



# ***Life Cycle Impact Reduction Action Plan***

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

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*Company:*

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

*Products Included:*

***A-Zero 12,5 mm  
plasterboards***

***Build on us.***

## Life Cycle Impact Reduction Action Plan Report

### Impact information and Reduction Summary

<b>Manufacturer:</b>	Knauf di Knauf S.r.l S.a.s			
<b>Manufacturer Contact Information:</b>	<a href="mailto:paola.andrisano@knauf.com">paola.andrisano@knauf.com</a>			
<b>Product Name:</b>	A-Zero 12,5 mm plasterboard, manufactured by Knauf di Knauf S.r.l. S.a.s.			
<b>Product Type:</b>	Commercial Building Product			
<b>Product Description:</b>	Building product designed for use in the residential sector			
<b>Location where the product was manufactured:</b>	Castellina Marittima (PI), Italy			
<b>Title of the Life Cycle Assessment/ Environmental Product Declaration that the Assessment is Based Upon:</b>	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			
<b>Life Cycle Assessment/ Environmental Product Declaration Type:</b>	<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)			
<b>Link to publicly available LCA or EPD</b>	<a href="https://sostenibilita.knauf.it/EPD.aspx">https://sostenibilita.knauf.it/EPD.aspx</a>			
<b>LCA Framework/PCR</b>	PCR 2012:01 Construction products and construction services, Version 2.3			
<b>Date of LCA or EPD:</b>	EPD 2020/05/06			
<b>Scope:</b>	<i>Product stage</i>	<i>Construction process stage</i>	<i>Use stage - No impacts</i>	
	<input checked="" type="checkbox"/> A1 <input checked="" type="checkbox"/> A2 <input checked="" type="checkbox"/> A3	<input checked="" type="checkbox"/> A4 <input checked="" type="checkbox"/> A5	<input type="checkbox"/> B1 <input type="checkbox"/> B2 <input type="checkbox"/> B3 <input type="checkbox"/> B4	<input type="checkbox"/> B5 <input type="checkbox"/> B6 <input type="checkbox"/> B7
	<input checked="" type="checkbox"/> C1 <input checked="" type="checkbox"/> C2 <input type="checkbox"/> C3 - Not applicable <input checked="" type="checkbox"/> C4			
	<input type="checkbox"/> Module D: Future, reuse, recycling or energy recovery potentials – <b>Not applicable</b>			
<b>Describe how the scope of the product LCA or EPD aligns with actions identified in this Action Plan</b>	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 <sub>2</sub> emissions, reduction of chemicals in products, and reduction of water and energy consumption.			
<b>LCA Software and Version:</b>	SIMAPRO 9			
<b>LCA Dataset:</b>	Ecoinvent 3.5 Database			
<b>Action Plan Creation Date:</b>	November 10, 2023			
<b>Action Plan Expiration Date:</b> (must be 4 years or less)	April 22, 2025			
<b>Is this Action Plan applicable to all products listed in the corresponding LCA or EPD, or only a subset?</b>	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
		A-ZERO 12,5 mm	A-ZERO 12,5 mm	%
<b>GLOBAL WARMING</b> KG CO <sub>2</sub> EQ/DU	Product A1-A3	2,79	2,12	
	Transport A4	0,78	0,656	
	Installation A5	0,06	0,0591	
	Use (B)	0	0	
	End of cycle (C)	0,11	0,112	
	<b>Tot</b>	<b>3,74</b>	<b>2,95</b>	<b>79%</b>
<b>NOW RENEWABLE RESOURCES CONSUMPTION</b> MJ/DU	Product A1-A3	43,95	32,6	
	Transport A4	11,7	9,8	
	Installation A5	0,77	0,732	
	Use (B)	0	0	
	End of cycle (C)	2,35	2,29	
	<b>Tot</b>	<b>58,77</b>	<b>45,42</b>	<b>77%</b>
<b>ENERGY CONSUMPTION</b> MJ/DU	Product A1-A3	46,418	35,7	
	Transport A4	12,176	10,1	
	Installation A5	0,8527	0,816	
	Use (B)	0	0	
	End of cycle (C)	2,44105	2,34	
	<b>Tot</b>	<b>61,89</b>	<b>48,96</b>	<b>79%</b>
<b>WATER CONSUMPTION</b> M3/DU	Product A1-A3	0,0178	0,0128	
	Transport A4	0,0025	0,000945	
	Installation A5	0,0005	0,000415	
	Use (B)	0	0	
	End of cycle (C)	0,0018	0,00153	
	<b>Tot</b>	<b>0,0226</b>	<b>0,0157</b>	<b>69%</b>
<b>WASTE PRODUCTION</b> KG/DU	Product A1-A3	0,24	0,126	
	Transport A4	0,57	0,482	
	Installation A5	0,23	0,228	
	Use (B)	0	0	
	End of cycle (C)	9,34	9,34	
	<b>Tot</b>	<b>10,38</b>	<b>10,18</b>	<b>98%</b>

Figure 1 - Comparison of potential environmental impacts between 2020 and 2022, values referring to 1 m<sup>2</sup> of A-Zero 12,5 mm plasterboard.

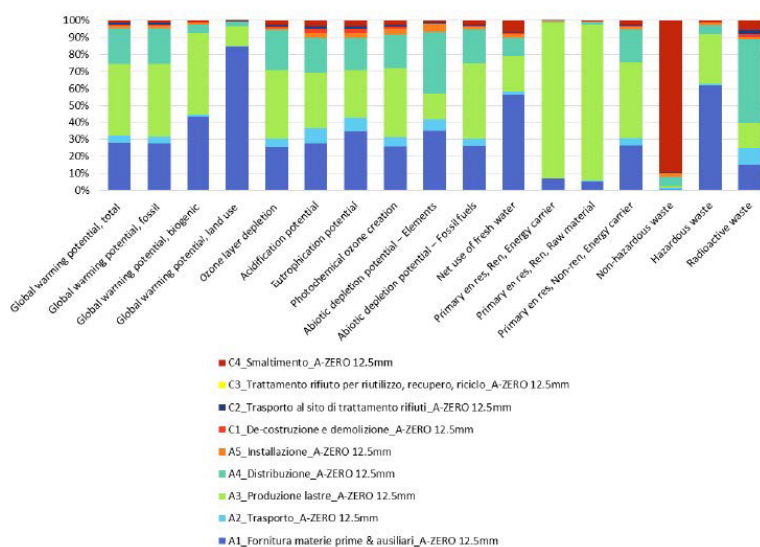


Figure 2- Impacts by life cycle stages referred to 1 m<sup>2</sup> of A-Zero 12,5 mm plasterboard.

	<p>Figure 1 illustrates the changes in the five environmental impacts categories with reference to the years 2020 and 2022. In all categories there is an improvement in the environmental performance of the plasterboards. In the Global Warming and Energy Consumption categories there is a 21% point improvement. In the Non Renewable Resources Consumption category between the two years there is a 23% point improvement. There is much improvement in Water Consumption by 31% points. Although to a lesser extent, Waste Production also shows an improvement of -2%.</p> <p>In Figure 2, the processes contributing to impacts modules A1- A3, with contributions ranging from 71 percent to 98 percent for all impact categories. This is followed by the A4 distribution phase of the finished product with an average percentage of 16 percent. Transportation in modules A2 contributes an average percentage of 20%, except for the categories global warming-biogenic 6%, global warming-land use 3%, abiotic-non-fossil resource consumption 38%, water consumption 10%, non-hazardous waste 9%, hazardous waste 5% and radioactive waste 46%.</p> <p>The installation phase (A5 module) has a negligible contribution on the impact categories, less than 3%. Regarding total energy consumption, the raw material supply/useful materials and plate production phases (modules A1 - A3) contribute the most, with a maximum percentage of 99%. The same trend of results occurs with regard to the category of water resource consumption, in which modules A1 - A3 are the largest contributors to impacts, participating with a percentage of 79 percent.</p> <p>Since the entire product is sent to landfill, the phase that contributes the most to the impacts is the waste landfilling phase (module C4), with an average contribution on the impact categories of 7%. Specifically, regarding the nonhazardous waste category, the contribution of Form C4 goes up to a maximum of 89%.</p>																
<p><b>Narrative Description of the Impact Areas Targeted for Reduction</b> (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 CO<sub>2</sub> 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 CO<sub>2</sub> 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="592 1128 1214 1491"> <thead> <tr> <th>GOALS</th> <th>KPI</th> </tr> </thead> <tbody> <tr> <td>CO<sub>2</sub> Emission (Scope 1&amp;2)</td> <td>50% reduction by 2032</td> </tr> <tr> <td>CO<sub>2</sub> Emission (Scope 3)</td> <td>30% reduction by 2032</td> </tr> <tr> <td>CO<sub>2</sub> Emission (Scope 1, 2 &amp; 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 <sub>2</sub> Emission (Scope 1&2)	50% reduction by 2032	CO <sub>2</sub> Emission (Scope 3)	30% reduction by 2032	CO <sub>2</sub> 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><b>This Action Plan was prepared by:</b> (must be prepared by someone with experience conducting product-specific LCAs)</p>	<p>Marharyta Litvinava - Sustainability Specialist</p>																
<p><b>This Action Plan was confirmed by an executive of the manufacturer:</b></p>	<p>Paola Andrisano - Sustainability Manager</p>																

# KNAUF

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