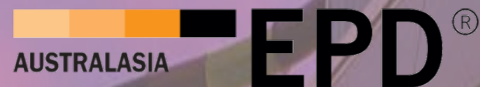


Environmental

Product

Declaration

In accordance with ISO 14025 and EN 15804:2012+A2: 2019



Insulated Wall Panels with a Non-Combustible MW Core
From
Metecno Pty Ltd t/a Bondor®



Leaders in Thermal & Architectural Building Solutions

Program	EPD Australasia, www.epd-australasia.com
Program operator	EPD Australasia Limited
EPD registration number	S-P-08463
Publication date	2023-05-15
Valid until	2028-05-15
Geographic Scope	Australia
Version	001

An EPD should provide current information and maybe updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

Bondor Metecno Insulated Sandwich Panels – made for the Sustainable challenge



Key facts

This EPD provides data for 1m² of insulated sandwich panel with a Mineral Wool (MW) core, manufactured in Brisbane, Australia by Bondor.

This EPD

Published in line with EN 15804 and ISO 14025, providing specific information by walling products and detailed by panel thickness.

Table of Contents

Key facts	2
This EPD	2
Table of Contents	3
General information	4
Company information	5
Product description	6
Product information	6
Recycled content & reuse	8
Green star and IS rating	8
Environmental Product Declaration	8
Bondor®– Panel for the Sustainable Challenge	8
LCA information	13
Declared unit	13
Life Cycle Assessment (LCA) Methodology	14
Panel Manufacturing	15
Cut-off rules	17
Allocation	18
Data Quality and Validation	18
Assumptions, Choices, and Limitations	18
Compliance with Standards	19
Environmental Performance	20
Content information	23
Walling product content information	23
Environmental information	27
Interpretation and Recommendations	53
Interpretation	53
Recommendations	53
References	54

General information

An Environmental Product Declaration (EPD) is a standardised and verified way of quantifying the environmental impacts of a product based on a consistent set of rules known as a Product Category Rules (PCR). This is a specific EPD. The EPD owner has the sole ownership, liability, and responsibility for this EPD.

EPD's within the same product category from different programmes may not be comparable. EPD of construction products may not be comparable if they do not comply with EN15804. For further information on comparability, see EN 15804 and ISO 14025.

Program Information

DECLARATION OWNER



Leaders in Thermal & Architectural Building Solutions

METECNO PTY LTD T/A BONDOR[®]

Head Office

Level 1/121 Ingram Road,
Acacia Ridge, QLD, 4111.

T: +61 (07) 3323 8500

E: info@bondor.com.auW: www.bondor.com.au

EPD PROGRAMME OPERATOR



EPD AUSTRALASIA LIMITED

315a Hardy Street
Nelson, 7010, New Zealand

T: +61 (02) 8005 8206

E: info@epd-australiasia.comW: <https://epd-australiasia.com>

EPD PRODUCED BY



EDGE ENVIRONMENT PTY LTD

Jonas Bengtsson, Szal Kundu, Leah Nguyen and Jessica Cheung
Level 5, 39 East Esplanade,
Manly, NSW, 2095 Australia

T: +61 (02) 9438 0100

E: info@edgeimpact.globalW: www.edgeimpact.global

THIRD PARTY VERIFIER

ANGELA SCHINDLER

Umweltberatung
Salem, Germany

E: angela@schindler-umwelt.de

CEN standard EN 15804+A2:2019/AC2021 serves as the Core Product Category Rules (PCR)

Product category rules (PCR): PCR 2019:14; Construction products (EN 15804+A2) (1.11)

PCR review was conducted by: The Technical Committee of the International EPD[®] System. A full list of members available on www.environdec.com for a list of members. The review panel may be contacted via info@environdec.com. Review chair: Claudia A. Peña, University of Concepción, Chile.

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

EPD process certification
 EPD verification

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes
 No

Company information

Table 1 | Company Information

Company Data	
Owner of the EPD	Metecno Pty Ltd t/a Bondor®
Headquarters	L1/121 Ingram Road, Acacia Ridge, QLD, 4110
Contact Person	Homeira Aryanpad, Technical Service Manager
Contact information	techserv@metecno.com.au
Manufacturer Sites	103 Ingram Road, Acacia Ridge, QLD, 4110



Product description

Bondor® offers non-combustible walling for use in the commercial and residential markets. These products have two steel facings and a mineral wool core and are designed for use where a non-combustible product is required.

These products are CodeMark™ certified and conform to relevant Australian Standards for Structural, Fire and Thermal requirements. They are designed for a range of applications from commercial, industrial, architectural and residential applications.

Product information

Table 2 | Product Information

Product Type	Product Characteristics	Declared Unit	Products Included
MW	Insulated sandwich panel for wall applications with a MW core	1m ²	Equitilt FlameGuard®
			LuxeWall FlameGuard®

Insulated MW core wall panel

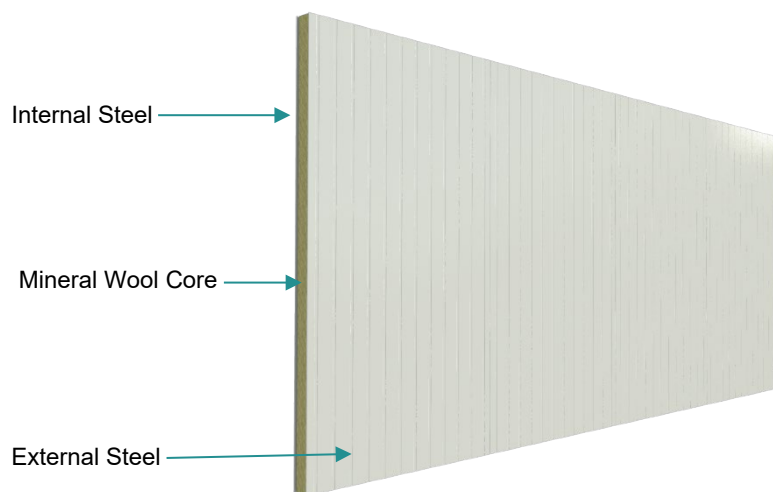
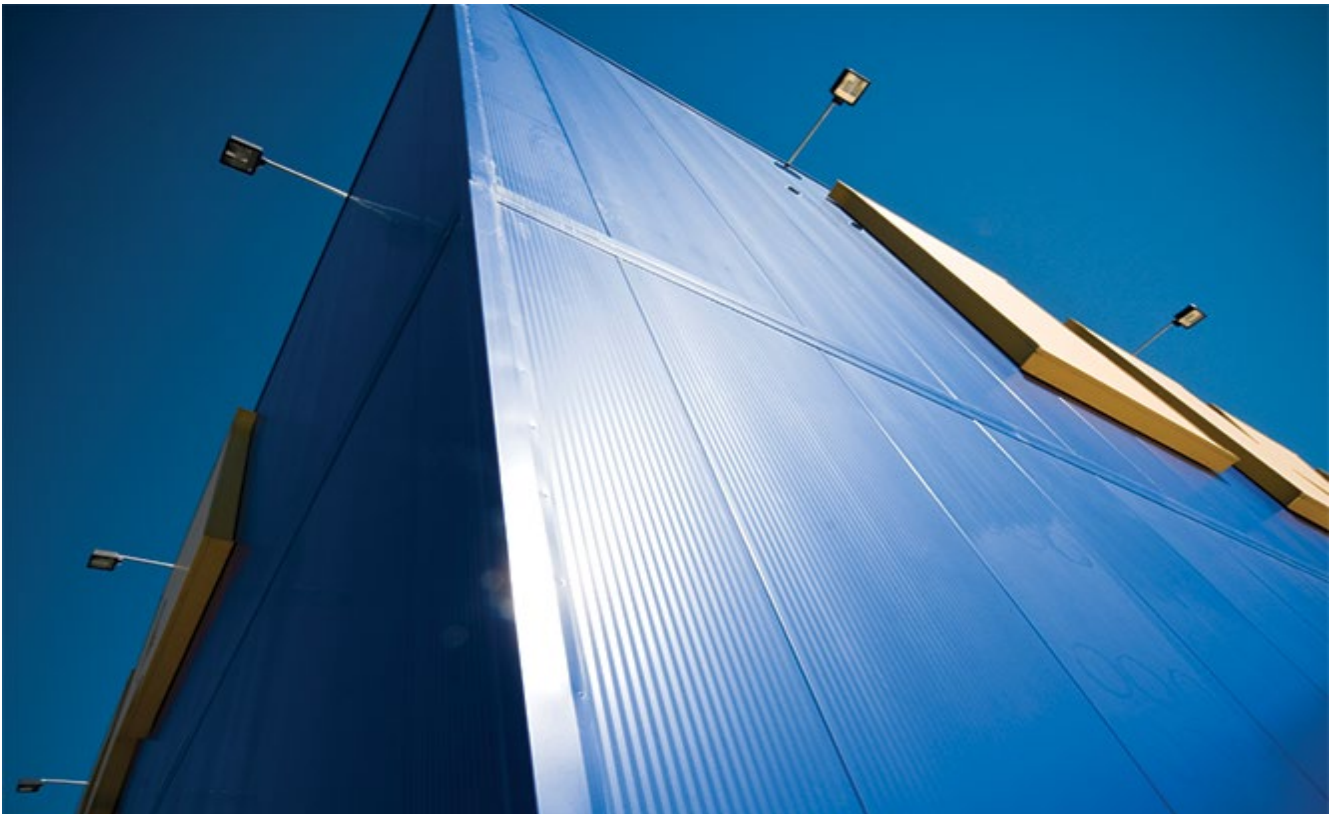


Figure 1: Typical MW walling panel

Typical MW wall panel

All wall panels have steel facings and a core material of non-combustible mineral wool in a range of thicknesses from 50mm to 150mm. Steel facings can be plain or profiled and the panel joints are engineered and can include secret fixed options.



Walling product content information

Equitilt FlameGuard[®]

Equitilt FlameGuard[®] is a non-combustible architectural walling panel system manufactured with a mineral wool fibre core material. Equitilt FlameGuard[®] Plus is FM Approved to FM 4880 & FM 4881 with no height restriction. These panels are recommended to be used where improved fire performance is required for insurance purposes in walling applications.

LuxeWall FlameGuard[®]

LuxeWall FlameGuard[®] is a fire rated architectural boundary wall system tested and approved for both FRL 60/60/60 and FRL 90/90/90 for use in commercial and residential applications. LuxeWall FlameGuard[®] is a lightweight, conceal fixed and architecturally finished high performance wall product that simplifies installation on zero boundary properties where site access is difficult.

Recycled content & reuse

The average recycled content of BlueScope[®] steel is 17.4%, an additional 6.8% is reclaimed within the steelmaking, coating and painting operations of BlueScope[®].

Insulated sandwich panel buildings are long lasting, buildings built in the 1960's are still operational in Australia today. Conservatively we have allowed on average 40 years. Insulated panel buildings can be deconstructed and reassembled at another location, or entire buildings can be transported to another location. Insulated panels are often used in modular construction because they can be factory assembled or they can be built in stages as requirements dictate.

Green star and IS rating

This EPD contributes to the achievement of credits under the green building ratings schemes.

- Independently verified
- Cradle to gate with options, including the modules A1-A5, B2, C1-C4 and D
- Product specific
- Additional Green Star Indicators

Environmental Product Declaration

This EPD provides data for 1m² of insulated sandwich panel with a MW core, manufactured in Australia by Bondor[®], Brisbane, Queensland.

This EPD is of the type 'cradle to gate' with modules A4-A5 (construction), B2 (maintenance), C1-C4 (end of life) and module D (reuse, recovery and/or recycling potential). Other life cycle stages are dependent on how the product is used and should be developed and included as part of a holistic assessment of specific construction works.



Bondor® – Panel for the Sustainable Challenge

Bondor Metecno is Australia's largest manufacturer, distributor and installer of Insulated Sandwich Panels (ISP). Bondor® was founded in 1951 and joined with the global Metecno Group in 2001. Metecno is one of the largest insulated panel businesses in the world with operations in Europe, North and South America, China, South East Asia, South Asia, Australia, New Zealand and the Pacific.

Bondor Metecno has the most extensive coverage for manufacturing insulated sandwich panel in Australia with operations in every state. Bondor Metecno is the only Australian manufacturer of the three internationally recognised insulated panel types, namely EPS-FR cored, Mineral Wool cored, and PIR cored panels. Our portfolio of products means that we have a solution for any project requirement across thermal, fire, structural and acoustic performance.

Bondor® has a manufacturing sites in Brisbane, Queensland for manufacturing insulated sandwich panels with MW core.

The business has invested heavily in research and development including major research programs on sandwich panel performance with Queensland University of Technology and the University of Melbourne. These have included a number of studies into the development and implementation of energy efficient housing and further studies into plastics reduction and recycling in the construction sector.

Inherent advantages of Insulate Sandwich Panels translate into improved sustainability

Our products have a number of inherent advantages over traditional building products in meeting the challenges for an energy efficient and sustainable built environment. The advantages of Insulated Sandwich Panels include challenges for an energy efficient and sustainable built environment. The advantages of Insulated Sandwich Panels include:

- Superior thermal performance
- Light weight
- Quick and easy installation
- Continuous insulation with no gaps, crumbling or sagging
- Air tight seal
- Elimination of interstitial condensation with minimal thermal bridging
- Improved spannability over conventional systems, reducing the structural steel and the number of fixing points
- Replacing multiple products in a traditional built-up system with one panel, resulting in reduced material usage, site waste, transport journeys and improving productivity.

Performance advantages of Insulated Sandwich Panel

Performance advantages of Insulated Sandwich Panels include the following:

- Insulated Sandwich Panels provide an energy efficient building envelope without the need to increase the overall thickness of the wall or roof. ISPs are manufactured and installed with an air tight seal, and when mated together they provide superior thermal performance. The performance does not deteriorate as the insulation does not sag or crumble over time. The air tight seal prevents air leakage, significantly reducing the heating and cooling costs over the life of the building.
- Insulated Sandwich Panels conform to Australian Standards for fire performance ranging from Group 1 to Group 2, Bushfire rating of up to BAL-FZ, and non-combustible where required. The panel facings, core type and installation method can be tailored to suit the project requirements and ensure compliance.
- Considering their light weight and ease of construction, Insulated Panels provide impressive acoustic values depending on the core type, with an R_w (Weighted Sound Reduction Index) of between 24 to 30.
- Best-in-class thermal values that are not possible with bulk insulation.
- Bondor Metecno Insulated Sandwich Panels are CodeMark® certified and conform to relevant Australian Standards such as AS 1562.1, AS 4284, AS/NZS 1170 series, AS 4040 series, AS/NZS 4859.1 and 2, AS 1366, AS 5637.1, AS 1530 series, and in some cases AS 5113. The international insurance standards include FM 4880, 4881 and 4471. This simplifies the pathway to compliance.



Leading the way on research into the performance of Insulated Sandwich Panel contribution to a sustainable built environment

Bondor Metecno is committed to developing products that are perpetually sustainable throughout their lifecycle, from manufacture, installation and occupancy through to end-of-life disposal. To this end the business has formalised collaboration with a number of research organisations, industry groups and other interested parties to work on means of improving the sustainability of the business and the construction sector overall. This has resulted in a series of studies, process improvements and new products that are progressively being rolled out across the business.

This approach is a non-linear, organic process as we test and develop approaches and solutions that align with Australian conditions, our customers and other key stakeholders.

These developments have included

- Transferring the inherent advantages of Insulated Sandwich Panel from its traditional place in the cold chain, to residential markets:
 - A home studied by Queensland University of Technology (QUT) with a family of 4 residing for 12 months, with lived experience achieving 9.5-star energy rating, and the cost of heating & cooling being only 44 cents per day (QUT, 2014).
 - Optimised build time, system modularity and simplification:
 - One insulated roof sheet replacing roof sheet, trusses, insulation and ceiling lining
 - One insulated wall panel replacing external cladding, frames, insulation and internal wall lining
- Insulated sandwich panels can be reused, subject to careful deconstruction and appropriate design of the new building
- Component materials of panel can be recycled individually:
 - Steel facings are 100% recyclable
 - EPS- FR core material can be isolated and compacted for re-use in new forms

All core materials can be re-used in current forms, with significant research well advanced to reduce amounts to landfill, as a first step to achieving full circularity and meaningful recyclability/ re-use of materials.

Third party accreditation

Third party accreditation is a key component of ensuring quality and driving business improvement. Bondor Metecno has the largest number of CodeMark[®] accredited products in the panel industry and has a number of products that are approved by Factory Mutual (FM), an insurance company preferred system. These independent verifications ensure stringent criteria are met, and are subject to ongoing review and audits, ensuring our products meet the critical performance requirements which inspire trust in our brands.

Bondor Metecno have partnered in a study with University of Melbourne aimed at reducing plastics in the construction sector. This study focuses on increasing the reuse and recycling opportunities for plastics within our manufacturing process and from the broader construction sector.

Additionally, Bondor Metecno group is heavily invested in and committed to sustainable manufacturing and building practices, and aligned to the Sustainability Leadership Framework as set out by the Chemistry Australia. Bondor Metecno products are manufactured using non ozone depleting substances, and 80% of our product portfolio are either reusable, or completely recyclable. We are a decentralised manufacturer, with multiple plants closer to the market we serve, reducing the emissions derived from long distance transport, and the overall carbon footprint. We actively employ passive energy techniques where practicable, including rainwater harvesting and aligning production with off peak energy demand periods.

Bondor Metecno is a foundation member of our industry body, The Insulated Panels Association of Australasia (IPCA) which has developed the Code of Practice for the industry and is dedicated to improving the quality and consistency of panel and panel installation. IPCA works closely with other industry groups and regulators and was a contributor to the independent industry study In from the Cold which was tasked with reducing the industry's energy and carbon footprint. Bondor Metecno actively contributes to a variety of committees and research groups developing Australian Standards including the panel industry's Code of Practice for Panel installation and the 2011 study of the performance and impacts of the SEQ floods for insulated panel buildings. Supporting these initiatives,

Bondor Metecno is the only panel manufacturer in Australia with a dedicated NATA approved research and development facility. This facility includes a dedicated structural testing unit with a cyclonic testing capability to replicate the most extreme of Australian conditions.

In broad terms Bondor Metecno Group is committed to improving its carbon footprint and the sustainability of the Australian Built Environment as evidenced by:

Sustainable environmental performance

Bondor Metecno is committed to the continual improvement of our environmental policies and maintaining sustainable building practices, evident throughout involvement with Chemistry Australia's. The full range of Bondor Metecno products are designed and tested for Australian conditions and developed with the health of the Australian environment and community in mind. All of our products use non-ozone-depleting gas and substances, with best-in-class thermal efficiency, which saves in energy costs and benefits the environment (QUT, 2014).

Recyclability

The COLORBOND[®] steel skins of all Bondor Metecno insulated panels are 100% recyclable and have been made using BlueScope steel with 10-30% recycled scrap. Where possible, Bondor Metecno actively source production inputs that are either recycled or recyclable to reduce our environmental footprint. We collaborate with supply partners and research institutions on a range of programs to evaluate opportunities for innovation, and continually invest in the latest technologies to support this.

Reusability

Bondor Metecno insulated panels are installed by a combination of screws, rivets and adhesives; and can be easily disassembled to be reused and reconstructed for other applications. The mastic and or silicone sealant which hold the panels together can be easily removed, whilst the screws and rivets which fix the panels to the steel supports and flashings can be unfastened, and panels removed to be reused on other building sites.

Reduction

Bondor Metecno insulated panels significantly contribute to reducing the required energy to maintain the building's temperature within the comfort range, as they provide a building envelope in one highly insulated composite product (QUT, 2014). In comparison to standard framed construction methods with disrupted insulation resulting in heat loss/gain, Bondor Metecno panels deliver continuous insulation significantly minimizing the effect of thermal bridging (QUT, 2014).

Bondor Metecno insulated panels greatly reduce the amount of material used in the construction process, which reduces landfill over standard framed construction methods due to custom project specific lengths minimising site waste. We have a range of initiatives in our production facilities to actively reclaim and convert production waste to minimise our impact on the environment.

Australia's health

Bondor Metecno insulated panels use non-ozone depleting substances in the manufacture of its insulating core, helping to promote sustainable construction to protect Australia's future. These panels provide a consistent level of insulation that is impervious to compression, water vapor, vermin, termites and rot. This decreases the risks of structural damage whilst improving the living quality for Australia.

These insulated panel products also contribute to Australia through their 'buildability'; as they significantly shorten the construction times, which provides economic, social and environmental benefits to the community.

Global experience, local perspective

As Australia's largest manufacturer of Insulated Sandwich Panels, Bondor Metecno allows its customers to benefit from our global experience coupled with local dedication to Australia. Purchasing high performance building products designed specifically for Australian conditions and using Australian materials including BlueScope® COLORBOND® steel, reduces the users' impact on the environment, whilst supporting Australian industries.

For more information on Bondor Metecno sustainability practices and best-in-class R-values, please contact us.

LCA information

Table 3 | LCA Information

Product Characteristics	
Declared Unit	1m ² of panel
Modules Included	A1-A3, A4-A5, B2, C1-C4 and D
Reference Service Life (RSL)	40 years
Geographical Coverage	Australia
Time Period	Calendar year 2021

Declared unit

This EPD is valid for 1m² of insulated sandwich panel with a MW core and steel facings manufactured at Bondor[®] factory, Brisbane, Queensland in Australia.



Life Cycle Assessment (LCA) Methodology

This EPD has been produced in conformance with the requirements of PCR2019:14, General Program Instructions (GPI) and four information modules according to ISO 21930 and EN 15804.

Take care when comparing EPD's

EPD's within the same product category but from different programs may not be comparable

- When comparing EPD data using the comparability requirements in EN 15804, e.g., using equivalent methodology and assumptions such as utilising the same Product Category Rules (PCR).
- When comparing EPD data using the comparability requirements in EN 15804, e.g., using equivalent methodology and assumptions such as utilising the same Product Category Rules (PCR).
- The results for EN 15804:2012+A1:2013 compliant EPDs are not comparable with EN 15804:2012+A2:2019 compliant studies as the methodologies are different. EN 15804:2012+A1:2013 compliant results are given in this document to assist comparability across EPDs and support use in tools such as Green Star.
- LCA provides high-level scientific guidance and differences in data should be substantial to be material. – Understanding the detail is important in comparisons. Expert analysis is required to ensure data is truly comparable, to avoid unintended distortions.

The best way to compare products and materiality of differences is to place them into the context of a structure across the whole life cycle.

Panel Manufacturing



Mineral Wool Insulated Walling Manufacturing Process in Australia

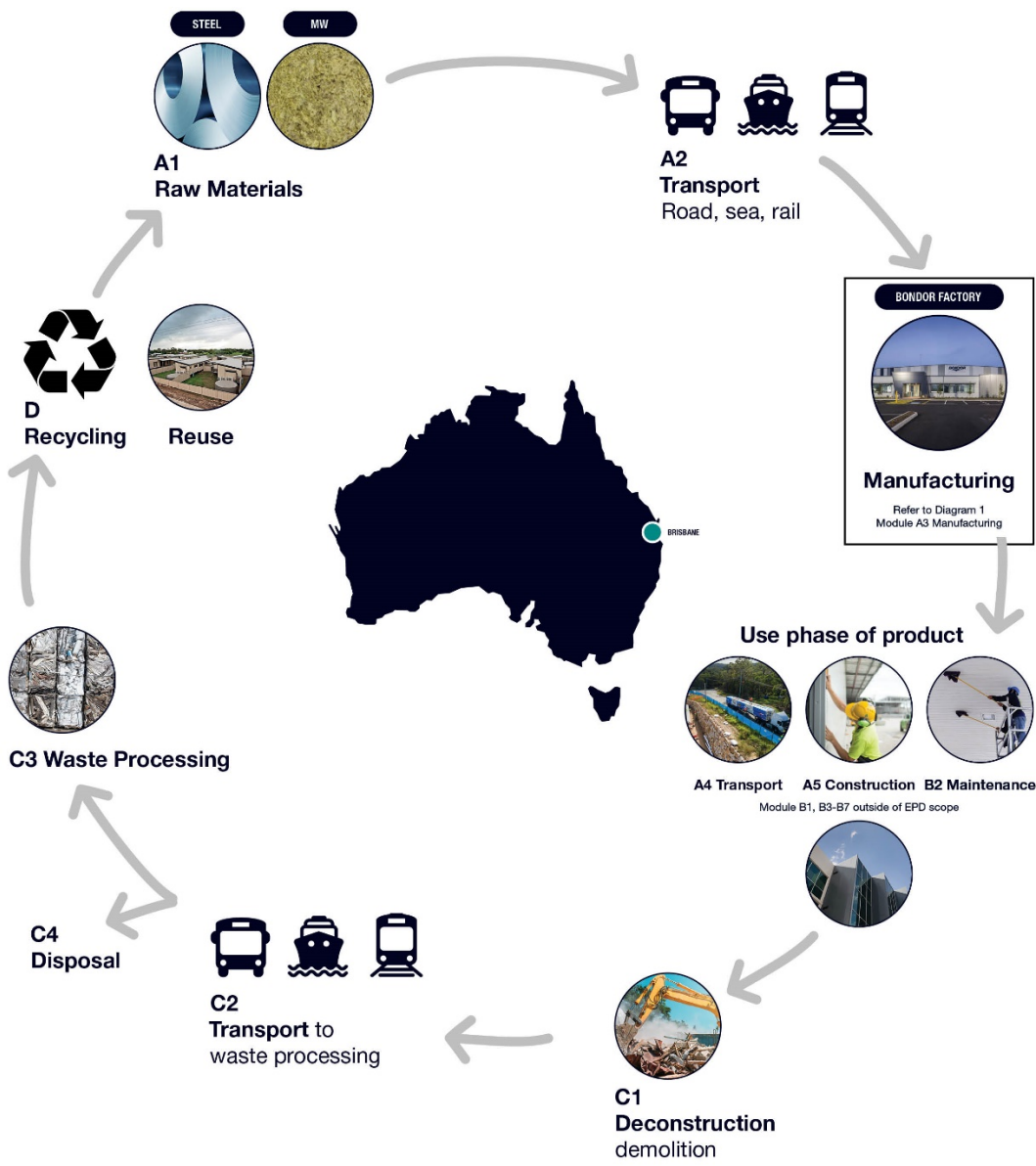


Figure 1: MW Panel Manufacturing Process in Australia

Panel Manufacturing (Module A3)

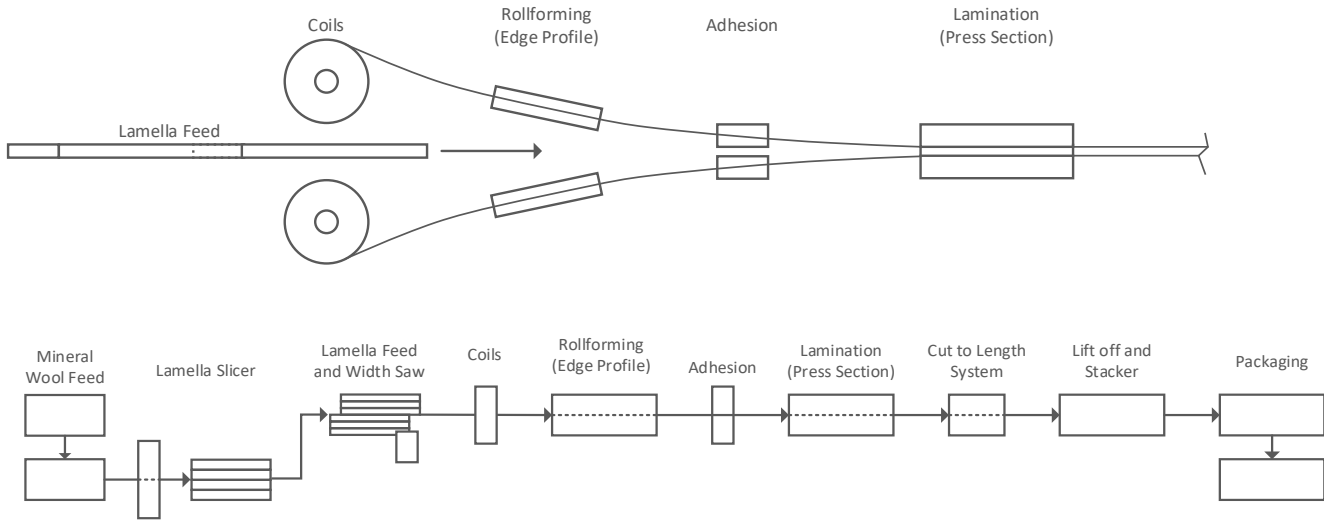


Diagram 1 – Module A3 Manufacturing process in an MW panel in a Bondor Factory

Scope of Declaration

The scope of this declaration is according to the General Program Instructions (GPI) and four information modules according to ISO 21930 and EN 15804 and supplemented by an optional information module on potential loads and benefits beyond the building life cycle, as given in Table 6.

Table 4 | The life cycle of a building product

	Product stage			Construction			Use stage						End of life stage			Resource recovery	
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	X	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	USA/AU/CN	USA/AU/CN	AU	AU	AU	-	AU	-	-	-	-	-	AU	AU	AU	AU	AU
Specific data used	>90%					-	-	-	-	-	-	-	-	-	-	-	-
Variation products	<10%					-	-	-	-	-	-	-	-	-	-	-	-
Variation sites	Not applicable					-	-	-	-	-	-	-	-	-	-	-	-

ND = not declared

Cut-off rules

It is common practice in LCA/LCI protocols to propose exclusion limits for inputs and outputs that fall below a threshold % of the total, but with the exception that where the input/output has a “significant” impact it should be included. According to the PCR 2019:14 v1.11, Life cycle inventory data shall according to EN 15804 A2 include a minimum of 95% of total inflows (mass and energy) per module. Inflows not included in the LCA shall be documented in the EPD. Data gaps in included stages in the downstream modules shall be reported in the EPD, including an evaluation of their significance. In accordance with the PCR 2019:14 v1.11, the following system boundaries are applied to manufacturing equipment and employees:

- Environmental impact from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process are not accounted for in the LCI. Capital equipment and buildings typically account for less than a few percent of nearly all LCIs and this is usually smaller than the error in the inventory data itself. For this project, it is assumed that capital equipment makes a negligible contribution to the impacts as per Frischknecht et al. (Frischknecht, 2007) with no further investigation.
- Personnel-related impacts, such as transportation to and from work, are also not accounted for in the LCI. The impacts of employees are also excluded from inventory impacts on the basis that if they were not employed for this production or service function, they would be employed for another. It is very hard to decide what proportion of the impacts from their whole lives should count towards their employment. For this project, the impacts of employees are excluded.
- The transport of scissor lift to and from the installation site is excluded.
- Besides these exclusions, no energy or mass flows were excluded in this LCA report.



Allocation

According to EN 15804 A2:2019, in a process step where more than one type of product is generated, it is necessary to allocate the environmental stressors (inputs and outputs) from the process to the different products (functional outputs) in order to get product-based inventory data instead of process-based data. An allocation problem also occurs for multi-input processes. In an allocation procedure, the sum of the allocated inputs and outputs to the products shall be equal to the unallocated inputs and outputs of the unit process.

The following stepwise allocation principles shall be applied for multi-input/output allocations:

- The initial allocation step includes dividing up the system sub-processes and collecting the input and output data related to these sub-processes.
- The first (preferable) allocation procedure step for each sub-process is to partition the inputs and outputs of the system into their different products in a way that reflects the underlying physical relationships between them.
- The second allocation procedure step is needed when physical relationship alone cannot be established or used as the basis for allocation. In this case, the remaining environmental inputs and outputs from a sub-process must be allocated between the products in a way that reflects other relationships between them, such as the economic value of the products.
- For electricity and gas used in the production of each panel, the total manufacturing electricity and gas consumption was divided by the volume of each produced product type.

Data Quality and Validation

The primary data used for the study is based on direct utility bills or feedstock quantities from Bondor’s procurement records. Primary data was carefully reviewed in order to ensure completeness, accuracy and representativeness of the data supplied. Contribution analysis was used to focus on the key pieces of data contributing to the environmental impact categories. The data was benchmarked against relevant benchmark data in ecoinvent. Overall, the data was deemed to be of high quality for the core module.

Assumptions, Choices, and Limitations

Table 5 | Assumptions or limitations data assessment scheme

Assumption or limitation	Impact on LCA results	Discussion
Insulation foam ingredient composition.	Minor	Information obtained from Bondor Production Team
Panel distribution	Minor	Information obtained from Bondor Production Team
Construction energy	Minor	Direct construction energy use is based on conservative estimates, still not significant to the overall results.
Exclusion of employees, capital good and infrastructure	Minor	
Recycling of panels, esp. steel, after use.	Medium	Few panels are believed to be discarded or disposed into landfill after use. The assumption of 6% of panels being disposed of in landfill is based on assumptions as direct data for Australia was not available at the time of reporting. The recycling rate has impact on Module D avoided production calculations,
Maintenance during use	Low	The panels are assumed to be repainted once over 40 years of use. This is considered a conservative estimate.

Compliance with Standards

The methodology and report format has been modified to comply with:

- ISO 14040:2006 and ISO14044:2006+A1:2018 which describe the principles, framework, requirements and provides guidelines for life cycle assessment (LCA).
- ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations -- Principles and procedures, which establishes the principles and specifies the procedures for developing Type III environmental declaration programmes and Type III environmental declarations.
- EN 15804:2012+A1:2013; Sustainability of construction works — Environmental product declarations.
- EN 15804:2012+A2:2019; Sustainability of construction works — Environmental product declarations.
- Product Category Rules (PCR) 2019:14, v1.11 – Construction products – Hereafter referred to as PCR 2019:14.
- General Programme Instructions (GPI) for the International EPD System V3.01 – containing instructions regarding methodology and the content that must be included in EPDs registered under the International EPD System.
- Instructions of EPD Australasia V3.01 – a regional annex to the general programme instructions of the International EPD System.

Environmental Performance

The potential environmental impacts, use of resources and waste categories included in this EPD were calculated using the SimaPro v9.4.0.2 tool and are listed in Table 6. The LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds and safety margins or risks.

Table 6 | Life Cycle Impact, Resource and Waste Assessment Categories, Measurements and Methods accordance with EN15804+A2

Impact Category	Abbreviation	Measurement Unit	Assessment Method and Implementation
Global warming potential (fossil)	GWP - Fossil	kg CO ₂ equivalents (GWP100)	Baseline model of 100 years of the IPCC based on IPCC 2013
Global warming potential (biogenic)	GWP - Biogenic	kg CO ₂ equivalents (GWP100)	Baseline model of 100 years of the IPCC based on IPCC 2013
Land use/ land transformation	GWP - Luluc	kg CO ₂ equivalents (GWP100)	Baseline model of 100 years of the IPCC based on IPCC 2013
Total global warming potential	GWP - Total	kg CO ₂ equivalents (GWP100)	Baseline model of 100 years of the IPCC based on IPCC 2013
Acidification potential	AP	mol H ⁺ eq.	Accumulated Exceedance, Seppälä et al. 2006, Posch et al., 2008
Eutrophication – aquatic freshwater	EP - freshwater	kg P equivalent	EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe
Eutrophication – aquatic marine	EP - marine	kg N equivalent	EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe
Eutrophication – terrestrial	EP – terrestrial	mol N equivalent	Accumulated Exceedance, Seppälä et al. 2006, Posch et al.
Photochemical ozone creation potential	POCP	kg NMVOC equivalents	LOTOS-EUROS, Van Zelm et al., 2008, as applied in ReCiPe
Abiotic depletion potential (elements)*	ADPE	kg Sb equivalents	CML (v4.1)
Abiotic depletion potential (fossil fuels)*	ADPF	MJ net calorific value	CML (v4.1)
Ozone depletion potential	ODP	kg CFC 11 equivalents	Steady-state ODPs, WMO 2014
Water Depletion Potential*	WDP	m ³ equivalent deprived	Available Water Remaining (AWARE) Boulay et al., 2016
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO ₂ equivalents (GWP100)	CML (v4.1)
Resource use			
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ, net calorific value	ecoinvent version 3.6 and expanded by PRé Consultants ¹
Use of renewable primary energy resources used as raw materials	PERM	MJ, net calorific value	Manual for direct inputs ²
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	PERT	MJ, net calorific value	ecoinvent version 3.6 and expanded by PRé Consultants
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ, net calorific value	Manual for direct inputs ³
Use of non- renewable primary energy resources used as raw materials	PENRM	MJ, net calorific value	ecoinvent version 3.6 and expanded by PRé Consultants

Impact Category	Abbreviation	Measurement Unit	Assessment Method and Implementation
Total use of non- renewable primary energy resources (primary energy and primary energy resources used as raw materials)	PENRT	MJ, net calorific value	ecoinvent version 3.6 and expanded by PRé Consultants ⁴
Use of secondary material	SM	kg	Manual for direct inputs
Use of renewable secondary fuels	RSF	MJ, net calorific value	Manual for direct inputs
Use of non-renewable secondary fuels	NRSF	MJ, net calorific value	Manual for direct inputs
Use of net fresh water	FW	m ³	ReCiPe 2016
Waste categories			
Hazardous waste disposed	HWD	kg	EDIP 2003 (v1.05)
Non-hazardous waste disposed	NHWD	kg	EDIP 2003 (v1.05) ⁵
Radioactive waste disposed/stored	RWD	kg	EDIP 2003 (v1.05)
Additional environmental impact indicators			
Particulate matter	Potential incidence of disease due to PM emissions (PM)	Disease incidence	SETAC-UNEP, Fantke et al. 2016
Ionising radiation - human health**	Potential Human exposure efficiency relative to U235 (IRP)	kBq U-235 eq	Human Health Effect model
Eco-toxicity (freshwater)*	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	CTUe	USEtox
Human toxicity potential - cancer effects*	Potential Comparative Toxic Unit for humans (HTP-c)	CTUh	USEtox
Human toxicity potential - non cancer effects*	Potential Comparative Toxic Unit for humans (HTP-nc)	CTUh	USEtox
Soil quality*	Potential soil quality index (SQP)	dimensionless	Soil quality index (LANCA [®])

*Disclaimer – The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

**Disclaimer – This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

¹ Method to calculate Cumulative Energy Demand (CED), based on the method published by Ecoinvent version 2.0 and expanded by PRé Consultants for raw materials available in the SimaPro database.

² Calculated based on the lower hearing value of renewable raw materials.

³ Calculated based on the lower hearing value of non-renewables raw materials.

⁴ Calculated as sum of Non-renewables, fossil, Non-renewable, nuclear and Non-renewable, biomass.

⁵ Calculated as sum of Bulk waste and Slags/ash

Table 7 | Environmental impact indicators in accordance with EN15804+A1

Impact Category	Abbreviation	Measurement Unit (eq. = equivalence)	Assessment Method and Implementation
Global warming potential (GWP100)	GWP	kg CO ₂ eq.	CML (v4.02) based on IPCC AR4
Ozone depletion potential	ODP	kg CFC 11 eq.	CML (v4.02) based on WMO 1999
Acidification potential	AP	kg SO ₂ e eq.	CML (v4.02)
Eutrophication potential	EP	kg PO ₄ ³⁻ eq.	CML (v4.02)
Photochemical ozone creation potential	POCP	kg C ₂ H ₄ eq.	CML (v4.2)
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq.	CML (v4.2)
Abiotic depletion potential for fossil resources	ADPF	MJ net calorific value	CML (v4.2)

Table 8 | Environmental impact indicators in accordance with Green Star v1.3

Impact Category	Abbreviation	Measurement Unit (eq. = equivalence)	Assessment Method and Implementation
Human toxicity cancer	HTPc	CTUh	USEtox – cancer effect
Human toxicity noncancer	HTPnc	CTUh	USEtox – noncancer effect
Land use	LU	kg C deficit-eq.	Soil Organic Matter method
Resource depletion - water	RDW	m ³	Water Stress Indicator
Ionising radiation	IR	kBq U-235-eq.	Human Health Effect model
Particulate matter	PM	kg PM2.5-eq.	RiskPoll

Content information

Walling product content information

The average composition of 1m² of Mineral Wool (MW) Insulated Sandwich Panel

Table 9 | Material Content for 1m² of MW Insulated Panels

	Items	Mass (%)	Post-consumer material (%)	Pre-consumer material (%)
Equitilt FlameGuard® 0.6mm steel	Steel	41 - 65	8.5	6.5
	Mineral Wool	33-58	0	0
	Methyl diphenyl diisocyanate (MDI)	1	0	0
	Polyol	1	0	0
Equitilt FlameGuard® 0.7mm steel	Steel	44 - 68	8.5	6.5
	Mineral Wool	31 - 55	0	0
	Methyl diphenyl diisocyanate (MDI)	1	0	0
	Polyol	1	0	0
LuxeWall FlameGuard® 0.6mm steel	Steel	58-65	8.5	6.5
	Mineral Wool	33-41	0	0
	Methyl diphenyl diisocyanate (MDI)	1	0	0
	Polyol		0	0
LuxeWall FlameGuard® 0.7mm steel	Steel	60 - 68	8.5	6.5
	Mineral Wool	31 - 38	0	0
	Methyl diphenyl diisocyanate (MDI)	1	0	0
	Polyol	1	0	0

None of the products contain one or more substances that are listed in the “Candidate List of Substances of Very High Concern for authorisation”. According to the PCR 2019:14, if one or more substances of the “Candidate List of Substances of Very High Concern (SVHC) for authorisation” are present in a product and their total content exceeds 0.1% of the weight of the product, they need to be reported.

UN CPC code: 421

Walling packaging content information

Table 10 | Information for packaging materials

Panel	Packaging materials	Weight (%) versus the product		Weight (kg)	
		Min	Max	Min	Max
Equitilt Flameguard® 0.6 mm steel	Expanded Polystyrene Bearers	0.08%	0.17%	1.36E-02	4.29E-02
	Expanded Polystyrene Face Sheets	0.06%	0.11%	9.00E-03	2.83E-02
	Medium Density Fibreboard Base	0.83%	1.64%	1.35E-01	4.25E-01
	Polyethylene Strap	0.01%	0.03%	2.18E-03	6.86E-03
	Spiral Wrap	0.04%	0.09%	7.07E-03	2.22E-02
	Cardboard Angles	0.08%	0.16%	1.34E-02	4.21E-02
	Steel Angles	0.35%	0.69%	5.68E-02	1.79E-01
	Aerocell	0.08%	0.14%	2.16E-02	2.33E-02
Equitilt Flameguard® 0.7 mm steel	Expanded Polystyrene Bearers	0.08%	0.16%	1.36E-02	4.29E-02
	Expanded Polystyrene Face Sheets	0.05%	0.10%	9.00E-03	2.83E-02
	Medium Density Fibreboard Base	0.77%	1.56%	1.35E-01	4.25E-01
	Polyethylene Strap	0.01%	0.03%	2.18E-03	6.86E-03
	Spiral Wrap	0.04%	0.08%	7.07E-03	2.22E-02
	Cardboard Angles	0.08%	0.15%	1.34E-02	4.21E-02
	Steel Angles	0.32%	0.65%	5.68E-02	1.79E-01
	Aerocell	0.08%	0.13%	2.16E-02	2.33E-02
LuxeWall Flamguard® 0.6 mm steel	Expanded Polystyrene Bearers	0.12%	0.14%	2.25E-02	2.25E-02
	Expanded Polystyrene Face Sheets	0.08%	0.09%	1.49E-02	1.49E-02
	Medium Density Fibreboard Base	1.21%	1.38%	2.23E-01	2.23E-01
	Polyethylene Strap	0.02%	0.02%	3.60E-03	3.60E-03
	Spiral Wrap	0.08%	0.09%	1.40E-02	1.40E-02
	Cardboard Angles	0.12%	0.14%	2.21E-02	2.21E-02
	Steel Angles	0.51%	0.58%	9.38E-02	9.38E-02
	Aerocell	0.13%	0.14%	2.18E-02	2.56E-02
LuxeWall Flamguard® 0.7 mm steel	Expanded Polystyrene Bearers	0.11%	0.13%	2.25E-02	2.25E-02
	Expanded Polystyrene Face Sheets	0.08%	0.08%	1.49E-02	1.49E-02
	Medium Density Fibreboard Base	1.13%	1.27%	2.23E-01	2.23E-01
	Polyethylene Strap	0.02%	0.02%	3.60E-03	3.60E-03
	Spiral Wrap	0.07%	0.08%	1.40E-02	1.40E-02
	Cardboard Angles	0.11%	0.13%	2.21E-02	2.21E-02
	Steel Angles	0.47%	0.53%	9.38E-02	9.38E-02
	Aerocell	0.12%	0.13%	2.18E-02	2.56E-02

Biogenic carbon

There’s no biogenic carbon in the products, and the biogenic carbon content in packaging is described in Table 11.

Table 11 | Biogenic carbon content in the packaging

Panel	Biogenic Carbon Content (kg C)			
Equitilt Flameguard®	50 mm	75 mm	100 mm	150 mm
	5.88E-02	8.09E-02	1.18E-01	1.85E-01
LuxeWall Flamguard®	50 mm	75 mm		
	9.70E-02	9.70E-02		

Additional information on release of dangerous substances to indoor air, soil and water

The products are highly inert and are used predominantly in outdoor applications. They do not release any dangerous substances to indoor air, soil, or water.

Transport (Module A4)

The transport distances from manufacturing gate were calculated based on primary data from MW’s percentage of total products shipped to each state with the distance of 54 - 183 km. The transport is m² product constrained.

Installation (Module A5)

0.17 kWh of electricity is required for machinery used during the construction for panel under 200 mm and 0.24 kg of diesel is used for scissor lift for panel over 200 mm. The panels are trimmed and prepared before being installed with screws and rivets to hold the structure in place. The installation procedures are the same across all panel products. Most panels/boards are installed without any offcuts. The offcuts are equivalent to 0.09% of panel weight and are neglected due to the small amount. Disposal for packaging materials is included in this module.

Maintenance (Module B2)

The exterior facing (top) panel side is assumed to be repainted once over the 40-year lifespan of the panel with two coating layers.

Table 12 | Maintenance process

Input	Description per functional unit
Maintenance process	Repaint
Maintenance cycle	1 per lifespan of 40 years
Acrylic paint 25 um	1m ²

Disposal / Reuse / Recycling (Module C1-C4)

The scenarios included are currently in use and are representative for one of the most probable alternatives.

Following the use of the panels, Bondor Metecno has limited evidence of what the end-of-life fate for their panels. The recommended cradle to grave environmental profile will be based on the most common scenario as panels are deconstructed and transported to material recovery facilities. The steel is recovered and returned into recycling stream. The included scenarios are based on the most likely outcomes of the products at the end-of-life.

The following assumptions have been used in this study to model panel deconstruction and end of life scenarios:

- Diesel fuel consumption for deconstruction has been calculated based on the gravitational potential energy required to lift a typical panel 10m above ground, assuming 15% diesel energy conversion into effective work.
- 6% of the panels are assumed to be discarded during deconstruction and disposed in landfill.
- 100km delivery distance to landfill, material recovery facility is assumed for waste collection process.
- Material recovery processing is modelled including collection, sorting and processing steel scrap in AusLCI database, assuming
 - 100% of insulation foam from material recovery processing disposed in landfill
 - 100% of steel sheets from material recovery processing returned into the steel recycling stream

Benefits and loads beyond the system boundary (Module D)

The information in module D may contain technical information as well as LCA results from post-consumer recycling, i.e., environmental benefits or loads resulting from reusable products, recyclable materials and/or useful energy carriers leaving a product system e.g., as secondary materials or fuels. Avoided impacts from co-products from module A to C shall not be included in Module D.

Regarding an assumption that 6% of panels were destroyed during the demolition process, the recovery rate after use is 94%, as mentioned in the previous section, and 100% steel is recycled.

Environmental information

Equitilt FlameGuard®

Equitilt FlameGuard® 0.6mm steel - 50mm

Table 13 | Environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	4.80E+01	1.67E-04	1.45E-01	1.78E+00	1.39E-01	2.83E-03	2.31E+00	6.29E-01	-8.03E+00
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	-1.43E-01	7.16E-09	8.15E-02	2.94E-03	4.85E-04	1.21E-07	7.06E-03	4.16E-04	3.59E-03
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	9.02E-03	1.38E-09	5.90E-05	5.63E-06	2.87E-08	2.34E-08	8.74E-07	6.72E-05	-8.38E-07
Global warming potential - total	GWP - Total	kg CO₂ eq.	4.78E+01	1.67E-04	2.27E-01	1.78E+00	1.40E-01	2.83E-03	2.32E+00	6.29E-01	-8.02E+00
Ozone depletion potential	ODP	kg CFC 11 eq.	1.32E-06	2.54E-11	4.20E-08	5.04E-08	2.66E-10	4.30E-10	2.26E-08	1.85E-08	-1.62E-08
Acidification potential	AP	mol H ⁺ eq.	2.30E-01	1.32E-06	1.43E-03	9.09E-03	1.02E-03	2.23E-05	1.52E-02	5.44E-04	-7.33E-02
Eutrophication – freshwater	EP - F	kg P eq.	2.89E-03	5.78E-09	-4.74E-06	1.68E-04	5.50E-06	9.79E-08	8.79E-05	9.71E-06	-1.81E-04
Eutrophication – marine	EP - M	kg N eq.	4.51E-02	3.77E-07	2.13E-04	1.55E-03	1.51E-04	6.38E-06	2.44E-03	1.14E-02	-1.47E-02
Eutrophication – terrestrial	EP - T	mol N eq.	5.27E-01	4.13E-06	2.32E-03	1.32E-02	1.62E-03	7.00E-05	2.63E-02	1.97E-03	-1.67E-01
Photochemical ozone creation potential	POCP	kg NMVOC eq.	1.57E-01	1.02E-06	6.35E-04	3.85E-03	4.26E-04	1.73E-05	6.82E-03	6.98E-04	-3.98E-02
Abiotic depletion potential - minerals and metals	ADP	kg Sb eq.	1.81E-04	6.05E-10	2.30E-06	4.06E-06	1.81E-07	1.02E-08	3.13E-06	2.06E-07	-2.35E-06
Abiotic depletion potential - fossil fuels	ADPF	MJ	5.71E+02	2.38E-03	9.75E-01	3.19E+01	6.63E-01	4.03E-02	1.48E+01	1.55E+00	-1.05E+02
Water Depletion Potential	WDP	m ³	8.71E+00	4.95E-05	4.43E-01	3.47E+01	2.28E-02	8.39E-04	1.35E+00	6.22E-02	-5.69E+01

Table 14 | Resource use per m² of Equitilt FlameGuard® 0.6mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	2.18E+01	2.42E-05	3.36E-01	3.26E-01	1.20E-01	4.09E-04	1.70E+00	2.88E-02	-1.16E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary renewable energy - total	PERT	MJ	2.18E+01	2.42E-05	3.36E-01	3.26E-01	1.20E-01	4.09E-04	1.70E+00	2.88E-02	-1.16E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	5.63E+02	2.38E-03	3.06E+00	3.19E+01	6.63E-01	4.03E-02	1.48E+01	1.55E+00	-1.05E+02
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.06E+01	0.00E+00	-2.34E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.20E+00	0.00E+00
Primary non renewable energy - total	PENRT	MJ	5.74E+02	2.38E-03	7.19E-01	3.19E+01	6.63E-01	4.03E-02	1.48E+01	-7.65E+00	-1.05E+02
Use of secondary material	SM	kg	1.30E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	3.20E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	FW	m ³	1.09E-01	2.83E-07	3.33E-04	3.67E-03	1.14E-04	4.80E-06	2.11E-03	8.72E-04	-2.92E-03

Table 15 | Waste generated per m² of Equitilt FlameGuard[®] 0.6mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	1.84E-04	3.12E-09	-3.09E-06	1.08E-05	4.50E-07	5.29E-08	7.98E-06	2.21E-06	-9.51E-06
Non-hazardous waste disposed	NHWD	kg	2.08E+00	1.64E-05	2.54E-01	6.54E-02	8.58E-03	2.78E-04	2.33E-01	5.97E+00	-1.20E+00
Radioactive waste disposed/stored	RWD	kg	1.67E-03	1.24E-11	1.78E-05	6.94E-06	4.39E-09	2.11E-10	8.68E-08	8.62E-06	-9.80E-08

Table 16 | Output flows per m² of Equitilt FlameGuard[®] 0.6mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for reuse	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.66E+00	0.00E+00	0.00E+00
Materials for energy recovery	MFRE	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electricity	EE - e	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EE - t	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 17 | Additional environmental impacts per m² of Equitilt FlameGuard[®] 0.6mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO2 eq	1.36E+01	1.64E-04	1.46E-01	1.68E+00	1.37E-01	2.77E-03	2.28E+00	4.75E-01	-6.92E+00
Particulate matter	PM	disease incidence	2.47E-06	8.65E-12	6.68E-09	8.57E-08	8.88E-09	1.46E-10	1.33E-07	1.03E-08	-5.01E-07
Ionising radiation - human health	IRP	kBq U-235 eq	5.89E-01	9.00E-08	1.77E-02	4.85E-02	3.05E-05	1.52E-06	6.05E-04	7.06E-03	-6.80E-04
Ecotoxicity - freshwater	ETP - fw	CTUe	3.09E+02	1.28E-03	1.28E+00	7.90E+00	3.79E-01	2.16E-02	7.00E+00	2.91E+00	-1.53E+02
Human toxicity potential - cancer effects	HTP - c	CTUh	4.64E-08	4.34E-14	2.53E-09	4.00E-10	2.43E-11	7.34E-13	3.85E-10	4.72E-11	-1.45E-09
Human toxicity potential - non cancer effects	HTP - nc	CTUh	3.01E-07	1.55E-12	2.18E-09	7.25E-09	7.26E-10	2.62E-11	1.20E-08	1.25E-09	-1.00E-07
Soil quality	SQP	Pt	7.93E+01	6.18E-04	1.09E+00	6.96E-01	4.26E-01	1.05E-02	6.31E+00	3.36E+00	-1.28E+01

Table 18 | Environmental impacts per m² of Equitilt FlameGuard[®] 0.6mm steel - 50mm (results are in accordance with EN15804+A1:2013)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Global warming potential	GWP	kg CO2 eq	4.66E+01	1.64E-04	1.90E-01	1.72E+00	1.38E-01	2.78E-03	2.29E+00	5.40E-01	-6.90E+00
Ozone layer depletion	ODP	kg CFC-11 eq	1.14E-06	2.01E-11	3.70E-08	4.29E-08	2.33E-10	3.40E-10	1.84E-08	1.47E-08	-1.30E-08
Acidification potential	AP	kg SO2 eq	1.73E-01	6.98E-07	4.99E-04	7.45E-03	2.11E-04	1.18E-05	3.57E-03	4.14E-04	-4.53E-02
Eutrophication potential	EP	kg PO4 ⁻⁻⁻ eq	2.65E-02	1.59E-07	6.50E-05	1.16E-03	7.30E-05	2.70E-06	1.18E-03	4.86E-03	-6.25E-03
Photochemical ozone creation potential	POCP	kg C2H4 eq	2.12E-02	4.70E-08	6.21E-05	4.60E-04	4.31E-06	7.95E-07	8.36E-05	9.48E-05	-1.65E-02
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	1.81E-04	6.05E-10	2.30E-06	4.06E-06	1.81E-07	1.02E-08	3.13E-06	2.07E-07	-2.35E-06
Abiotic depletion potential for fossil resources	ADPF	MJ	5.72E+02	2.39E-03	3.56E+00	2.91E+01	1.55E+00	4.04E-02	2.74E+01	1.46E+00	-1.57E+02

Table 19 | Environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 50mm (results are in accordance with Green Star v1.3)

Indicator		Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Human Toxicity cancer	HTc	CTUh	1.76E-08	3.75E-15	9.26E-12	3.51E-11	5.02E-12	6.34E-14	7.64E-11	4.57E-12	-3.81E-10
Human Toxicity non-cancer	HTnc	CTUh	9.26E-09	8.42E-16	1.32E-12	8.43E-13	8.52E-13	1.43E-14	1.24E-11	7.10E-13	-9.79E-12
Land use	LU	kg C deficit eq.	2.72E+01	4.38E-04	4.80E-01	4.93E-01	1.23E-02	7.42E-03	4.01E-01	1.04E+00	-1.49E+00
Ionising radiation	IR	kBq U235 eq	5.90E-01	9.00E-08	1.77E-02	4.85E-02	3.06E-05	1.52E-06	6.06E-04	7.07E-03	-6.80E-04
Particulate Matter	PM	kg PM2,5-Equiv.	2.42E-02	1.64E-07	1.41E-04	9.55E-04	7.30E-05	2.77E-06	1.17E-03	1.28E-04	-8.81E-03
Resource depletion - water	RDW	m ³	1.48E-01	8.03E-07	1.39E-03	8.67E-03	9.97E-04	1.36E-05	1.51E-02	1.99E-03	-7.96E-03

Equitilt FlameGuard® 0.6mm steel - 75mm

Table 20 | Environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	5.20E+01	1.40E-04	1.22E-01	1.78E+00	1.39E-01	3.22E-03	2.31E+00	8.83E-01	-8.03E+00
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	-2.10E-01	6.01E-09	1.09E-01	2.94E-03	4.85E-04	1.38E-07	7.06E-03	5.83E-04	3.59E-03
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	1.09E-02	1.16E-09	6.08E-05	5.63E-06	2.87E-08	2.67E-08	8.74E-07	9.33E-05	-8.38E-07
Global warming potential - total	GWP - Total	kg CO₂ eq.	5.17E+01	1.40E-04	2.31E-01	1.78E+00	1.40E-01	3.22E-03	2.32E+00	8.84E-01	-8.02E+00
Ozone depletion potential	ODP	kg CFC 11 eq.	1.64E-06	2.13E-11	4.19E-08	5.04E-08	2.66E-10	4.90E-10	2.26E-08	2.55E-08	-1.62E-08
Acidification potential	AP	mol H ⁺ eq.	2.62E-01	1.11E-06	1.39E-03	9.09E-03	1.02E-03	2.54E-05	1.52E-02	7.52E-04	-7.33E-02
Eutrophication – freshwater	EP - F	kg P eq.	3.86E-03	4.85E-09	-1.50E-05	1.68E-04	5.50E-06	1.11E-07	8.79E-05	1.35E-05	-1.81E-04
Eutrophication – marine	EP - M	kg N eq.	4.93E-02	3.17E-07	2.06E-04	1.55E-03	1.51E-04	7.27E-06	2.44E-03	1.61E-02	-1.47E-02
Eutrophication – terrestrial	EP - T	mol N eq.	5.87E-01	3.47E-06	2.25E-03	1.32E-02	1.62E-03	7.97E-05	2.63E-02	2.73E-03	-1.67E-01
Photochemical ozone creation potential	POCP	kg NMVOC eq.	1.74E-01	8.57E-07	5.61E-04	3.85E-03	4.26E-04	1.97E-05	6.82E-03	9.68E-04	-3.98E-02
Abiotic depletion potential - minerals and metals	ADP	kg Sb eq.	2.14E-04	5.08E-10	2.46E-06	4.06E-06	1.81E-07	1.17E-08	3.13E-06	2.87E-07	-2.35E-06
Abiotic depletion potential - fossil fuels	ADPF	MJ	6.23E+02	2.00E-03	1.39E-01	3.19E+01	6.63E-01	4.59E-02	1.48E+01	2.14E+00	-1.05E+02
Water Depletion Potential	WDP	m ³	9.88E+00	4.16E-05	5.74E-01	3.47E+01	2.28E-02	9.55E-04	1.35E+00	8.58E-02	-5.69E+01

Table 21 | Resource use per m² of Equitilt FlameGuard® 0.6mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	2.45E+01	2.03E-05	3.69E-01	3.26E-01	1.20E-01	4.66E-04	1.70E+00	4.02E-02	-1.16E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary renewable energy - total	PERT	MJ	2.45E+01	2.03E-05	3.69E-01	3.26E-01	1.20E-01	4.66E-04	1.70E+00	4.02E-02	-1.16E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	6.15E+02	2.00E-03	2.93E+00	3.19E+01	6.63E-01	4.59E-02	1.48E+01	2.14E+00	-1.05E+02
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.11E+01	0.00E+00	-3.14E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.20E+00	0.00E+00
Primary non renewable energy - total	PENRT	MJ	6.26E+02	2.00E-03	-2.03E-01	3.19E+01	6.63E-01	4.59E-02	1.48E+01	-7.06E+00	-1.05E+02
Use of secondary material	SM	kg	1.30E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	3.20E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	FW	m ³	1.22E-01	2.38E-07	2.62E-04	3.67E-03	1.14E-04	5.46E-06	2.11E-03	1.20E-03	-2.92E-03

Table 22 | Waste generated per m² of Equitilt FlameGuard® 0.6mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	2.34E-04	2.62E-09	-5.87E-06	1.08E-05	4.50E-07	6.02E-08	7.98E-06	3.05E-06	-9.51E-06
Non-hazardous waste disposed	NHWD	kg	2.43E+00	1.38E-05	3.18E-01	6.54E-02	8.58E-03	3.16E-04	2.33E-01	8.15E+00	-1.20E+00
Radioactive waste disposed/stored	RWD	kg	1.72E-03	1.04E-11	1.86E-05	6.94E-06	4.39E-09	2.40E-10	8.68E-08	1.19E-05	-9.80E-08

Table 23 | Output flows per m² of Equitilt FlameGuard® 0.6mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for reuse	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.66E+00	0.00E+00	0.00E+00
Materials for energy recovery	MFRE	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electricity	EE - e	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EE - t	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 24 | Additional environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO2 eq	1.74E+01	1.37E-04	1.24E-01	1.68E+00	1.37E-01	3.15E-03	2.28E+00	6.66E-01	-6.92E+00
Particulate matter	PM	disease incidence	2.71E-06	7.26E-12	4.16E-09	8.57E-08	8.88E-09	1.67E-10	1.33E-07	1.42E-08	-5.01E-07
Ionising radiation - human health	IRP	kBq U-235 eq	6.99E-01	7.55E-08	1.96E-02	4.85E-02	3.05E-05	1.73E-06	6.05E-04	9.76E-03	-6.80E-04
Ecotoxicity - freshwater	ETP - fw	CTUe	3.84E+02	1.07E-03	6.53E-01	7.90E+00	3.79E-01	2.46E-02	7.00E+00	4.07E+00	-1.53E+02
Human toxicity potential - cancer effects	HTP - c	CTUh	5.85E-08	3.64E-14	3.06E-09	4.00E-10	2.43E-11	8.36E-13	3.85E-10	6.58E-11	-1.45E-09
Human toxicity potential - non cancer effects	HTP - nc	CTUh	3.49E-07	1.30E-12	2.13E-09	7.25E-09	7.26E-10	2.98E-11	1.20E-08	1.74E-09	-1.00E-07
Soil quality	SQP	Pt	1.02E+02	5.19E-04	1.13E+00	6.96E-01	4.26E-01	1.19E-02	6.31E+00	4.65E+00	-1.28E+01

Table 25 | Environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 75mm (results are in accordance with EN15804+A1:2013)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Global warming potential	GWP	kg CO2 eq	5.05E+01	1.38E-04	1.84E-01	1.72E+00	1.38E-01	3.16E-03	2.29E+00	7.58E-01	-6.90E+00
Ozone layer depletion	ODP	kg CFC-11 eq	1.42E-06	1.69E-11	3.67E-08	4.29E-08	2.33E-10	3.88E-10	1.84E-08	2.03E-08	-1.30E-08
Acidification potential	AP	kg SO2 eq	1.97E-01	5.86E-07	4.45E-04	7.45E-03	2.11E-04	1.35E-05	3.57E-03	5.73E-04	-4.53E-02
Eutrophication potential	EP	kg PO4--- eq	3.14E-02	1.34E-07	3.15E-05	1.16E-03	7.30E-05	3.07E-06	1.18E-03	6.83E-03	-6.25E-03
Photochemical ozone creation potential	POCP	kg C2H4 eq	2.27E-02	3.94E-08	5.06E-05	4.60E-04	4.31E-06	9.05E-07	8.36E-05	1.33E-04	-1.65E-02
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	2.14E-04	5.08E-10	2.46E-06	4.06E-06	1.81E-07	1.17E-08	3.13E-06	2.87E-07	-2.35E-06
Abiotic depletion potential for fossil resources	ADPF	MJ	6.29E+02	2.00E-03	3.34E+00	2.91E+01	1.55E+00	4.60E-02	2.74E+01	2.02E+00	-1.57E+02

Table 26 | Environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 75mm (results are in accordance with Green Star v1.3)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Human Toxicity cancer	HTc	CTUh	1.88E-08	3.14E-15	8.69E-12	3.51E-11	5.02E-12	7.22E-14	7.64E-11	6.34E-12	-3.81E-10
Human Toxicity non-cancer	HTnc	CTUh	9.27E-09	7.07E-16	1.37E-12	8.43E-13	8.52E-13	1.62E-14	1.24E-11	9.80E-13	-9.79E-12
Land use	LU	kg C deficit eq.	3.39E+01	3.68E-04	4.85E-01	4.93E-01	1.23E-02	8.45E-03	4.01E-01	1.41E+00	-1.49E+00
Ionising radiation	IR	kBq U235 eq	7.00E-01	7.56E-08	1.96E-02	4.85E-02	3.06E-05	1.74E-06	6.06E-04	9.77E-03	-6.80E-04
Particulate Matter	PM	kg PM2,5-Equiv.	2.93E-02	1.37E-07	1.08E-04	9.55E-04	7.30E-05	3.15E-06	1.17E-03	1.78E-04	-8.81E-03
Resource depletion - water	RDW	m³	1.79E-01	6.74E-07	1.20E-03	8.67E-03	9.97E-04	1.55E-05	1.51E-02	2.75E-03	-7.96E-03

Equitilt FlameGuard® 0.6mm steel - 100mm

Table 27 | Environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 100mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	5.66E+01	1.52E-04	8.44E-02	1.78E+00	1.39E-01	3.68E-03	2.31E+00	1.18E+00	-8.03E+00
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	-3.22E-01	6.53E-09	1.54E-01	2.94E-03	4.85E-04	1.58E-07	7.06E-03	7.78E-04	3.59E-03
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	1.31E-02	1.26E-09	6.38E-05	5.63E-06	2.87E-08	3.05E-08	8.74E-07	1.24E-04	-8.38E-07
Global warming potential - total	GWP - Total	kg CO₂ eq.	5.63E+01	1.52E-04	2.39E-01	1.78E+00	1.40E-01	3.68E-03	2.32E+00	1.18E+00	-8.02E+00
Ozone depletion potential	ODP	kg CFC 11 eq.	2.02E-06	2.32E-11	4.17E-08	5.04E-08	2.66E-10	5.60E-10	2.26E-08	3.37E-08	-1.62E-08
Acidification potential	AP	mol H ⁺ eq.	3.00E-01	1.20E-06	1.32E-03	9.09E-03	1.02E-03	2.90E-05	1.52E-02	9.94E-04	-7.33E-02
Eutrophication – freshwater	EP - F	kg P eq.	5.00E-03	5.28E-09	-3.20E-05	1.68E-04	5.50E-06	1.27E-07	8.79E-05	1.80E-05	-1.81E-04
Eutrophication – marine	EP - M	kg N eq.	5.42E-02	3.44E-07	1.94E-04	1.55E-03	1.51E-04	8.30E-06	2.44E-03	2.15E-02	-1.47E-02
Eutrophication – terrestrial	EP - T	mol N eq.	6.57E-01	3.77E-06	2.13E-03	1.32E-02	1.62E-03	9.10E-05	2.63E-02	3.60E-03	-1.67E-01
Photochemical ozone creation potential	POCP	kg NMVOC eq.	1.94E-01	9.32E-07	4.36E-04	3.85E-03	4.26E-04	2.25E-05	6.82E-03	1.28E-03	-3.98E-02
Abiotic depletion potential - minerals and metals	ADP	kg Sb eq.	2.54E-04	5.52E-10	2.74E-06	4.06E-06	1.81E-07	1.33E-08	3.13E-06	3.81E-07	-2.35E-06
Abiotic depletion potential - fossil fuels	ADPF	MJ	6.85E+02	2.17E-03	-1.25E+00	3.19E+01	6.63E-01	5.24E-02	1.48E+01	2.82E+00	-1.05E+02
Water Depletion Potential	WDP	m ³	1.13E+01	4.52E-05	7.93E-01	3.47E+01	2.28E-02	1.09E-03	1.35E+00	1.13E-01	-5.69E+01

Table 28 | Resource use per m² of Equitilt FlameGuard® 0.6mm steel - 100mm (results are in accordance with EN15804+A2:2019)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	2.81E+01	2.20E-05	4.22E-01	3.26E-01	1.20E-01	5.32E-04	1.70E+00	5.34E-02	-1.16E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary renewable energy - total	PERT	MJ	2.81E+01	2.20E-05	4.22E-01	3.26E-01	1.20E-01	5.32E-04	1.70E+00	5.34E-02	-1.16E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	6.76E+02	2.17E-03	2.73E+00	3.19E+01	6.63E-01	5.24E-02	1.48E+01	2.82E+00	-1.05E+02
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.19E+01	0.00E+00	-4.47E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.20E+00	0.00E+00
Primary non renewable energy - total	PENRT	MJ	6.88E+02	2.17E-03	-1.74E+00	3.19E+01	6.63E-01	5.24E-02	1.48E+01	-6.38E+00	-1.05E+02
Use of secondary material	SM	kg	1.30E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	3.20E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	FW	m ³	1.38E-01	2.59E-07	1.43E-04	3.67E-03	1.14E-04	6.24E-06	2.11E-03	1.59E-03	-2.92E-03

Table 29 | Waste generated per m² of Equitilt FlameGuard® 0.6mm steel - 100mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	2.94E-04	2.85E-09	-1.05E-05	1.08E-05	4.50E-07	6.88E-08	7.98E-06	4.02E-06	-9.51E-06
Non-hazardous waste disposed	NHWD	kg	2.85E+00	1.50E-05	4.26E-01	6.54E-02	8.58E-03	3.61E-04	2.33E-01	1.07E+01	-1.20E+00
Radioactive waste disposed/stored	RWD	kg	1.77E-03	1.14E-11	2.00E-05	6.94E-06	4.39E-09	2.74E-10	8.68E-08	1.57E-05	-9.80E-08

Table 30 | Output flows per m² of Equitilt FlameGuard® 0.6mm steel - 100mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for reuse	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.66E+00	0.00E+00	0.00E+00
Materials for energy recovery	MFRE	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electricity	EE - e	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EE - t	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 31 | Additional environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 100mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO2 eq	2.19E+01	1.49E-04	8.89E-02	1.68E+00	1.37E-01	3.60E-03	2.28E+00	8.89E-01	-6.92E+00
Particulate matter	PM	disease incidence	3.00E-06	7.89E-12	-5.26E-11	8.57E-08	8.88E-09	1.90E-10	1.33E-07	1.88E-08	-5.01E-07
Ionising radiation - human health	IRP	kBq U-235 eq	8.29E-01	8.21E-08	2.27E-02	4.85E-02	3.05E-05	1.98E-06	6.05E-04	1.29E-02	-6.80E-04
Ecotoxicity - freshwater	ETP - fw	CTUe	4.74E+02	1.17E-03	-3.98E-01	7.90E+00	3.79E-01	2.81E-02	7.00E+00	5.42E+00	-1.53E+02
Human toxicity potential - cancer effects	HTP - c	CTUh	7.32E-08	3.96E-14	3.95E-09	4.00E-10	2.43E-11	9.55E-13	3.85E-10	8.74E-11	-1.45E-09
Human toxicity potential - non cancer effects	HTP - nc	CTUh	4.07E-07	1.41E-12	2.06E-09	7.25E-09	7.26E-10	3.41E-11	1.20E-08	2.31E-09	-1.00E-07
Soil quality	SQP	Pt	1.32E+02	5.64E-04	1.20E+00	6.96E-01	4.26E-01	1.36E-02	6.31E+00	6.15E+00	-1.28E+01

Table 32 | Environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 100mm (results are in accordance with EN15804+A1:2013)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Global warming potential	GWP	kg CO2 eq	5.50E+01	1.50E-04	1.73E-01	1.72E+00	1.38E-01	3.61E-03	2.29E+00	1.01E+00	-6.90E+00
Ozone layer depletion	ODP	kg CFC-11 eq	1.76E-06	1.84E-11	3.62E-08	4.29E-08	2.33E-10	4.43E-10	1.84E-08	2.67E-08	-1.30E-08
Acidification potential	AP	kg SO2 eq	2.26E-01	6.37E-07	3.55E-04	7.45E-03	2.11E-04	1.54E-05	3.57E-03	7.58E-04	-4.53E-02
Eutrophication potential	EP	kg PO4 ⁻⁻⁻ eq	3.72E-02	1.46E-07	-2.42E-05	1.16E-03	7.30E-05	3.51E-06	1.18E-03	9.12E-03	-6.25E-03
Photochemical ozone creation potential	POCP	kg C2H4 eq	2.44E-02	4.29E-08	3.16E-05	4.60E-04	4.31E-06	1.03E-06	8.36E-05	1.77E-04	-1.65E-02
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	2.54E-04	5.52E-10	2.74E-06	4.06E-06	1.81E-07	1.33E-08	3.13E-06	3.81E-07	-2.35E-06
Abiotic depletion potential for fossil resources	ADPF	MJ	6.96E+02	2.18E-03	2.98E+00	2.91E+01	1.55E+00	5.25E-02	2.74E+01	2.67E+00	-1.57E+02

Table 33 | Environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 100mm (results are in accordance with Green Star v1.3)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Human Toxicity cancer	HTc	CTUh	2.04E-08	3.42E-15	7.74E-12	3.51E-11	5.02E-12	8.24E-14	7.64E-11	8.39E-12	-3.81E-10
Human Toxicity non-cancer	HTnc	CTUh	9.28E-09	7.68E-16	1.46E-12	8.43E-13	8.52E-13	1.85E-14	1.24E-11	1.29E-12	-9.79E-12
Land use	LU	kg C deficit eq.	4.20E+01	4.00E-04	4.93E-01	4.93E-01	1.23E-02	9.64E-03	4.01E-01	1.84E+00	-1.49E+00
Ionising radiation	IR	kBq U235 eq	8.30E-01	8.22E-08	2.27E-02	4.85E-02	3.06E-05	1.98E-06	6.06E-04	1.29E-02	-6.80E-04
Particulate Matter	PM	kg PM2,5-Equiv.	3.53E-02	1.49E-07	5.29E-05	9.55E-04	7.30E-05	3.60E-06	1.17E-03	2.35E-04	-8.81E-03
Resource depletion - water	RDW	m ³	2.16E-01	7.33E-07	8.94E-04	8.67E-03	9.97E-04	1.77E-05	1.51E-02	3.62E-03	-7.96E-03

Equitilt FlameGuard® 0.6mm steel - 150mm

Table 34 | Environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 150mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	6.59E+01	3.41E-04	1.52E-02	1.78E+00	1.39E-01	4.59E-03	2.31E+00	1.77E+00	-8.03E+00
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	-5.27E-01	1.46E-08	2.37E-01	2.94E-03	4.85E-04	1.97E-07	7.06E-03	1.17E-03	3.59E-03
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	1.74E-02	2.82E-09	6.93E-05	5.63E-06	2.87E-08	3.80E-08	8.74E-07	1.84E-04	-8.38E-07
Global warming potential - total	GWP - Total	kg CO₂ eq.	6.54E+01	3.41E-04	2.52E-01	1.78E+00	1.40E-01	4.59E-03	2.32E+00	1.77E+00	-8.02E+00
Ozone depletion potential	ODP	kg CFC 11 eq.	2.78E-06	5.19E-11	4.12E-08	5.04E-08	2.66E-10	6.98E-10	2.26E-08	4.99E-08	-1.62E-08
Acidification potential	AP	mol H ⁺ eq.	3.76E-01	2.69E-06	1.20E-03	9.09E-03	1.02E-03	3.62E-05	1.52E-02	1.48E-03	-7.33E-02
Eutrophication – freshwater	EP - F	kg P eq.	7.27E-03	1.18E-08	-6.31E-05	1.68E-04	5.50E-06	1.59E-07	8.79E-05	2.68E-05	-1.81E-04
Eutrophication – marine	EP - M	kg N eq.	6.40E-02	7.69E-07	1.72E-04	1.55E-03	1.51E-04	1.04E-05	2.44E-03	3.22E-02	-1.47E-02
Eutrophication – terrestrial	EP - T	mol N eq.	7.98E-01	8.43E-06	1.92E-03	1.32E-02	1.62E-03	1.13E-04	2.63E-02	5.35E-03	-1.67E-01
Photochemical ozone creation potential	POCP	kg NMVOC eq.	2.35E-01	2.08E-06	2.10E-04	3.85E-03	4.26E-04	2.80E-05	6.82E-03	1.91E-03	-3.98E-02
Abiotic depletion potential - minerals and metals	ADP	kg Sb eq.	3.32E-04	1.23E-09	3.25E-06	4.06E-06	1.81E-07	1.66E-08	3.13E-06	5.68E-07	-2.35E-06
Abiotic depletion potential - fossil fuels	ADPF	MJ	8.07E+02	4.85E-03	-3.79E+00	3.19E+01	6.63E-01	6.53E-02	1.48E+01	4.19E+00	-1.05E+02
Water Depletion Potential	WDP	m ³	1.41E+01	1.01E-04	1.19E+00	3.47E+01	2.28E-02	1.36E-03	1.35E+00	1.68E-01	-5.69E+01

Table 35 | Resource use per m² of Equitilt FlameGuard® 0.6mm steel - 150mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	3.50E+01	4.93E-05	5.20E-01	3.26E-01	1.20E-01	6.63E-04	1.70E+00	7.98E-02	-1.16E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary renewable energy - total	PERT	MJ	3.50E+01	4.93E-05	5.20E-01	3.26E-01	1.20E-01	6.63E-04	1.70E+00	7.98E-02	-1.16E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	7.97E+02	4.85E-03	2.35E+00	3.19E+01	6.63E-01	6.53E-02	1.48E+01	4.19E+00	-1.05E+02
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.33E+01	0.00E+00	-6.89E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.20E+00	0.00E+00
Primary non renewable energy - total	PENRT	MJ	8.10E+02	4.85E-03	-4.55E+00	3.19E+01	6.63E-01	6.53E-02	1.48E+01	-5.01E+00	-1.05E+02
Use of secondary material	SM	kg	1.30E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	3.20E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	FW	m ³	1.69E-01	5.78E-07	-7.42E-05	3.67E-03	1.14E-04	7.78E-06	2.11E-03	2.35E-03	-2.92E-03

Table 36 | Waste generated per m² of Equitilt FlameGuard® 0.6mm steel - 150mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	4.13E-04	6.37E-09	-1.89E-05	1.08E-05	4.50E-07	8.58E-08	7.98E-06	5.97E-06	-9.51E-06
Non-hazardous waste disposed	NHWD	kg	3.69E+00	3.35E-05	6.32E-01	6.54E-02	8.58E-03	4.51E-04	2.33E-01	1.57E+01	-1.20E+00
Radioactive waste disposed/stored	RWD	kg	1.89E-03	2.54E-11	2.25E-05	6.94E-06	4.39E-09	3.42E-10	8.68E-08	2.32E-05	-9.80E-08

Table 37 | Output flows per m² of Equitilt FlameGuard® 0.6mm steel - 150mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for reuse	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.66E+00	0.00E+00	0.00E+00
Materials for energy recovery	MFRE	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electricity	EE - e	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EE - t	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 38 | Additional environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 150mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO2 eq	3.09E+01	3.34E-04	2.45E-02	1.68E+00	1.37E-01	4.49E-03	2.28E+00	1.33E+00	-6.92E+00
Particulate matter	PM	disease incidence	3.57E-06	1.76E-11	-7.74E-09	8.57E-08	8.88E-09	2.37E-10	1.33E-07	2.79E-08	-5.01E-07
Ionising radiation - human health	IRP	kBq U-235 eq	1.09E+00	1.83E-07	2.84E-02	4.85E-02	3.05E-05	2.47E-06	6.05E-04	1.92E-02	-6.80E-04
Ecotoxicity - freshwater	ETP - fw	CTUe	6.53E+02	2.61E-03	-2.31E+00	7.90E+00	3.79E-01	3.51E-02	7.00E+00	8.11E+00	-1.53E+02
Human toxicity potential - cancer effects	HTP - c	CTUh	1.02E-07	8.85E-14	5.57E-09	4.00E-10	2.43E-11	1.19E-12	3.85E-10	1.31E-10	-1.45E-09
Human toxicity potential - non cancer effects	HTP - nc	CTUh	5.20E-07	3.16E-12	1.93E-09	7.25E-09	7.26E-10	4.25E-11	1.20E-08	3.45E-09	-1.00E-07
Soil quality	SQP	Pt	1.89E+02	1.26E-03	1.32E+00	6.96E-01	4.26E-01	1.70E-02	6.31E+00	9.14E+00	-1.28E+01

Table 39 | Environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 150mm (results are in accordance with EN15804+A1:2013)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Global warming potential	GWP	kg CO2 eq	6.41E+01	3.34E-04	1.54E-01	1.72E+00	1.38E-01	4.50E-03	2.29E+00	1.52E+00	-6.90E+00
Ozone layer depletion	ODP	kg CFC-11 eq	2.43E-06	4.10E-11	3.53E-08	4.29E-08	2.33E-10	5.52E-10	1.84E-08	3.96E-08	-1.30E-08
Acidification potential	AP	kg SO2 eq	2.83E-01	1.42E-06	1.93E-04	7.45E-03	2.11E-04	1.92E-05	3.57E-03	1.13E-03	-4.53E-02
Eutrophication potential	EP	kg PO4 ⁻⁻⁻ eq	4.87E-02	3.25E-07	-1.26E-04	1.16E-03	7.30E-05	4.38E-06	1.18E-03	1.37E-02	-6.25E-03
Photochemical ozone creation potential	POCP	kg C2H4 eq	2.79E-02	9.58E-08	-3.22E-06	4.60E-04	4.31E-06	1.29E-06	8.36E-05	2.65E-04	-1.65E-02
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	3.32E-04	1.23E-09	3.25E-06	4.06E-06	1.81E-07	1.66E-08	3.13E-06	5.69E-07	-2.35E-06
Abiotic depletion potential for fossil resources	ADPF	MJ	8.29E+02	4.87E-03	2.32E+00	2.91E+01	1.55E+00	6.55E-02	2.74E+01	3.96E+00	-1.57E+02

Table 40 | Environmental impacts per m² of Equitilt FlameGuard® 0.6mm steel - 150mm (results are in accordance with Green Star v1.3)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Human Toxicity cancer	HTc	CTUh	2.35E-08	7.64E-15	6.01E-12	3.51E-11	5.02E-12	1.03E-13	7.64E-11	1.25E-11	-3.81E-10
Human Toxicity non-cancer	HTnc	CTUh	9.32E-09	1.72E-15	1.63E-12	8.43E-13	8.52E-13	2.31E-14	1.24E-11	1.92E-12	-9.79E-12
Land use	LU	kg C deficit eq.	5.81E+01	8.93E-04	5.09E-01	4.93E-01	1.23E-02	1.20E-02	4.01E-01	2.71E+00	-1.49E+00
Ionising radiation	IR	kBq U235 eq	1.09E+00	1.84E-07	2.84E-02	4.85E-02	3.06E-05	2.47E-06	6.06E-04	1.92E-02	-6.80E-04
Particulate Matter	PM	kg PM2,5-Equiv.	4.73E-02	3.33E-07	-4.73E-05	9.55E-04	7.30E-05	4.49E-06	1.17E-03	3.49E-04	-8.81E-03
Resource depletion - water	RDW	m ³	2.90E-01	1.64E-06	3.27E-04	8.67E-03	9.97E-04	2.20E-05	1.51E-02	5.38E-03	-7.96E-03

Equitilt FlameGuard® 0.7mm steel - 50mm

Table 41 | Environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	5.18E+01	1.67E-04	1.45E-01	1.78E+00	1.39E-01	3.07E-03	2.62E+00	6.29E-01	-9.09E+00
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	-1.44E-01	7.16E-09	8.15E-02	2.94E-03	4.85E-04	1.32E-07	8.00E-03	4.16E-04	4.06E-03
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	9.27E-03	1.38E-09	5.90E-05	5.63E-06	2.87E-08	2.55E-08	9.90E-07	6.76E-05	-9.49E-07
Global warming potential - total	GWP - Total	kg CO₂ eq.	5.17E+01	1.67E-04	2.27E-01	1.78E+00	1.40E-01	3.07E-03	2.63E+00	6.30E-01	-9.09E+00
Ozone depletion potential	ODP	kg CFC 11 eq.	1.36E-06	2.54E-11	4.20E-08	5.04E-08	2.66E-10	4.68E-10	2.56E-08	1.87E-08	-1.84E-08
Acidification potential	AP	mol H ⁺ eq.	2.44E-01	1.32E-06	1.43E-03	9.09E-03	1.02E-03	2.42E-05	1.72E-02	5.48E-04	-8.30E-02
Eutrophication – freshwater	EP - F	kg P eq.	2.90E-03	5.78E-09	-4.74E-06	1.68E-04	5.50E-06	1.06E-07	9.96E-05	9.75E-06	-2.06E-04
Eutrophication – marine	EP - M	kg N eq.	4.84E-02	3.77E-07	2.13E-04	1.55E-03	1.51E-04	6.94E-06	2.77E-03	1.14E-02	-1.67E-02
Eutrophication – terrestrial	EP - T	mol N eq.	5.64E-01	4.13E-06	2.32E-03	1.32E-02	1.62E-03	7.61E-05	2.98E-02	1.99E-03	-1.89E-01
Photochemical ozone creation potential	POCP	kg NMVOC eq.	1.68E-01	1.02E-06	6.35E-04	3.85E-03	4.26E-04	1.88E-05	7.73E-03	7.03E-04	-4.50E-02
Abiotic depletion potential - minerals and metals	ADP	kg Sb eq.	1.81E-04	6.05E-10	2.30E-06	4.06E-06	1.81E-07	1.11E-08	3.55E-06	2.07E-07	-2.66E-06
Abiotic depletion potential - fossil fuels	ADPF	MJ	6.13E+02	2.38E-03	9.75E-01	3.19E+01	6.63E-01	4.38E-02	1.68E+01	1.56E+00	-1.19E+02
Water Depletion Potential	WDP	m ³	8.95E+00	4.95E-05	4.43E-01	3.47E+01	2.28E-02	9.12E-04	1.53E+00	6.28E-02	-6.44E+01

Table 42 | Resource use per m² of Equitilt FlameGuard® 0.7mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	2.21E+01	2.42E-05	3.36E-01	3.26E-01	1.20E-01	4.45E-04	1.92E+00	2.89E-02	-1.32E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary renewable energy - total	PERT	MJ	2.21E+01	2.42E-05	3.36E-01	3.26E-01	1.20E-01	4.45E-04	1.92E+00	2.89E-02	-1.32E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	6.05E+02	2.38E-03	3.06E+00	3.19E+01	6.63E-01	4.38E-02	1.68E+01	1.56E+00	-1.19E+02
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.06E+01	0.00E+00	-2.34E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.20E+00	0.00E+00
Primary non renewable energy - total	PENRT	MJ	6.15E+02	2.38E-03	7.19E-01	3.19E+01	6.63E-01	4.38E-02	1.68E+01	-7.64E+00	-1.19E+02
Use of secondary material	SM	kg	1.50E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	3.11E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	FW	m ³	1.12E-01	2.83E-07	3.33E-04	3.67E-03	1.14E-04	5.22E-06	2.39E-03	8.80E-04	-3.31E-03

Table 43 | Waste generated per m² of Equitilt FlameGuard® 0.7mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	1.88E-04	3.12E-09	-3.09E-06	1.08E-05	4.50E-07	5.75E-08	9.04E-06	2.22E-06	-1.08E-05
Non-hazardous waste disposed	NHWD	kg	2.12E+00	1.64E-05	2.54E-01	6.54E-02	8.58E-03	3.02E-04	2.64E-01	6.06E+00	-1.36E+00
Radioactive waste disposed/stored	RWD	kg	1.68E-03	1.24E-11	1.78E-05	6.94E-06	4.39E-09	2.29E-10	9.84E-08	8.70E-06	-1.11E-07

Table 44 | Output flows per m² of Equitilt FlameGuard® 0.7mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for reuse	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E+01	0.00E+00	0.00E+00
Materials for energy recovery	MFRE	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electricity	EE - e	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EE - t	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 45 | Additional environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO2 eq	1.38E+01	1.64E-04	1.46E-01	1.68E+00	1.37E-01	3.01E-03	2.59E+00	4.75E-01	-7.84E+00
Particulate matter	PM	disease incidence	2.65E-06	8.65E-12	6.68E-09	8.57E-08	8.88E-09	1.59E-10	1.51E-07	1.04E-08	-5.67E-07
Ionising radiation - human health	IRP	kBq U-235 eq	5.90E-01	9.00E-08	1.77E-02	4.85E-02	3.05E-05	1.66E-06	6.85E-04	7.11E-03	-7.70E-04
Ecotoxicity - freshwater	ETP - fw	CTUe	3.11E+02	1.28E-03	1.28E+00	7.90E+00	3.79E-01	2.35E-02	7.93E+00	2.92E+00	-1.74E+02
Human toxicity potential - cancer effects	HTP - c	CTUh	4.65E-08	4.34E-14	2.53E-09	4.00E-10	2.43E-11	7.98E-13	4.36E-10	4.74E-11	-1.65E-09
Human toxicity potential - non cancer effects	HTP - nc	CTUh	3.04E-07	1.55E-12	2.18E-09	7.25E-09	7.26E-10	2.85E-11	1.36E-08	1.25E-09	-1.13E-07
Soil quality	SQP	Pt	8.10E+01	6.18E-04	1.09E+00	6.96E-01	4.26E-01	1.14E-02	7.15E+00	3.39E+00	-1.44E+01

Table 46 | Environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 50mm (results are in accordance with EN15804+A1:2013)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Global warming potential	GWP	kg CO2 eq	5.03E+01	1.64E-04	1.90E-01	1.72E+00	1.38E-01	3.02E-03	2.59E+00	5.41E-01	-7.82E+00
Ozone layer depletion	ODP	kg CFC-11 eq	1.17E-06	2.01E-11	3.70E-08	4.29E-08	2.33E-10	3.70E-10	2.09E-08	1.48E-08	-1.47E-08
Acidification potential	AP	kg SO2 eq	1.83E-01	6.98E-07	4.99E-04	7.45E-03	2.11E-04	1.29E-05	4.05E-03	4.17E-04	-5.14E-02
Eutrophication potential	EP	kg PO4 ³⁻ eq	2.77E-02	1.59E-07	6.50E-05	1.16E-03	7.30E-05	2.93E-06	1.33E-03	4.86E-03	-7.08E-03
Photochemical ozone creation potential	POCP	kg C2H4 eq	2.31E-02	4.70E-08	6.21E-05	4.60E-04	4.31E-06	8.64E-07	9.47E-05	9.49E-05	-1.87E-02
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	1.81E-04	6.05E-10	2.30E-06	4.06E-06	1.81E-07	1.11E-08	3.55E-06	2.08E-07	-2.66E-06
Abiotic depletion potential for fossil resources	ADPF	MJ	6.13E+02	2.39E-03	3.56E+00	2.91E+01	1.55E+00	4.39E-02	3.10E+01	1.47E+00	-1.78E+02

Table 47 | Environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 50mm (results are in accordance with Green Star v1.3)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Human Toxicity cancer	HTc	CTUh	1.77E-08	3.75E-15	9.26E-12	3.51E-11	5.02E-12	6.89E-14	8.66E-11	4.60E-12	-4.32E-10
Human Toxicity non-cancer	HTnc	CTUh	9.26E-09	8.42E-16	1.32E-12	8.43E-13	8.52E-13	1.55E-14	1.40E-11	7.15E-13	-1.11E-11
Land use	LU	kg C deficit eq.	2.82E+01	4.38E-04	4.80E-01	4.93E-01	1.23E-02	8.06E-03	4.54E-01	1.05E+00	-1.69E+00
Ionising radiation	IR	kBq U235 eq	5.91E-01	9.00E-08	1.77E-02	4.85E-02	3.06E-05	1.66E-06	6.86E-04	7.12E-03	-7.70E-04
Particulate Matter	PM	kg PM2,5-Equiv.	2.52E-02	1.64E-07	1.41E-04	9.55E-04	7.30E-05	3.01E-06	1.32E-03	1.29E-04	-9.98E-03
Resource depletion - water	RDW	m ³	1.51E-01	8.03E-07	1.39E-03	8.67E-03	9.97E-04	1.48E-05	1.71E-02	2.01E-03	-9.02E-03

Equitilt FlameGuard® 0.7mm steel - 75mm

Table 48 | Environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	5.58E+01	1.40E-04	1.22E-01	1.78E+00	1.39E-01	3.47E-03	2.62E+00	8.84E-01	-9.09E+00
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	-2.11E-01	6.01E-09	1.09E-01	2.94E-03	4.85E-04	1.49E-07	8.00E-03	5.84E-04	4.06E-03
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	1.11E-02	1.16E-09	6.08E-05	5.63E-06	2.87E-08	2.87E-08	9.90E-07	9.37E-05	-9.49E-07
Global warming potential - total	GWP - Total	kg CO₂ eq.	5.55E+01	1.40E-04	2.31E-01	1.78E+00	1.40E-01	3.47E-03	2.63E+00	8.84E-01	-9.09E+00
Ozone depletion potential	ODP	kg CFC 11 eq.	1.68E-06	2.13E-11	4.19E-08	5.04E-08	2.66E-10	5.28E-10	2.56E-08	2.57E-08	-1.84E-08
Acidification potential	AP	mol H ⁺ eq.	2.76E-01	1.11E-06	1.39E-03	9.09E-03	1.02E-03	2.73E-05	1.72E-02	7.56E-04	-8.30E-02
Eutrophication – freshwater	EP - F	kg P eq.	3.87E-03	4.85E-09	-1.50E-05	1.68E-04	5.50E-06	1.20E-07	9.96E-05	1.36E-05	-2.06E-04
Eutrophication – marine	EP - M	kg N eq.	5.26E-02	3.17E-07	2.06E-04	1.55E-03	1.51E-04	7.83E-06	2.77E-03	1.61E-02	-1.67E-02
Eutrophication – terrestrial	EP - T	mol N eq.	6.24E-01	3.47E-06	2.25E-03	1.32E-02	1.62E-03	8.58E-05	2.98E-02	2.74E-03	-1.89E-01
Photochemical ozone creation potential	POCP	kg NMVOC eq.	1.85E-01	8.57E-07	5.61E-04	3.85E-03	4.26E-04	2.12E-05	7.73E-03	9.72E-04	-4.50E-02
Abiotic depletion potential - minerals and metals	ADP	kg Sb eq.	2.14E-04	5.08E-10	2.46E-06	4.06E-06	1.81E-07	1.26E-08	3.55E-06	2.88E-07	-2.66E-06
Abiotic depletion potential - fossil fuels	ADPF	MJ	6.64E+02	2.00E-03	1.39E-01	3.19E+01	6.63E-01	4.94E-02	1.68E+01	2.15E+00	-1.19E+02
Water Depletion Potential	WDP	m ³	1.01E+01	4.16E-05	5.74E-01	3.47E+01	2.28E-02	1.03E-03	1.53E+00	8.64E-02	-6.44E+01

Table 49 | Resource use per m² of Equitilt FlameGuard® 0.7mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	2.49E+01	2.03E-05	3.69E-01	3.26E-01	1.20E-01	5.01E-04	1.92E+00	4.03E-02	-1.32E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary renewable energy - total	PERT	MJ	2.49E+01	2.03E-05	3.69E-01	3.26E-01	1.20E-01	5.01E-04	1.92E+00	4.03E-02	-1.32E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	6.56E+02	2.00E-03	2.93E+00	3.19E+01	6.63E-01	4.94E-02	1.68E+01	2.15E+00	-1.19E+02
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.11E+01	0.00E+00	-3.14E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.20E+00	0.00E+00
Primary non renewable energy - total	PENRT	MJ	6.67E+02	2.00E-03	-2.03E-01	3.19E+01	6.63E-01	4.94E-02	1.68E+01	-7.05E+00	-1.19E+02
Use of secondary material	SM	kg	1.50E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	3.11E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	FW	m ³	1.25E-01	2.38E-07	2.62E-04	3.67E-03	1.14E-04	5.88E-06	2.39E-03	1.21E-03	-3.31E-03

Table 50 | Waste generated per m² of Equitilt FlameGuard® 0.7mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	2.39E-04	2.62E-09	-5.87E-06	1.08E-05	4.50E-07	6.49E-08	9.04E-06	3.06E-06	-1.08E-05
Non-hazardous waste disposed	NHWD	kg	2.47E+00	1.38E-05	3.18E-01	6.54E-02	8.58E-03	3.41E-04	2.64E-01	8.23E+00	-1.36E+00
Radioactive waste disposed/stored	RWD	kg	1.73E-03	1.04E-11	1.86E-05	6.94E-06	4.39E-09	2.58E-10	9.84E-08	1.20E-05	-1.11E-07

Table 51 | Output flows per m² of Equitilt FlameGuard® 0.7mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for reuse	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E+01	0.00E+00	0.00E+00
Materials for energy recovery	MFRE	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electricity	EE - e	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EE - t	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 52 | Additional environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO2 eq	1.76E+01	1.37E-04	1.24E-01	1.68E+00	1.37E-01	3.40E-03	2.59E+00	6.67E-01	-7.84E+00
Particulate matter	PM	disease incidence	2.89E-06	7.26E-12	4.16E-09	8.57E-08	8.88E-09	1.80E-10	1.51E-07	1.43E-08	-5.67E-07
Ionising radiation - human health	IRP	kBq U-235 eq	7.00E-01	7.55E-08	1.96E-02	4.85E-02	3.05E-05	1.87E-06	6.85E-04	9.82E-03	-7.70E-04
Ecotoxicity - freshwater	ETP - fw	CTUe	3.86E+02	1.07E-03	6.53E-01	7.90E+00	3.79E-01	2.65E-02	7.93E+00	4.08E+00	-1.74E+02
Human toxicity potential - cancer effects	HTP - c	CTUh	5.86E-08	3.64E-14	3.06E-09	4.00E-10	2.43E-11	9.00E-13	4.36E-10	6.60E-11	-1.65E-09
Human toxicity potential - non cancer effects	HTP - nc	CTUh	3.52E-07	1.30E-12	2.13E-09	7.25E-09	7.26E-10	3.21E-11	1.36E-08	1.75E-09	-1.13E-07
Soil quality	SQP	Pt	1.04E+02	5.19E-04	1.13E+00	6.96E-01	4.26E-01	1.28E-02	7.15E+00	4.68E+00	-1.44E+01

Table 53 | Environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 75mm (results are in accordance with EN15804+A1:2013)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Global warming potential	GWP	kg CO2 eq	5.42E+01	1.38E-04	1.84E-01	1.72E+00	1.38E-01	3.40E-03	2.59E+00	7.59E-01	-7.82E+00
Ozone layer depletion	ODP	kg CFC-11 eq	1.46E-06	1.69E-11	3.67E-08	4.29E-08	2.33E-10	4.17E-10	2.09E-08	2.04E-08	-1.47E-08
Acidification potential	AP	kg SO2 eq	2.08E-01	5.86E-07	4.45E-04	7.45E-03	2.11E-04	1.45E-05	4.05E-03	5.76E-04	-5.14E-02
Eutrophication potential	EP	kg PO4 ³⁻ eq	3.26E-02	1.34E-07	3.15E-05	1.16E-03	7.30E-05	3.31E-06	1.33E-03	6.83E-03	-7.08E-03
Photochemical ozone creation potential	POCP	kg C2H4 eq	2.46E-02	3.94E-08	5.06E-05	4.60E-04	4.31E-06	9.75E-07	9.47E-05	1.33E-04	-1.87E-02
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	2.14E-04	5.08E-10	2.46E-06	4.06E-06	1.81E-07	1.26E-08	3.55E-06	2.88E-07	-2.66E-06
Abiotic depletion potential for fossil resources	ADPF	MJ	6.70E+02	2.00E-03	3.34E+00	2.91E+01	1.55E+00	4.95E-02	3.10E+01	2.03E+00	-1.78E+02

Table 54 | Environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 75mm (results are in accordance with Green Star v1.3)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Human Toxicity cancer	HTc	CTUh	1.88E-08	3.14E-15	8.69E-12	3.51E-11	5.02E-12	7.77E-14	8.66E-11	6.37E-12	-4.32E-10
Human Toxicity non-cancer	HTnc	CTUh	9.27E-09	7.07E-16	1.37E-12	8.43E-13	8.52E-13	1.75E-14	1.40E-11	9.86E-13	-1.11E-11
Land use	LU	kg C deficit eq.	3.49E+01	3.68E-04	4.85E-01	4.93E-01	1.23E-02	9.09E-03	4.54E-01	1.42E+00	-1.69E+00
Ionising radiation	IR	kBq U235 eq	7.01E-01	7.56E-08	1.96E-02	4.85E-02	3.06E-05	1.87E-06	6.86E-04	9.82E-03	-7.70E-04
Particulate Matter	PM	kg PM2,5-Equiv.	3.03E-02	1.37E-07	1.08E-04	9.55E-04	7.30E-05	3.39E-06	1.32E-03	1.79E-04	-9.98E-03
Resource depletion - water	RDW	m ³	1.81E-01	6.74E-07	1.20E-03	8.67E-03	9.97E-04	1.67E-05	1.71E-02	2.77E-03	-9.02E-03

Equitilt FlameGuard® 0.7mm steel - 100mm

Table 55 | Environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 100mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	6.05E+01	1.52E-04	8.44E-02	1.78E+00	1.39E-01	3.92E-03	2.62E+00	1.18E+00	-9.09E+00
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	-3.23E-01	6.53E-09	1.54E-01	2.94E-03	4.85E-04	1.68E-07	8.00E-03	7.78E-04	4.06E-03
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	1.33E-02	1.26E-09	6.38E-05	5.63E-06	2.87E-08	3.25E-08	9.90E-07	1.24E-04	-9.49E-07
Global warming potential - total	GWP - Total	kg CO₂ eq.	6.01E+01	1.52E-04	2.39E-01	1.78E+00	1.40E-01	3.92E-03	2.63E+00	1.18E+00	-9.09E+00
Ozone depletion potential	ODP	kg CFC 11 eq.	2.06E-06	2.32E-11	4.17E-08	5.04E-08	2.66E-10	5.97E-10	2.56E-08	3.38E-08	-1.84E-08
Acidification potential	AP	mol H ⁺ eq.	3.14E-01	1.20E-06	1.32E-03	9.09E-03	1.02E-03	3.09E-05	1.72E-02	9.98E-04	-8.30E-02
Eutrophication – freshwater	EP - F	kg P eq.	5.01E-03	5.28E-09	-3.20E-05	1.68E-04	5.50E-06	1.36E-07	9.96E-05	1.80E-05	-2.06E-04
Eutrophication – marine	EP - M	kg N eq.	5.75E-02	3.44E-07	1.94E-04	1.55E-03	1.51E-04	8.86E-06	2.77E-03	2.15E-02	-1.67E-02
Eutrophication – terrestrial	EP - T	mol N eq.	6.94E-01	3.77E-06	2.13E-03	1.32E-02	1.62E-03	9.71E-05	2.98E-02	3.62E-03	-1.89E-01
Photochemical ozone creation potential	POCP	kg NMVOC eq.	2.06E-01	9.32E-07	4.36E-04	3.85E-03	4.26E-04	2.40E-05	7.73E-03	1.29E-03	-4.50E-02
Abiotic depletion potential - minerals and metals	ADP	kg Sb eq.	2.53E-04	5.52E-10	2.74E-06	4.06E-06	1.81E-07	1.42E-08	3.55E-06	3.82E-07	-2.66E-06
Abiotic depletion potential - fossil fuels	ADPF	MJ	7.26E+02	2.17E-03	-1.25E+00	3.19E+01	6.63E-01	5.59E-02	1.68E+01	2.84E+00	-1.19E+02
Water Depletion Potential	WDP	m ³	1.16E+01	4.52E-05	7.93E-01	3.47E+01	2.28E-02	1.16E-03	1.53E+00	1.14E-01	-6.44E+01

Table 56 | Resource use per m² of Equitilt FlameGuard® 0.7mm steel - 100mm (results are in accordance with EN15804+A2:2019)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	2.84E+01	2.20E-05	4.22E-01	3.26E-01	1.20E-01	5.67E-04	1.92E+00	5.35E-02	-1.32E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary renewable energy - total	PERT	MJ	2.84E+01	2.20E-05	4.22E-01	3.26E-01	1.20E-01	5.67E-04	1.92E+00	5.35E-02	-1.32E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	7.17E+02	2.17E-03	2.73E+00	3.19E+01	6.63E-01	5.59E-02	1.68E+01	2.84E+00	-1.19E+02
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.19E+01	0.00E+00	-4.47E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.20E+00	0.00E+00
Primary non renewable energy - total	PENRT	MJ	7.29E+02	2.17E-03	-1.74E+00	3.19E+01	6.63E-01	5.59E-02	1.68E+01	-6.36E+00	-1.19E+02
Use of secondary material	SM	kg	1.50E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	3.11E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	FW	m ³	1.41E-01	2.59E-07	1.43E-04	3.67E-03	1.14E-04	6.65E-06	2.39E-03	1.59E-03	-3.31E-03

Table 57 | Waste generated per m² of Equitilt FlameGuard® 0.7mm steel - 100mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	2.99E-04	2.85E-09	-1.05E-05	1.08E-05	4.50E-07	7.34E-08	9.04E-06	4.04E-06	-1.08E-05
Non-hazardous waste disposed	NHWD	kg	2.89E+00	1.50E-05	4.26E-01	6.54E-02	8.58E-03	3.86E-04	2.64E-01	1.08E+01	-1.36E+00
Radioactive waste disposed/stored	RWD	kg	1.78E-03	1.14E-11	2.00E-05	6.94E-06	4.39E-09	2.92E-10	9.84E-08	1.57E-05	-1.11E-07

Table 58 | Output flows per m² of Equitilt FlameGuard® 0.7mm steel - 100mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for reuse	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E+01	0.00E+00	0.00E+00
Materials for energy recovery	MFRE	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electricity	EE - e	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EE - t	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 59 | Additional environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 100mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO2 eq	2.21E+01	1.49E-04	8.89E-02	1.68E+00	1.37E-01	3.84E-03	2.59E+00	8.89E-01	-7.84E+00
Particulate matter	PM	disease incidence	3.18E-06	7.89E-12	-5.26E-11	8.57E-08	8.88E-09	2.03E-10	1.51E-07	1.89E-08	-5.67E-07
Ionising radiation - human health	IRP	kBq U-235 eq	8.30E-01	8.21E-08	2.27E-02	4.85E-02	3.05E-05	2.11E-06	6.85E-04	1.30E-02	-7.70E-04
Ecotoxicity - freshwater	ETP - fw	CTUe	4.76E+02	1.17E-03	-3.98E-01	7.90E+00	3.79E-01	3.00E-02	7.93E+00	5.43E+00	-1.74E+02
Human toxicity potential - cancer effects	HTP - c	CTUh	7.32E-08	3.96E-14	3.95E-09	4.00E-10	2.43E-11	1.02E-12	4.36E-10	8.76E-11	-1.65E-09
Human toxicity potential - non cancer effects	HTP - nc	CTUh	4.09E-07	1.41E-12	2.06E-09	7.25E-09	7.26E-10	3.64E-11	1.36E-08	2.32E-09	-1.13E-07
Soil quality	SQP	Pt	1.33E+02	5.64E-04	1.20E+00	6.96E-01	4.26E-01	1.45E-02	7.15E+00	6.17E+00	-1.44E+01

Table 60 | Environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 100mm (results are in accordance with EN15804+A1:2013)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Global warming potential	GWP	kg CO2 eq	5.87E+01	1.50E-04	1.73E-01	1.72E+00	1.38E-01	3.85E-03	2.59E+00	1.01E+00	-7.82E+00
Ozone layer depletion	ODP	kg CFC-11 eq	1.79E-06	1.84E-11	3.62E-08	4.29E-08	2.33E-10	4.72E-10	2.09E-08	2.68E-08	-1.47E-08
Acidification potential	AP	kg SO2 eq	2.36E-01	6.37E-07	3.55E-04	7.45E-03	2.11E-04	1.64E-05	4.05E-03	7.61E-04	-5.14E-02
Eutrophication potential	EP	kg PO4 ⁻⁻⁻ eq	3.84E-02	1.46E-07	-2.42E-05	1.16E-03	7.30E-05	3.74E-06	1.33E-03	9.12E-03	-7.08E-03
Photochemical ozone creation potential	POCP	kg C2H4 eq	2.63E-02	4.29E-08	3.16E-05	4.60E-04	4.31E-06	1.10E-06	9.47E-05	1.77E-04	-1.87E-02
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	2.53E-04	5.52E-10	2.74E-06	4.06E-06	1.81E-07	1.42E-08	3.55E-06	3.82E-07	-2.66E-06
Abiotic depletion potential for fossil resources	ADPF	MJ	7.37E+02	2.18E-03	2.98E+00	2.91E+01	1.55E+00	5.61E-02	3.10E+01	2.68E+00	-1.78E+02

Table 61 | Environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 100mm (results are in accordance with Green Star v1.3)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Human Toxicity cancer	HTc	CTUh	2.04E-08	3.42E-15	7.74E-12	3.51E-11	5.02E-12	8.80E-14	8.66E-11	8.42E-12	-4.32E-10
Human Toxicity non-cancer	HTnc	CTUh	9.29E-09	7.68E-16	1.46E-12	8.43E-13	8.52E-13	1.98E-14	1.40E-11	1.30E-12	-1.11E-11
Land use	LU	kg C deficit eq.	4.30E+01	4.00E-04	4.93E-01	4.93E-01	1.23E-02	1.03E-02	4.54E-01	1.86E+00	-1.69E+00
Ionising radiation	IR	kBq U235 eq	8.31E-01	8.22E-08	2.27E-02	4.85E-02	3.06E-05	2.11E-06	6.86E-04	1.30E-02	-7.70E-04
Particulate Matter	PM	kg PM2,5-Equiv.	3.63E-02	1.49E-07	5.29E-05	9.55E-04	7.30E-05	3.84E-06	1.32E-03	2.36E-04	-9.98E-03
Resource depletion - water	RDW	m ³	2.19E-01	7.33E-07	8.94E-04	8.67E-03	9.97E-04	1.89E-05	1.71E-02	3.64E-03	-9.02E-03

Equitilt FlameGuard® 0.7mm steel - 150mm

Table 62 | Environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 150mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	6.97E+01	3.41E-04	1.52E-02	1.78E+00	1.39E-01	4.83E-03	2.62E+00	1.77E+00	-9.09E+00
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	-5.28E-01	1.46E-08	2.37E-01	2.94E-03	4.85E-04	2.07E-07	8.00E-03	1.17E-03	4.06E-03
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	1.77E-02	2.82E-09	6.93E-05	5.63E-06	2.87E-08	4.00E-08	9.90E-07	1.84E-04	-9.49E-07
Global warming potential - total	GWP - Total	kg CO₂ eq.	6.92E+01	3.41E-04	2.52E-01	1.78E+00	1.40E-01	4.83E-03	2.63E+00	1.77E+00	-9.09E+00
Ozone depletion potential	ODP	kg CFC 11 eq.	2.82E-06	5.19E-11	4.12E-08	5.04E-08	2.66E-10	7.36E-10	2.56E-08	5.00E-08	-1.84E-08
Acidification potential	AP	mol H ⁺ eq.	3.90E-01	2.69E-06	1.20E-03	9.09E-03	1.02E-03	3.81E-05	1.72E-02	1.48E-03	-8.30E-02
Eutrophication – freshwater	EP - F	kg P eq.	7.28E-03	1.18E-08	-6.31E-05	1.68E-04	5.50E-06	1.67E-07	9.96E-05	2.69E-05	-2.06E-04
Eutrophication – marine	EP - M	kg N eq.	6.74E-02	7.69E-07	1.72E-04	1.55E-03	1.51E-04	1.09E-05	2.77E-03	3.22E-02	-1.67E-02
Eutrophication – terrestrial	EP - T	mol N eq.	8.35E-01	8.43E-06	1.92E-03	1.32E-02	1.62E-03	1.20E-04	2.98E-02	5.36E-03	-1.89E-01
Photochemical ozone creation potential	POCP	kg NMVOC eq.	2.46E-01	2.08E-06	2.10E-04	3.85E-03	4.26E-04	2.95E-05	7.73E-03	1.91E-03	-4.50E-02
Abiotic depletion potential - minerals and metals	ADP	kg Sb eq.	3.31E-04	1.23E-09	3.25E-06	4.06E-06	1.81E-07	1.75E-08	3.55E-06	5.69E-07	-2.66E-06
Abiotic depletion potential - fossil fuels	ADPF	MJ	8.48E+02	4.85E-03	-3.79E+00	3.19E+01	6.63E-01	6.88E-02	1.68E+01	4.20E+00	-1.19E+02
Water Depletion Potential	WDP	m ³	1.44E+01	1.01E-04	1.19E+00	3.47E+01	2.28E-02	1.43E-03	1.53E+00	1.69E-01	-6.44E+01

Table 63 | Resource use per m² of Equitilt FlameGuard® 0.7mm steel - 150mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	3.54E+01	4.93E-05	5.20E-01	3.26E-01	1.20E-01	6.99E-04	1.92E+00	7.99E-02	-1.32E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary renewable energy - total	PERT	MJ	3.54E+01	4.93E-05	5.20E-01	3.26E-01	1.20E-01	6.99E-04	1.92E+00	7.99E-02	-1.32E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	8.38E+02	4.85E-03	2.35E+00	3.19E+01	6.63E-01	6.88E-02	1.68E+01	4.20E+00	-1.19E+02
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.33E+01	0.00E+00	-6.89E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.20E+00	0.00E+00
Primary non renewable energy - total	PENRT	MJ	8.51E+02	4.85E-03	-4.55E+00	3.19E+01	6.63E-01	6.88E-02	1.68E+01	-5.00E+00	-1.19E+02
Use of secondary material	SM	kg	1.50E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	3.11E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	FW	m ³	1.72E-01	5.78E-07	-7.42E-05	3.67E-03	1.14E-04	8.20E-06	2.39E-03	2.36E-03	-3.31E-03

Table 64 | Waste generated per m² of Equitilt FlameGuard® 0.7mm steel - 150mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	4.17E-04	6.37E-09	-1.89E-05	1.08E-05	4.50E-07	9.04E-08	9.04E-06	5.99E-06	-1.08E-05
Non-hazardous waste disposed	NHWD	kg	3.73E+00	3.35E-05	6.32E-01	6.54E-02	8.58E-03	4.75E-04	2.64E-01	1.58E+01	-1.36E+00
Radioactive waste disposed/stored	RWD	kg	1.90E-03	2.54E-11	2.25E-05	6.94E-06	4.39E-09	3.60E-10	9.84E-08	2.33E-05	-1.11E-07

Table 65 | Output flows per m² of Equitilt FlameGuard® 0.7mm steel - 150mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for reuse	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E+01	0.00E+00	0.00E+00
Materials for energy recovery	MFRE	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electricity	EE - e	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EE - t	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 66 | Additional environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 150mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO2 eq	3.11E+01	3.34E-04	2.45E-02	1.68E+00	1.37E-01	4.73E-03	2.59E+00	1.33E+00	-7.84E+00
Particulate matter	PM	disease incidence	3.75E-06	1.76E-11	-7.74E-09	8.57E-08	8.88E-09	2.50E-10	1.51E-07	2.80E-08	-5.67E-07
Ionising radiation - human health	IRP	kBq U-235 eq	1.09E+00	1.83E-07	2.84E-02	4.85E-02	3.05E-05	2.60E-06	6.85E-04	1.92E-02	-7.70E-04
Ecotoxicity - freshwater	ETP - fw	CTUe	6.55E+02	2.61E-03	-2.31E+00	7.90E+00	3.79E-01	3.70E-02	7.93E+00	8.12E+00	-1.74E+02
Human toxicity potential - cancer effects	HTP - c	CTUh	1.02E-07	8.85E-14	5.57E-09	4.00E-10	2.43E-11	1.26E-12	4.36E-10	1.31E-10	-1.65E-09
Human toxicity potential - non cancer effects	HTP - nc	CTUh	5.23E-07	3.16E-12	1.93E-09	7.25E-09	7.26E-10	4.48E-11	1.36E-08	3.46E-09	-1.13E-07
Soil quality	SQP	Pt	1.90E+02	1.26E-03	1.32E+00	6.96E-01	4.26E-01	1.79E-02	7.15E+00	9.16E+00	-1.44E+01

Table 67 | Environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 150mm (results are in accordance with EN15804+A1:2013)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Global warming potential	GWP	kg CO2 eq	6.78E+01	3.34E-04	1.54E-01	1.72E+00	1.38E-01	4.74E-03	2.59E+00	1.52E+00	-7.82E+00
Ozone layer depletion	ODP	kg CFC-11 eq	2.46E-06	4.10E-11	3.53E-08	4.29E-08	2.33E-10	5.82E-10	2.09E-08	3.97E-08	-1.47E-08
Acidification potential	AP	kg SO2 eq	2.94E-01	1.42E-06	1.93E-04	7.45E-03	2.11E-04	2.02E-05	4.05E-03	1.13E-03	-5.14E-02
Eutrophication potential	EP	kg PO4 ⁻⁻⁻ eq	4.99E-02	3.25E-07	-1.26E-04	1.16E-03	7.30E-05	4.61E-06	1.33E-03	1.37E-02	-7.08E-03
Photochemical ozone creation potential	POCP	kg C2H4 eq	2.98E-02	9.58E-08	-3.22E-06	4.60E-04	4.31E-06	1.36E-06	9.47E-05	2.65E-04	-1.87E-02
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	3.31E-04	1.23E-09	3.25E-06	4.06E-06	1.81E-07	1.75E-08	3.55E-06	5.70E-07	-2.66E-06
Abiotic depletion potential for fossil resources	ADPF	MJ	8.70E+02	4.87E-03	2.32E+00	2.91E+01	1.55E+00	6.91E-02	3.10E+01	3.97E+00	-1.78E+02

Table 68 | Environmental impacts per m² of Equitilt FlameGuard® 0.7mm steel - 150mm (results are in accordance with Green Star v1.3)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Human Toxicity cancer	HTc	CTUh	2.35E-08	7.64E-15	6.01E-12	3.51E-11	5.02E-12	1.08E-13	8.66E-11	1.25E-11	-4.32E-10
Human Toxicity non-cancer	HTnc	CTUh	9.32E-09	1.72E-15	1.63E-12	8.43E-13	8.52E-13	2.44E-14	1.40E-11	1.93E-12	-1.11E-11
Land use	LU	kg C deficit eq.	5.91E+01	8.93E-04	5.09E-01	4.93E-01	1.23E-02	1.27E-02	4.54E-01	2.72E+00	-1.69E+00
Ionising radiation	IR	kBq U235 eq	1.09E+00	1.84E-07	2.84E-02	4.85E-02	3.06E-05	2.60E-06	6.86E-04	1.92E-02	-7.70E-04
Particulate Matter	PM	kg PM2,5-Equiv.	4.83E-02	3.33E-07	-4.73E-05	9.55E-04	7.30E-05	4.73E-06	1.32E-03	3.50E-04	-9.98E-03
Resource depletion - water	RDW	m ³	2.92E-01	1.64E-06	3.27E-04	8.67E-03	9.97E-04	2.32E-05	1.71E-02	5.39E-03	-9.02E-03

LuxeWall FlameGuard®

LuxeWall FlameGuard® 0.6mm steel - 50mm

Table 69 | Environmental impacts per m² of LuxeWall FlameGuard® 0.6mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	4.83E+01	1.07E-04	1.05E-01	1.78E+00	1.39E-01	2.83E-03	2.31E+00	6.29E-01	-8.03E+00
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	-2.63E-01	4.61E-09	1.29E-01	2.94E-03	4.85E-04	1.21E-07	7.06E-03	4.16E-04	3.59E-03
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	9.30E-03	8.91E-10	6.22E-05	5.63E-06	2.87E-08	2.34E-08	8.74E-07	6.72E-05	-8.38E-07
Global warming potential - total	GWP - Total	kg CO₂ eq.	4.80E+01	1.07E-04	2.35E-01	1.78E+00	1.40E-01	2.83E-03	2.32E+00	6.29E-01	-8.02E+00
Ozone depletion potential	ODP	kg CFC 11 eq.	1.35E-06	1.64E-11	4.18E-08	5.04E-08	2.66E-10	4.30E-10	2.26E-08	1.85E-08	-1.62E-08
Acidification potential	AP	mol H ⁺ eq.	2.31E-01	8.48E-07	1.36E-03	9.09E-03	1.02E-03	2.23E-05	1.52E-02	5.44E-04	-7.33E-02
Eutrophication – freshwater	EP - F	kg P eq.	2.95E-03	3.72E-09	-2.26E-05	1.68E-04	5.50E-06	9.79E-08	8.79E-05	9.71E-06	-1.81E-04
Eutrophication – marine	EP - M	kg N eq.	4.54E-02	2.43E-07	2.00E-04	1.55E-03	1.51E-04	6.38E-06	2.44E-03	1.14E-02	-1.47E-02
Eutrophication – terrestrial	EP - T	mol N eq.	5.30E-01	2.66E-06	2.20E-03	1.32E-02	1.62E-03	7.00E-05	2.63E-02	1.97E-03	-1.67E-01
Photochemical ozone creation potential	POCP	kg NMVOC eq.	1.58E-01	6.57E-07	5.05E-04	3.85E-03	4.26E-04	1.73E-05	6.82E-03	6.98E-04	-3.98E-02
Abiotic depletion potential - minerals and metals	ADP	kg Sb eq.	1.83E-04	3.89E-10	2.59E-06	4.06E-06	1.81E-07	1.02E-08	3.13E-06	2.06E-07	-2.35E-06
Abiotic depletion potential - fossil fuels	ADPF	MJ	5.76E+02	1.53E-03	-4.86E-01	3.19E+01	6.63E-01	4.03E-02	1.48E+01	1.55E+00	-1.05E+02
Water Depletion Potential	WDP	m ³	8.97E+00	3.19E-05	6.73E-01	3.47E+01	2.28E-02	8.39E-04	1.35E+00	6.22E-02	-5.69E+01

Table 70 | Resource use per m² of LuxeWall FlameGuard® 0.6mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator		Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	2.33E+01	1.55E-05	3.93E-01	3.26E-01	1.20E-01	4.09E-04	1.70E+00	2.88E-02	-1.16E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary renewable energy - total	PERT	MJ	2.33E+01	1.55E-05	3.93E-01	3.26E-01	1.20E-01	4.09E-04	1.70E+00	2.88E-02	-1.16E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	5.67E+02	1.53E-03	2.84E+00	3.19E+01	6.63E-01	4.03E-02	1.48E+01	1.55E+00	-1.05E+02
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.15E+01	0.00E+00	-3.73E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.20E+00	0.00E+00
Primary non renewable energy - total	PENRT	MJ	5.79E+02	1.53E-03	-8.94E-01	3.19E+01	6.63E-01	4.03E-02	1.48E+01	-7.65E+00	-1.05E+02
Use of secondary material	SM	kg	1.30E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	3.20E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	FW	m ³	1.12E-01	1.82E-07	2.08E-04	3.67E-03	1.14E-04	4.80E-06	2.11E-03	8.72E-04	-2.92E-03

Table 71 | Waste generated per m² of LuxeWall FlameGuard® 0.6mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	1.89E-04	2.01E-09	-7.95E-06	1.08E-05	4.50E-07	5.29E-08	7.98E-06	2.21E-06	-9.51E-06
Non-hazardous waste disposed	NHWD	kg	2.13E+00	1.06E-05	3.67E-01	6.54E-02	8.58E-03	2.78E-04	2.33E-01	5.97E+00	-1.20E+00
Radioactive waste disposed/stored	RWD	kg	1.68E-03	8.01E-12	1.93E-05	6.94E-06	4.39E-09	2.11E-10	8.68E-08	8.62E-06	-9.80E-08

Table 72 | Output flows per m² of LuxeWall FlameGuard® 0.6mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for reuse	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.66E+00	0.00E+00	0.00E+00
Materials for energy recovery	MFRE	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electricity	EE - e	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EE - t	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 73 | Additional environmental impacts per m² of LuxeWall FlameGuard® 0.6mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO2 eq	1.38E+01	1.05E-04	1.08E-01	1.68E+00	1.37E-01	2.77E-03	2.28E+00	4.75E-01	-6.92E+00
Particulate matter	PM	disease incidence	2.48E-06	5.57E-12	2.26E-09	8.57E-08	8.88E-09	1.46E-10	1.33E-07	1.03E-08	-5.01E-07
Ionising radiation - human health	IRP	kBq U-235 eq	5.99E-01	5.79E-08	2.10E-02	4.85E-02	3.05E-05	1.52E-06	6.05E-04	7.06E-03	-6.80E-04
Ecotoxicity - freshwater	ETP - fw	CTUe	3.15E+02	8.22E-04	1.81E-01	7.90E+00	3.79E-01	2.16E-02	7.00E+00	2.91E+00	-1.53E+02
Human toxicity potential - cancer effects	HTP - c	CTUh	4.83E-08	2.79E-14	3.46E-09	4.00E-10	2.43E-11	7.34E-13	3.85E-10	4.72E-11	-1.45E-09
Human toxicity potential - non cancer effects	HTP - nc	CTUh	3.08E-07	9.96E-13	2.10E-09	7.25E-09	7.26E-10	2.62E-11	1.20E-08	1.25E-09	-1.00E-07
Soil quality	SQP	Pt	8.82E+01	3.98E-04	1.16E+00	6.96E-01	4.26E-01	1.05E-02	6.31E+00	3.36E+00	-1.28E+01

Table 74 | Environmental impacts per m² of LuxeWall FlameGuard® 0.6mm steel - 50mm (results are in accordance with EN15804+A1:2013)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Global warming potential	GWP	kg CO2 eq	4.68E+01	1.06E-04	1.79E-01	1.72E+00	1.38E-01	2.78E-03	2.29E+00	5.40E-01	-6.90E+00
Ozone layer depletion	ODP	kg CFC-11 eq	1.17E-06	1.29E-11	3.65E-08	4.29E-08	2.33E-10	3.40E-10	1.84E-08	1.47E-08	-1.30E-08
Acidification potential	AP	kg SO2 eq	1.74E-01	4.49E-07	4.05E-04	7.45E-03	2.11E-04	1.18E-05	3.57E-03	4.14E-04	-4.53E-02
Eutrophication potential	EP	kg PO4--- eq	2.68E-02	1.03E-07	6.45E-06	1.16E-03	7.30E-05	2.70E-06	1.18E-03	4.86E-03	-6.25E-03
Photochemical ozone creation potential	POCP	kg C2H4 eq	2.13E-02	3.02E-08	4.21E-05	4.60E-04	4.31E-06	7.95E-07	8.36E-05	9.48E-05	-1.65E-02
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	1.83E-04	3.89E-10	2.59E-06	4.06E-06	1.81E-07	1.02E-08	3.13E-06	2.07E-07	-2.35E-06
Abiotic depletion potential for fossil resources	ADPF	MJ	5.77E+02	1.54E-03	3.18E+00	2.91E+01	1.55E+00	4.04E-02	2.74E+01	1.46E+00	-1.57E+02

Table 75 | Environmental impacts per m² of LuxeWall FlameGuard® 0.6mm steel - 50mm (results are in accordance with Green Star v1.3)

Indicator		Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Human Toxicity cancer	HTc	CTUh	1.86E-08	2.41E-15	8.26E-12	3.51E-11	5.02E-12	6.34E-14	7.64E-11	4.57E-12	-3.81E-10
Human Toxicity non-cancer	HTnc	CTUh	9.26E-09	5.42E-16	1.41E-12	8.43E-13	8.52E-13	1.43E-14	1.24E-11	7.10E-13	-9.79E-12
Land use	LU	kg C deficit eq.	2.81E+01	2.82E-04	4.89E-01	4.93E-01	1.23E-02	7.42E-03	4.01E-01	1.04E+00	-1.49E+00
Ionising radiation	IR	kBq U235 eq	6.00E-01	5.79E-08	2.10E-02	4.85E-02	3.06E-05	1.52E-06	6.06E-04	7.07E-03	-6.80E-04
Particulate Matter	PM	kg PM2,5-Equiv.	2.45E-02	1.05E-07	8.32E-05	9.55E-04	7.30E-05	2.77E-06	1.17E-03	1.28E-04	-8.81E-03
Resource depletion - water	RDW	m ³	1.54E-01	5.17E-07	1.06E-03	8.67E-03	9.97E-04	1.36E-05	1.51E-02	1.99E-03	-7.96E-03

LuxeWall FlameGuard® 0.6mm steel - 75mm

Table 76 | Environmental impacts per m² of LuxeWall FlameGuard® 0.6mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	5.21E+01	2.66E-04	1.05E-01	1.78E+00	1.39E-01	3.22E-03	2.31E+00	8.82E-01	-8.03E+00
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	-2.60E-01	1.14E-08	1.30E-01	2.94E-03	4.85E-04	1.38E-07	7.06E-03	5.82E-04	3.59E-03
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	1.10E-02	2.21E-09	6.22E-05	5.63E-06	2.87E-08	2.67E-08	8.74E-07	9.32E-05	-8.38E-07
Global warming potential - total	GWP - Total	kg CO₂ eq.	5.18E+01	2.66E-04	2.35E-01	1.78E+00	1.40E-01	3.22E-03	2.32E+00	8.83E-01	-8.02E+00
Ozone depletion potential	ODP	kg CFC 11 eq.	1.65E-06	4.05E-11	4.18E-08	5.04E-08	2.66E-10	4.90E-10	2.26E-08	2.55E-08	-1.62E-08
Acidification potential	AP	mol H ⁺ eq.	2.63E-01	2.10E-06	1.36E-03	9.09E-03	1.02E-03	2.54E-05	1.52E-02	7.51E-04	-7.33E-02
Eutrophication – freshwater	EP - F	kg P eq.	3.89E-03	9.22E-09	-2.30E-05	1.68E-04	5.50E-06	1.11E-07	8.79E-05	1.35E-05	-1.81E-04
Eutrophication – marine	EP - M	kg N eq.	4.94E-02	6.01E-07	2.00E-04	1.55E-03	1.51E-04	7.27E-06	2.44E-03	1.61E-02	-1.47E-02
Eutrophication – terrestrial	EP - T	mol N eq.	5.88E-01	6.59E-06	2.20E-03	1.32E-02	1.62E-03	7.96E-05	2.63E-02	2.72E-03	-1.67E-01
Photochemical ozone creation potential	POCP	kg NMVOC eq.	1.74E-01	1.63E-06	5.03E-04	3.85E-03	4.26E-04	1.97E-05	6.82E-03	9.67E-04	-3.98E-02
Abiotic depletion potential - minerals and metals	ADP	kg Sb eq.	2.15E-04	9.65E-10	2.60E-06	4.06E-06	1.81E-07	1.17E-08	3.13E-06	2.87E-07	-2.35E-06
Abiotic depletion potential - fossil fuels	ADPF	MJ	6.26E+02	3.79E-03	-5.19E-01	3.19E+01	6.63E-01	4.58E-02	1.48E+01	2.14E+00	-1.05E+02
Water Depletion Potential	WDP	m ³	1.02E+01	7.90E-05	6.80E-01	3.47E+01	2.28E-02	9.55E-04	1.35E+00	8.57E-02	-5.69E+01

Table 77 | Resource use per m² of LuxeWall FlameGuard® 0.6mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	2.52E+01	3.85E-05	3.94E-01	3.26E-01	1.20E-01	4.65E-04	1.70E+00	4.01E-02	-1.16E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary renewable energy - total	PERT	MJ	2.52E+01	3.85E-05	3.94E-01	3.26E-01	1.20E-01	4.65E-04	1.70E+00	4.01E-02	-1.16E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	6.17E+02	3.79E-03	2.84E+00	3.19E+01	6.63E-01	4.58E-02	1.48E+01	2.14E+00	-1.05E+02
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.16E+01	0.00E+00	-3.77E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.20E+00	0.00E+00
Primary non renewable energy - total	PENRT	MJ	6.28E+02	3.79E-03	-9.31E-01	3.19E+01	6.63E-01	4.58E-02	1.48E+01	-7.06E+00	-1.05E+02
Use of secondary material	SM	kg	1.30E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	3.20E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	FW	m ³	1.23E-01	4.52E-07	2.06E-04	3.67E-03	1.14E-04	5.46E-06	2.11E-03	1.20E-03	-2.92E-03

Table 78 | Waste generated per m² of LuxeWall FlameGuard® 0.6mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	2.37E-04	4.98E-09	-8.06E-06	1.08E-05	4.50E-07	6.02E-08	7.98E-06	3.04E-06	-9.51E-06
Non-hazardous waste disposed	NHWD	kg	2.45E+00	2.62E-05	3.79E-01	6.54E-02	8.58E-03	3.16E-04	2.33E-01	8.14E+00	-1.20E+00
Radioactive waste disposed/stored	RWD	kg	1.72E-03	1.98E-11	1.93E-05	6.94E-06	4.39E-09	2.40E-10	8.68E-08	1.19E-05	-9.80E-08

Table 79 | Output flows per m² of LuxeWall FlameGuard® 0.6mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for reuse	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.66E+00	0.00E+00	0.00E+00
Materials for energy recovery	MFRE	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electricity	EE - e	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EE - t	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 80 | Additional environmental impacts per m² of LuxeWall FlameGuard® 0.6mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO2 eq	1.75E+01	2.61E-04	1.08E-01	1.68E+00	1.37E-01	3.15E-03	2.28E+00	6.65E-01	-6.92E+00
Particulate matter	PM	disease incidence	2.72E-06	1.38E-11	2.17E-09	8.57E-08	8.88E-09	1.67E-10	1.33E-07	1.42E-08	-5.01E-07
Ionising radiation - human health	IRP	kBq U-235 eq	7.03E-01	1.43E-07	2.11E-02	4.85E-02	3.05E-05	1.73E-06	6.05E-04	9.75E-03	-6.80E-04
Ecotoxicity - freshwater	ETP - fw	CTUe	3.87E+02	2.04E-03	1.63E-01	7.90E+00	3.79E-01	2.46E-02	7.00E+00	4.07E+00	-1.53E+02
Human toxicity potential - cancer effects	HTP - c	CTUh	5.93E-08	6.92E-14	3.48E-09	4.00E-10	2.43E-11	8.36E-13	3.85E-10	6.57E-11	-1.45E-09
Human toxicity potential - non cancer effects	HTP - nc	CTUh	3.52E-07	2.47E-12	2.10E-09	7.25E-09	7.26E-10	2.98E-11	1.20E-08	1.74E-09	-1.00E-07
Soil quality	SQP	Pt	1.06E+02	9.86E-04	1.16E+00	6.96E-01	4.26E-01	1.19E-02	6.31E+00	4.65E+00	-1.28E+01

Table 81 | Environmental impacts per m² of LuxeWall FlameGuard® 0.6mm steel - 75mm (results are in accordance with EN15804+A1:2013)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Global warming potential	GWP	kg CO2 eq	5.06E+01	2.61E-04	1.79E-01	1.72E+00	1.38E-01	3.16E-03	2.29E+00	7.57E-01	-6.90E+00
Ozone layer depletion	ODP	kg CFC-11 eq	1.43E-06	3.21E-11	3.65E-08	4.29E-08	2.33E-10	3.87E-10	1.84E-08	2.02E-08	-1.30E-08
Acidification potential	AP	kg SO2 eq	1.98E-01	1.11E-06	4.03E-04	7.45E-03	2.11E-04	1.35E-05	3.57E-03	5.72E-04	-4.53E-02
Eutrophication potential	EP	kg PO4 ⁻⁻⁻ eq	3.15E-02	2.54E-07	5.22E-06	1.16E-03	7.30E-05	3.07E-06	1.18E-03	6.82E-03	-6.25E-03
Photochemical ozone creation potential	POCP	kg C2H4 eq	2.27E-02	7.49E-08	4.16E-05	4.60E-04	4.31E-06	9.05E-07	8.36E-05	1.33E-04	-1.65E-02
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	2.15E-04	9.65E-10	2.60E-06	4.06E-06	1.81E-07	1.17E-08	3.13E-06	2.87E-07	-2.35E-06
Abiotic depletion potential for fossil resources	ADPF	MJ	6.31E+02	3.81E-03	3.17E+00	2.91E+01	1.55E+00	4.60E-02	2.74E+01	2.02E+00	-1.57E+02

Table 82 | Environmental impacts per m² of LuxeWall FlameGuard® 0.6mm steel - 75mm (results are in accordance with Green Star v1.3)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Human Toxicity cancer	HTc	CTUh	1.92E-08	5.97E-15	8.25E-12	3.51E-11	5.02E-12	7.22E-14	7.64E-11	6.33E-12	-3.81E-10
Human Toxicity non-cancer	HTnc	CTUh	9.27E-09	1.34E-15	1.42E-12	8.43E-13	8.52E-13	1.62E-14	1.24E-11	9.79E-13	-9.79E-12
Land use	LU	kg C deficit eq.	3.43E+01	6.98E-04	4.89E-01	4.93E-01	1.23E-02	8.44E-03	4.01E-01	1.41E+00	-1.49E+00
Ionising radiation	IR	kBq U235 eq	7.04E-01	1.44E-07	2.11E-02	4.85E-02	3.06E-05	1.73E-06	6.06E-04	9.76E-03	-6.80E-04
Particulate Matter	PM	kg PM2,5-Equiv.	2.94E-02	2.61E-07	8.19E-05	9.55E-04	7.30E-05	3.15E-06	1.17E-03	1.77E-04	-8.81E-03
Resource depletion - water	RDW	m ³	1.81E-01	1.28E-06	1.06E-03	8.67E-03	9.97E-04	1.55E-05	1.51E-02	2.74E-03	-7.96E-03

LuxeWall FlameGuard® 0.7mm steel - 50mm

Table 83 | Environmental impacts per m² of LuxeWall FlameGuard® 0.7mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	5.29E+01	1.07E-04	1.05E-01	1.78E+00	1.39E-01	3.06E-03	2.62E+00	6.19E-01	-9.09E+00
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	-2.61E-01	4.61E-09	1.29E-01	2.94E-03	4.85E-04	1.31E-07	8.00E-03	4.09E-04	4.06E-03
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	9.75E-03	8.91E-10	6.22E-05	5.63E-06	2.87E-08	2.53E-08	9.90E-07	6.66E-05	-9.49E-07
Global warming potential - total	GWP - Total	kg CO₂ eq.	5.26E+01	1.07E-04	2.35E-01	1.78E+00	1.40E-01	3.06E-03	2.63E+00	6.19E-01	-9.09E+00
Ozone depletion potential	ODP	kg CFC 11 eq.	1.39E-06	1.64E-11	4.18E-08	5.04E-08	2.66E-10	4.65E-10	2.56E-08	1.84E-08	-1.84E-08
Acidification potential	AP	mol H ⁺ eq.	2.49E-01	8.48E-07	1.36E-03	9.09E-03	1.02E-03	2.41E-05	1.72E-02	5.39E-04	-8.30E-02
Eutrophication – freshwater	EP - F	kg P eq.	2.96E-03	3.72E-09	-2.26E-05	1.68E-04	5.50E-06	1.06E-07	9.96E-05	9.59E-06	-2.06E-04
Eutrophication – marine	EP - M	kg N eq.	4.95E-02	2.43E-07	2.00E-04	1.55E-03	1.51E-04	6.90E-06	2.77E-03	1.12E-02	-1.67E-02
Eutrophication – terrestrial	EP - T	mol N eq.	5.75E-01	2.66E-06	2.20E-03	1.32E-02	1.62E-03	7.57E-05	2.98E-02	1.96E-03	-1.89E-01
Photochemical ozone creation potential	POCP	kg NMVOC eq.	1.71E-01	6.57E-07	5.05E-04	3.85E-03	4.26E-04	1.87E-05	7.73E-03	6.91E-04	-4.50E-02
Abiotic depletion potential - minerals and metals	ADP	kg Sb eq.	1.92E-04	3.89E-10	2.59E-06	4.06E-06	1.81E-07	1.11E-08	3.55E-06	2.04E-07	-2.66E-06
Abiotic depletion potential - fossil fuels	ADPF	MJ	6.28E+02	1.53E-03	-4.86E-01	3.19E+01	6.63E-01	4.36E-02	1.68E+01	1.54E+00	-1.19E+02
Water Depletion Potential	WDP	m ³	9.39E+00	3.19E-05	6.73E-01	3.47E+01	2.28E-02	9.07E-04	1.53E+00	6.18E-02	-6.44E+01

Table 84 | Resource use per m² of LuxeWall FlameGuard® 0.7mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	2.50E+01	1.55E-05	3.93E-01	3.26E-01	1.20E-01	4.42E-04	1.92E+00	2.84E-02	-1.32E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary renewable energy - total	PERT	MJ	2.50E+01	1.55E-05	3.93E-01	3.26E-01	1.20E-01	4.42E-04	1.92E+00	2.84E-02	-1.32E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	6.20E+02	1.53E-03	2.84E+00	3.19E+01	6.63E-01	4.36E-02	1.68E+01	1.54E+00	-1.19E+02
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.15E+01	0.00E+00	-3.73E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.20E+00	0.00E+00
Primary non renewable energy - total	PENRT	MJ	6.31E+02	1.53E-03	-8.94E-01	3.19E+01	6.63E-01	4.36E-02	1.68E+01	-7.66E+00	-1.19E+02
Use of secondary material	SM	kg	1.47E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	3.61E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	FW	m ³	1.20E-01	1.82E-07	2.08E-04	3.67E-03	1.14E-04	5.19E-06	2.39E-03	8.66E-04	-3.31E-03

Table 85 | Waste generated per m² of LuxeWall FlameGuard® 0.7mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	1.94E-04	2.01E-09	-7.95E-06	1.08E-05	4.50E-07	5.72E-08	9.04E-06	2.19E-06	-1.08E-05
Non-hazardous waste disposed	NHWD	kg	2.23E+00	1.06E-05	3.67E-01	6.54E-02	8.58E-03	3.01E-04	2.64E-01	5.97E+00	-1.36E+00
Radioactive waste disposed/stored	RWD	kg	1.87E-03	8.01E-12	1.93E-05	6.94E-06	4.39E-09	2.28E-10	9.84E-08	8.56E-06	-1.11E-07

Table 86 | Output flows per m² of LuxeWall FlameGuard® 0.7mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for reuse	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E+01	0.00E+00	0.00E+00
Materials for energy recovery	MFRE	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electricity	EE - e	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EE - t	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 87 | Additional environmental impacts per m² of LuxeWall FlameGuard® 0.7mm steel - 50mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO2 eq	1.41E+01	1.05E-04	1.08E-01	1.68E+00	1.37E-01	2.99E-03	2.59E+00	4.67E-01	-7.84E+00
Particulate matter	PM	disease incidence	2.70E-06	5.57E-12	2.26E-09	8.57E-08	8.88E-09	1.58E-10	1.51E-07	1.02E-08	-5.67E-07
Ionising radiation - human health	IRP	kBq U-235 eq	6.32E-01	5.79E-08	2.10E-02	4.85E-02	3.05E-05	1.65E-06	6.85E-04	7.00E-03	-7.70E-04
Ecotoxicity - freshwater	ETP - fw	CTUe	3.17E+02	8.22E-04	1.81E-01	7.90E+00	3.79E-01	2.34E-02	7.93E+00	2.87E+00	-1.74E+02
Human toxicity potential - cancer effects	HTP - c	CTUh	4.84E-08	2.79E-14	3.46E-09	4.00E-10	2.43E-11	7.94E-13	4.36E-10	4.67E-11	-1.65E-09
Human toxicity potential - non cancer effects	HTP - nc	CTUh	3.11E-07	9.96E-13	2.10E-09	7.25E-09	7.26E-10	2.83E-11	1.36E-08	1.23E-09	-1.13E-07
Soil quality	SQP	Pt	9.03E+01	3.98E-04	1.16E+00	6.96E-01	4.26E-01	1.13E-02	7.15E+00	3.34E+00	-1.44E+01

Table 88 | Environmental impacts per m² of LuxeWall FlameGuard® 0.7mm steel - 50mm (results are in accordance with EN15804+A1:2013)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Global warming potential	GWP	kg CO2 eq	5.13E+01	1.06E-04	1.79E-01	1.72E+00	1.38E-01	3.00E-03	2.59E+00	5.32E-01	-7.82E+00
Ozone layer depletion	ODP	kg CFC-11 eq	1.20E-06	1.29E-11	3.65E-08	4.29E-08	2.33E-10	3.68E-10	2.09E-08	1.46E-08	-1.47E-08
Acidification potential	AP	kg SO2 eq	1.87E-01	4.49E-07	4.05E-04	7.45E-03	2.11E-04	1.28E-05	4.05E-03	4.11E-04	-5.14E-02
Eutrophication potential	EP	kg PO4 ⁻⁻⁻ eq	2.83E-02	1.03E-07	6.45E-06	1.16E-03	7.30E-05	2.92E-06	1.33E-03	4.78E-03	-7.08E-03
Photochemical ozone creation potential	POCP	kg C2H4 eq	2.35E-02	3.02E-08	4.21E-05	4.60E-04	4.31E-06	8.60E-07	9.47E-05	9.33E-05	-1.87E-02
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	1.92E-04	3.89E-10	2.59E-06	4.06E-06	1.81E-07	1.11E-08	3.55E-06	2.04E-07	-2.66E-06
Abiotic depletion potential for fossil resources	ADPF	MJ	6.28E+02	1.54E-03	3.18E+00	2.91E+01	1.55E+00	4.37E-02	3.10E+01	1.45E+00	-1.78E+02

Table 89 | Environmental impacts per m² of LuxeWall FlameGuard® 0.7mm steel - 50mm (results are in accordance with Green Star v1.3)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Human Toxicity cancer	HTc	CTUh	1.86E-08	2.41E-15	8.26E-12	3.51E-11	5.02E-12	6.86E-14	8.66E-11	4.53E-12	-4.32E-10
Human Toxicity non-cancer	HTnc	CTUh	9.26E-09	5.42E-16	1.41E-12	8.43E-13	8.52E-13	1.54E-14	1.40E-11	7.04E-13	-1.11E-11
Land use	LU	kg C deficit eq.	2.93E+01	2.82E-04	4.89E-01	4.93E-01	1.23E-02	8.02E-03	4.54E-01	1.04E+00	-1.69E+00
Ionising radiation	IR	kBq U235 eq	6.33E-01	5.79E-08	2.10E-02	4.85E-02	3.06E-05	1.65E-06	6.86E-04	7.01E-03	-7.70E-04
Particulate Matter	PM	kg PM2,5-Equiv.	2.57E-02	1.05E-07	8.32E-05	9.55E-04	7.30E-05	2.99E-06	1.32E-03	1.27E-04	-9.98E-03
Resource depletion - water	RDW	m ³	1.57E-01	5.17E-07	1.06E-03	8.67E-03	9.97E-04	1.47E-05	1.71E-02	1.98E-03	-9.02E-03

LuxeWall FlameGuard® 0.7mm steel - 75mm

Table 90 | Environmental impacts per m² of LuxeWall FlameGuard® 0.7mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	5.67E+01	2.66E-04	1.05E-01	1.78E+00	1.39E-01	3.45E-03	2.62E+00	8.73E-01	-9.09E+00
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	-2.58E-01	1.14E-08	1.30E-01	2.94E-03	4.85E-04	1.48E-07	8.00E-03	5.77E-04	4.06E-03
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	1.14E-02	2.21E-09	6.22E-05	5.63E-06	2.87E-08	2.86E-08	9.90E-07	9.26E-05	-9.49E-07
Global warming potential - total	GWP - Total	kg CO₂ eq.	5.64E+01	2.66E-04	2.35E-01	1.78E+00	1.40E-01	3.45E-03	2.63E+00	8.74E-01	-9.09E+00
Ozone depletion potential	ODP	kg CFC 11 eq.	1.69E-06	4.05E-11	4.18E-08	5.04E-08	2.66E-10	5.25E-10	2.56E-08	2.54E-08	-1.84E-08
Acidification potential	AP	mol H ⁺ eq.	2.80E-01	2.10E-06	1.36E-03	9.09E-03	1.02E-03	2.72E-05	1.72E-02	7.48E-04	-8.30E-02
Eutrophication – freshwater	EP - F	kg P eq.	3.90E-03	9.22E-09	-2.30E-05	1.68E-04	5.50E-06	1.19E-07	9.96E-05	1.34E-05	-2.06E-04
Eutrophication – marine	EP - M	kg N eq.	5.35E-02	6.01E-07	2.00E-04	1.55E-03	1.51E-04	7.79E-06	2.77E-03	1.59E-02	-1.67E-02
Eutrophication – terrestrial	EP - T	mol N eq.	6.34E-01	6.59E-06	2.20E-03	1.32E-02	1.62E-03	8.54E-05	2.98E-02	2.71E-03	-1.89E-01
Photochemical ozone creation potential	POCP	kg NMVOC eq.	1.88E-01	1.63E-06	5.03E-04	3.85E-03	4.26E-04	2.11E-05	7.73E-03	9.61E-04	-4.50E-02
Abiotic depletion potential - minerals and metals	ADP	kg Sb eq.	2.25E-04	9.65E-10	2.60E-06	4.06E-06	1.81E-07	1.25E-08	3.55E-06	2.85E-07	-2.66E-06
Abiotic depletion potential - fossil fuels	ADPF	MJ	6.78E+02	3.79E-03	-5.19E-01	3.19E+01	6.63E-01	4.91E-02	1.68E+01	2.13E+00	-1.19E+02
Water Depletion Potential	WDP	m ³	1.06E+01	7.90E-05	6.80E-01	3.47E+01	2.28E-02	1.02E-03	1.53E+00	8.54E-02	-6.44E+01

Table 91 | Resource use per m² of LuxeWall FlameGuard® 0.7mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	2.68E+01	3.85E-05	3.94E-01	3.26E-01	1.20E-01	4.99E-04	1.92E+00	3.98E-02	-1.32E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary renewable energy - total	PERT	MJ	2.68E+01	3.85E-05	3.94E-01	3.26E-01	1.20E-01	4.99E-04	1.92E+00	3.98E-02	-1.32E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	6.69E+02	3.79E-03	2.84E+00	3.19E+01	6.63E-01	4.91E-02	1.68E+01	2.13E+00	-1.19E+02
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.16E+01	0.00E+00	-3.77E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.20E+00	0.00E+00
Primary non renewable energy - total	PENRT	MJ	6.81E+02	3.79E-03	-9.31E-01	3.19E+01	6.63E-01	4.91E-02	1.68E+01	-7.07E+00	-1.19E+02
Use of secondary material	SM	kg	1.47E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	3.61E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	FW	m ³	1.31E-01	4.52E-07	2.06E-04	3.67E-03	1.14E-04	5.85E-06	2.39E-03	1.20E-03	-3.31E-03

Table 92 | Waste generated per m² of LuxeWall FlameGuard® 0.7mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	2.41E-04	4.98E-09	-8.06E-06	1.08E-05	4.50E-07	6.46E-08	9.04E-06	3.03E-06	-1.08E-05
Non-hazardous waste disposed	NHWD	kg	2.56E+00	2.62E-05	3.79E-01	6.54E-02	8.58E-03	3.39E-04	2.64E-01	8.14E+00	
Radioactive waste disposed/stored	RWD	kg	1.92E-03	1.98E-11	1.93E-05	6.94E-06	4.39E-09	2.57E-10	9.84E-08	1.18E-05	-1.11E-07

Table 93 | Output flows per m² of LuxeWall FlameGuard[®] 0.7mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for reuse	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E+01	0.00E+00	0.00E+00
Materials for energy recovery	MFRE	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electricity	EE - e	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EE - t	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 94 | Additional environmental impacts per m² of LuxeWall FlameGuard[®] 0.7mm steel - 75mm (results are in accordance with EN15804+A2:2019)

Indicator	ABR	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO2 eq	1.78E+01	2.61E-04	1.08E-01	1.68E+00	1.37E-01	3.38E-03	2.59E+00	6.59E-01	-7.84E+00
Particulate matter	PM	disease incidence	2.94E-06	1.38E-11	2.17E-09	8.57E-08	8.88E-09	1.79E-10	1.51E-07	1.42E-08	-5.67E-07
Ionising radiation - human health	IRP	kBq U-235 eq	7.36E-01	1.43E-07	2.11E-02	4.85E-02	3.05E-05	1.86E-06	6.85E-04	9.71E-03	-7.70E-04
Ecotoxicity - freshwater	ETP - fw	CTUe	3.89E+02	2.04E-03	1.63E-01	7.90E+00	3.79E-01	2.64E-02	7.93E+00	4.03E+00	-1.74E+02
Human toxicity potential - cancer effects	HTP - c	CTUh	5.94E-08	6.92E-14	3.48E-09	4.00E-10	2.43E-11	8.96E-13	4.36E-10	6.53E-11	-1.65E-09
Human toxicity potential - non cancer effects	HTP - nc	CTUh	3.55E-07	2.47E-12	2.10E-09	7.25E-09	7.26E-10	3.20E-11	1.36E-08	1.72E-09	-1.13E-07
Soil quality	SQP	Pt	1.08E+02	9.86E-04	1.16E+00	6.96E-01	4.26E-01	1.28E-02	7.15E+00	4.62E+00	-1.44E+01

Table 95 | Environmental impacts per m² of LuxeWall FlameGuard[®] 0.7mm steel - 75mm (results are in accordance with EN15804+A1:2013)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Global warming potential	GWP	kg CO2 eq	5.51E+01	2.61E-04	1.79E-01	1.72E+00	1.38E-01	3.39E-03	2.59E+00	7.50E-01	-7.82E+00
Ozone layer depletion	ODP	kg CFC-11 eq	1.47E-06	3.21E-11	3.65E-08	4.29E-08	2.33E-10	4.15E-10	2.09E-08	2.02E-08	-1.47E-08
Acidification potential	AP	kg SO2 eq	2.11E-01	1.11E-06	4.03E-04	7.45E-03	2.11E-04	1.44E-05	4.05E-03	5.70E-04	-5.14E-02
Eutrophication potential	EP	kg PO4 ⁻⁻⁻ eq	3.30E-02	2.54E-07	5.22E-06	1.16E-03	7.30E-05	3.29E-06	1.33E-03	6.75E-03	-7.08E-03
Photochemical ozone creation potential	POCP	kg C2H4 eq	2.50E-02	7.49E-08	4.16E-05	4.60E-04	4.31E-06	9.70E-07	9.47E-05	1.31E-04	-1.87E-02
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	2.25E-04	9.65E-10	2.60E-06	4.06E-06	1.81E-07	1.25E-08	3.55E-06	2.85E-07	-2.66E-06
Abiotic depletion potential for fossil resources	ADPF	MJ	6.83E+02	3.81E-03	3.17E+00	2.91E+01	1.55E+00	4.93E-02	3.10E+01	2.01E+00	-1.78E+02

Table 96 | Environmental impacts per m² of LuxeWall FlameGuard[®] 0.7mm steel - 75mm (results are in accordance with Green Star v1.3)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
Human Toxicity cancer	HTc	CTUh	1.93E-08	5.97E-15	8.25E-12	3.51E-11	5.02E-12	7.74E-14	8.66E-11	6.29E-12	-4.32E-10
Human Toxicity non-cancer	HTnc	CTUh	9.28E-09	1.34E-15	1.42E-12	8.43E-13	8.52E-13	1.74E-14	1.40E-11	9.75E-13	-1.11E-11
Land use	LU	kg C deficit eq.	3.55E+01	6.98E-04	4.89E-01	4.93E-01	1.23E-02	9.05E-03	4.54E-01	1.41E+00	-1.69E+00
Ionising radiation	IR	kBq U235 eq	7.37E-01	1.44E-07	2.11E-02	4.85E-02	3.06E-05	1.86E-06	6.86E-04	9.71E-03	-7.70E-04
Particulate Matter	PM	kg PM2,5-Equiv.	3.07E-02	2.61E-07	8.19E-05	9.55E-04	7.30E-05	3.38E-06	1.32E-03	1.76E-04	-9.98E-03
Resource depletion - water	RDW	m ³	1.85E-01	1.28E-06	1.06E-03	8.67E-03	9.97E-04	1.66E-05	1.71E-02	2.73E-03	-9.02E-03

Interpretation and Recommendations

The LCA of Bondor's insulated panel products, by transfer of text from report to EPD, establish the basis for development of Environmental Product Declarations compliant with PCR 2019:14 (Construction Products) and the overarching EN15804 A2 standard. These EPDs can be used to gain material credits in Green Star projects, contribute to whole building LCAs (following the EN 15978 standard) and to present Bondor's environmental credentials to customers and other stakeholders.

The scope of the LCA was cradle to gate with modules A1-A3, C and D, plus optional modules A4-A5 and B2. The declared unit is 1 m² of panel available in varying product specifications which fulfils the specified quality criteria during the Reference Service Life of 40 years.

Interpretation

- The product stage (module A1-A3) is the most significant contributor to potential environmental impacts accounting for 92-94% of total GWP.
- All products have a high steel content, with the material and transport to manufacturing site (module A1-A2) accounting for 46% - 67% of total GWP. Mineral wool accounts for 26-53% of total GWP.
- Due to the recyclability of steel, all products have significant recycling potential can be declared. Module D shows benefits for the next system for GWP of 8.02-9.09 kg CO₂ eq.
- In terms of resource use across all modules (A1-D), the largest energy use comes from non-renewable primary energy resources (PENRT).
- Across all modules, 100% of the waste disposed is non-hazardous (NHWD).

Recommendations

Based on the results of this LCA, we recommend that Bondor:

- Steel has significant contributions to total impacts and so alternative materials with lower burdens should be considered.
- Explore possibilities of transporting bulk quantities to nearby warehouses in main cities, and then distribute to individuals using electric vehicles or any other means.
- Extend the scope of the LCA to include the use and operation of it in buildings, as this will likely emphasise the true-life cycle impact and benefits of Bondor panels compared to alternatives. Note this is beyond the scope of this product-level study for the purposes of the EPD.
- Investigate opportunities to enable and increase the recycling and re-use of panels after their first service life.

References

- (ALCAS), A. L. (2019). Australian Life Cycle Inventory (AusLCI) – v1.31.
- British Standards Institution. (2014). *Sustainability of construction works. - Environmental product declarations - Product Category Rules for concrete and concrete elements, BS EN16757:2017*. British Standards Institution.
- Cooke, A. M. (2000). *Durability of Autoclaved Cellulose Fiber Cement Composites*. Retrieved from <http://fibrecementconsulting.com/publications/990925.DurabilityPaper.pdf>
- Department of the Environment. (2014). *National Greenhouse Accounts Factors - Australian National Greenhouse Accounts*. Australian Government. Retrieved from www.environment.gov.au
- EPD International. (2019). *General Programme Instructions of the International EPD System, version 3.01*.
- EPD International. (2021). *Product Category Rules (PCR) 2019:14, v1.11*. EPD International.
- Frischknecht, R. (2007). The Environmental Relevance of Capital Goods in Life Cycle Assessments of Products and Services. *Int. J LCA*.
- ISO. (2006). *ISO 14025:2006 - Environmental labels and declarations - Type III environmental declarations - Principles and procedures*. Geneva: International Organization for Standardization (ISO).
- ISO. (2006). *ISO 14040:2006. Environmental management – Life cycle assessment – Principles and framework*. Geneva: International Organization for Standardization.
- ISO. (2006). *ISO 14040:2006/Amd1:2020. Environmental management – Life cycle assessment – Principles and framework*. Geneva: International Organization for Standardization.
- ISO. (2006). *ISO 14044:2006. Environmental management – Life cycle assessment – Requirements and guidelines*. Geneva: International Organization for Standardization.
- ISO. (2006). *ISO 14044:2006/Amd1:2017/Amd2:2020. Environmental management – Life cycle assessment – Requirements and guidelines*. Geneva: International Organization for Standardization.
- Lstiburek, J. (2006). *BSD-144: Increasing the Durability of Building Constructions*. Building Science Corporation. Retrieved from <https://www.buildingscience.com/documents/digests/bsd-144-increasing-the-durability-of-building-constructions>
- Quantis. (2020). *Biogenic Carbon Footprint Calculator for Harvested Wood Products*. World Wildlife Fund.
- QUT. (2014). *Bondor Insulliving House: Performance Evaluation*. Queensland University of Technology.
- Standards New Zealand. (2018). *AS/NZS 4859.1:2018*.
- The British Standards Institution. (2021). *EN 15804:2012+A2:2019*. BSI Standards Limited 2020.
- Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., & Weidema, B. (2019). The ecoinvent database version 3.6.