in cartongesso: GKB, GKI, GKF, A-ZERO, F-ZERO, DIAMANT, KASA, FLEXILASTRA Prodotti da: Knauf di Knauf S.r.l S.a.s. Stabilimento di Castellina Marittima (Pisa), Italia																												
Life Cycle Assessment/ Environmental Product Declaration Type:	<input type="checkbox"/> Publicly available, critically reviewed LCA (conforming to ISO 14044) <input type="checkbox"/> Internally verified LCA with a product specific EPD (conforming to ISO 14025, EN 15804, or ISO 21930) <input checked="" type="checkbox"/> Product specific Type III EPD (external verification of LCA and EPD)																												
Link to publicly available LCA or EPD	https://sostenibilita.knauf.it/EPD.aspx																												
LCA Framework/PCR	PCR 2012:01 Construction products and construction services, Version 2.3																												
Date of LCA or EPD:	EPD 2020/04/22																												
Scope:	<table border="1"> <thead> <tr> <th>Product stage</th> <th>Construction process stage</th> <th colspan="2">Use stage - No impacts</th> <th>End of Life stage</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> A1</td> <td><input checked="" type="checkbox"/> A4</td> <td><input type="checkbox"/> B1</td> <td><input type="checkbox"/> B5</td> <td><input checked="" type="checkbox"/> C1</td> </tr> <tr> <td><input checked="" type="checkbox"/> A2</td> <td><input checked="" type="checkbox"/> A5</td> <td><input type="checkbox"/> B2</td> <td><input type="checkbox"/> B6</td> <td><input checked="" type="checkbox"/> C2</td> </tr> <tr> <td><input checked="" type="checkbox"/> A3</td> <td></td> <td><input type="checkbox"/> B3</td> <td><input type="checkbox"/> B7</td> <td><input type="checkbox"/> C3 - Not applicable</td> </tr> <tr> <td></td> <td></td> <td><input type="checkbox"/> B4</td> <td></td> <td><input checked="" type="checkbox"/> C4</td> </tr> </tbody> </table>	Product stage	Construction process stage	Use stage - No impacts		End of Life stage	<input checked="" type="checkbox"/> A1	<input checked="" type="checkbox"/> A4	<input type="checkbox"/> B1	<input type="checkbox"/> B5	<input checked="" type="checkbox"/> C1	<input checked="" type="checkbox"/> A2	<input checked="" type="checkbox"/> A5	<input type="checkbox"/> B2	<input type="checkbox"/> B6	<input checked="" type="checkbox"/> C2	<input checked="" type="checkbox"/> A3		<input type="checkbox"/> B3	<input type="checkbox"/> B7	<input type="checkbox"/> C3 - Not applicable			<input type="checkbox"/> B4		<input checked="" type="checkbox"/> C4	<input type="checkbox"/> Module D: Future, reuse, recycling or energy recovery potentials – Not applicable		
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Describe how the scope of the product LCA or EPD aligns with actions identified in this Action Plan	The Knauf Group has set important targets in terms of reducing the environmental impacts of all its production activities. The themes on which these goals are identified are: circular economy, reduction of CO ₂ emissions, reduction of chemicals in products, and reduction of water and energy consumption.																												
LCA Software and Version:	SIMAPRO 9																												
LCA Dataset:	Ecoinvent 3.5 Database																												
Action Plan Creation Date:	November 10, 2023																												
Action Plan Expiration Date: (must be 4 years or less)	April 22, 2025																												
Is this Action Plan applicable to all products listed in the corresponding LCA or EPD, or only a subset?	Yes, 100%. The Action Plan is applicable to all plasterboard thicknesses indicated in the corresponding EPD manufactured by Knauf di Knauf S.r.l S.a.s. since the Castellina Marittima (PI) facility is our only manufacturing location for this product.																												

Table or Summary of Largest Life Cycle Impacts identified in the Analysis (must include GWP):

		2020	2022	2022/2020
		DIAMANT 12,5 mm	DIAMANT 12,5 mm	%
GLOBAL WARMING KG CO ₂ EQ/DU	Product A1-A3	3,24	3,15	
	Transport A4	0,88	0,84	
	Installation A5	0,06	0,0604	
	Use (B)	0	0	
	End of cycle (C)	0,16	0,154	
	Tot	4,34	4,20	97%
NOW RENEWABLE RESOURCES CONSUMPTION MJ/DU	Product A1-A3	48,12	47,4	
	Transport A4	13,29	12,5	
	Installation A5	0,79	0,758	
	Use (B)	0	0	
	End of cycle (C)	3,24	3,16	
	Tot	65,44	63,82	98%
ENERGY CONSUMPTION MJ/DU	Product A1-A3	53,94	52,8	
	Transport A4	13,8	13	
	Installation A5	0,88	0,843	
	Use (B)	0	0	
	End of cycle (C)	3,36	3,22	
	Tot	71,98	69,86	97%
WATER CONSUMPTION M3/DU	Product A1-A3	0,0202	0,208	
	Transport A4	0,0028	0,00121	
	Installation A5	0,0005	0,000435	
	Use (B)	0	0	
	End of cycle (C)	0,0025	0,0021	
	Tot	0,0260	0,0245	94%
WASTE PRODUCTION KG/DU	Product A1-A3	0,2272479	0,226	
	Transport A4	0,64810138	0,611	
	Installation A5	0,30300498	0,305	
	Use (B)	0	0	
	End of cycle (C)	12,8	12,9	
	Tot	13,98	14,04	100%

Figure 1 - Comparison of potential environmental impacts between 2020 and 2022, values referring to 1 m² of DIAMANT 12,5 mm plasterboard.

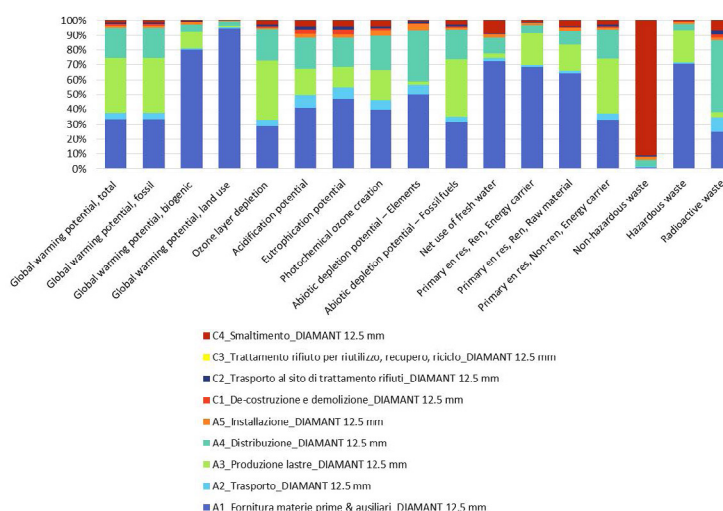


Figure 2- Impacts by life cycle stages referred to 1 m² of DIAMANT 12,5 mm plasterboard.

	<p>Figure 1 illustrates the changes in the five environmental impacts categories with reference to the years 2020 and 2022. In the categories Global Warming, Non-Renewable Resources Consumption, Energy Consumption and Water Consumption, there is an average decrease of -3.5%. It therefore means that the environmental performance of DIAMANT 12.5 mm plasterboard has improved. Regarding the Waste Production category, the increase of +0.43% (from 13,98% to 14,04 %) in 2022 is due to an increase in the production of the plasterboards and thus more waste to be treated.</p> <p>Figure 2 shows that the processes that contribute the most to the impacts are the raw material supply/ supply and plasterboard production phase (modules A1-A3), with contributions ranging from 67% to 96% for all impact categories. This is followed by the distribution phase (transportation in module A4) of the finished product with an average percentage of 1.6 percent. Transportation in modules A2 and C2 contribute less than 9% to the impacts. The installation phase (module A5) has a negligible contribution on the impact categories, less than 4%. Regarding total energy consumption, the phases of raw material supply/supply and plasterboard production (modules A1 - A3) contribute the most, with a maximum share of 91%. The same trend in results occurs regarding the category of water resource consumption, in which modules A1 - A3 are the largest contributors to impacts, participating with a percentage of 78 percent.</p> <p>Since the entire product is sent to landfill, the phase that contributes most to the impacts is the waste landfilling phase (module C4), with a contribution on the impact categories of less than 8 percent.</p>																
<p>Narrative Description of the Impact Areas Targeted for Reduction (must include specific steps, dates, and timeline for completion, and include why/why not GWP is targeted for reduction and include a numeric impact reduction target. Actions must correspond to impact modules analyzed in the LCA or EPD):</p>	<p>The Sustainability project in Knauf involved the setting up of eight working groups with the aim of defining a shared strategy covering different topics: the circular economy, the reduction of chemicals and the amount of water used in factories, the goal of zero waste sent to landfill and the reduction of CO₂ emissions covering all three scopes. In order to achieve the targets, set in the area of emissions, Knauf has mapped all its factories worldwide with the aim of gaining a detailed knowledge of CO₂ emissions, both per individual production site and in overall terms. The monitoring is necessary to identify critical areas and implement measures to reduce emissions.</p> <table border="1" data-bbox="593 1012 1216 1375"> <thead> <tr> <th>GOALS</th> <th>KPI</th> </tr> </thead> <tbody> <tr> <td>CO₂ Emission (Scope 1&2)</td> <td>50% reduction by 2032</td> </tr> <tr> <td>CO₂ Emission (Scope 3)</td> <td>30% reduction by 2032</td> </tr> <tr> <td>CO₂ Emission (Scope 1, 2 & 3)</td> <td>Net zero by 2045</td> </tr> <tr> <td>Circular Economy</td> <td>Promoting the circular economy in all plants</td> </tr> <tr> <td>Chemicals of concern</td> <td>Zero products containing chemicals by 2032</td> </tr> <tr> <td>Waste</td> <td>Zero waste sent to landfill by 2032</td> </tr> <tr> <td>Water</td> <td>2% annual reduction in water resource consumption</td> </tr> </tbody> </table>	GOALS	KPI	CO ₂ Emission (Scope 1&2)	50% reduction by 2032	CO ₂ Emission (Scope 3)	30% reduction by 2032	CO ₂ Emission (Scope 1, 2 & 3)	Net zero by 2045	Circular Economy	Promoting the circular economy in all plants	Chemicals of concern	Zero products containing chemicals by 2032	Waste	Zero waste sent to landfill by 2032	Water	2% annual reduction in water resource consumption
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<p>This Action Plan was prepared by: (must be prepared by someone with experience conducting product-specific LCAs)</p>	<p>Marharyta Litvinava - Sustainability Specialist</p>																
<p>This Action Plan was confirmed by an executive of the manufacturer:</p>	<p>Paola Andrisano - Sustainability Manager</p>																

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KNAUF di Knauf S.r.l. s.a.s.

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