Environmental Product Declaration

USG DUROCK® BRAND CEMENT BOARD WITH EDGEGUARD™

Baltimore, MD, Detroit, MI, New Orleans, LA

Features and Benefits

- Enhanced proprietary edge performance prevents spinout and crumbling
- Easy to cut and fasten
- Water durable and mold resistant
- Warranted for interior and exterior applications
- Exceptional tile bond

TRACI v2.1 (Environmental Impacts) (A1-A3):
1/2" USG Durock® Brand Cement Board with EdgeGuard™ Cradle-to-Gate

Declared Unit – 1,000 square feet (92.9 square meters)	Baltimore, MD	Detroit, MI	New Orleans, LA
Global Warming Potential (kg CO2 eq.),excl. biogenic carbon	7.15E+02	6.40E+02	6.54E+02
Global Warming Potential (kg CO2 eq.),incl. biogenic carbon	6.72E+02	5.97E+02	6.10E+02
Ozone Depletion Potential (kg CFC-11 eq.)	3.44E-05	3.44E-05	3.44E-05
Acidification Potential (kg SO2 eq.)	2.14E+00	2.06E+00	2.05E+00
Eutrophication Potential (kg N eq.)	1.29E-01	1.19E-01	1.24E-01
Photochemical Ozone Creation Potential (kg O3 eq.)	3.58E+01	3.28E+01	3.30E+01
Abiotic Resource Depletion Potential Fossil Fuels (MJ, LHV)	2.20E+03	2.16E+03	2.18E+03

USG CGC TM/MC

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USG DUROCK® BRAND CEMENT BOARD WITH EDGEGUARD™
Baltimore, MD, Detroit, MI, New Orleans, LA

This declaration is an Environmental Product Declaration (EPD) in accordance with ISO 14025:2006 and ISO 21930:2017. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc.

USG Corporation has sole ownership, liability, and responsibility for this EPD.

Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of products using EPD information shall be based on the product's use and impacts at the building or construction works level, and therefore EPDs may not be used for comparability purposes when not considering the whole building life cycle. EPD comparability is only possible when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences in results upstream or downstream of the life cycle stages declared.

DECLARATION NUMBER	EPD 913
EPD TYPE	Product specific, facility specific EPD
PROGRAM OPERATOR	ASTM International – 100 Barr Harbor Drive, West Conshohocken, PA USA www.astm.org
DECLARATION HOLDER	USG Corporation - 550 W. Adams St., Chicago, IL USA
EPD Type	Type III Declaration per ISO 14025:2006
DECLARED PRODUCT	USG Durock® Brand Cement Board with EdgeGuard™
DATE OF ISSUE PERIOD OF VALIDITY	02/20/25 5 Years
REFERENCE PCR	ISO 21930:2017 Sustainability in buildings and civil engineering works-Core rules for environmental product declarations of construction products and services
ACLCA PCR OPEN STANDARD CONFORMANCE	Transparency
ACLCA PCR OPEN STANDARD VERSION	Version 1.0 | May 25, 2022
This declaration was independently verified in accordance with ISO 14025 and ISO 21930:2017 □ INTERNAL ☒ EXTERNAL	Tim Brooke, ASTM International
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Thomas P. Gloria, Industrial Ecology Consultants

1.Product System Documentation

1.1 Product Description and Product Identification

USG Durock® Brand Cement Board with EdgeGuard™ is formed in a continuous process of an aggregated portland cement slurry with the polymer-coated, glass-fiber mesh completely encompoassing the edges, back, and front surfaces. The edges are formed smooth using a proprietary poly-propylene fabric-wrapped edge.

USG Durock® Brand Cement Board with EdgeGuard is nominally 1/4" (6.4mm), 1/2" (12.7 mm), or 5/8" (15.9mm) thick. The panel size is 3 ft. × 5 ft. (915 mm × 1,525 mm) or 4 ft. × 8 ft. (1,220 mm × 2,440 mm). 1/4" (6.4mm) thickness panels can only be used on floors.

USG Durock® Brand Cement Board with EdgeGuard offers architects, builders and tile contractors a strong, water-durable tile base for tub and shower areas. It is also an ideal underlayment for tile on floors and countertops in new construction and remodeling. The board is readily applied over wood or steel framing spaced 16 in. (406 mm) o.c. with corrosion-resistant wood screws, steel screws or hot-dipped galvanized roofing nails. After joints are treated, wall or floor tile is applied using latex-modified mortar or Type I organic adhesive.

USG Durock® Brand Cement Board with EdgeGuard exceeds ANSI A118.9 standards for cementitious backer units (CBU) and exceeds ASTM C1325 standards for non-asbestos fiber-mat reinforced cementitious backer units.

The 1/2" (12.7 mm) and 5/8" (15.9 mm) panels are Underwriters Laboratories Inc. (UL) Classified for fire resistance, and may be used in any UL Design where Type DCB panels are listed.

The classification number according to the UNCPC classification system (see http://unstats.un.org) is 37560.

1.2 Designated Application

For flooring applications over a wood-based substrate, laminate Durock® Brand Cement Board with EdgeGuard to subfloor using Type I organic adhesive or latex-modified thin-set mortar suitable for bonding cement board. Fasten to subfloor with 1-1/4 in. (32 mm) USG Durock™ Brand Tile Backer Screws for wood framing (or equivalent) or 1-1/2 in. (38 mm) hotdipped galvanized roofing nails spaced 8 in. (203 mm) o.c. in both directions with perimeter fasteners at least 3/8 in. (10 mm) and less than 5/8 in. (16 mm) from ends and edges. Drive nails and screws so that bottoms of heads are flush with panel surface to ensure firm panel contact with subfloor. Do not overdrive fasteners. Prefill joints with tile-setting mortar or adhesive and then immediately embed USG Durock™ Brand Tile Backer Tape and level joints.

For wall applications, fasten Durock® Brand Cement Board with EdgeGuard to framing with specified fasteners. Drive fasteners into field of panels first, working toward ends and edges. Hold panels in firm contact with framing while driving fasteners. Space fasteners maximum 8 in. (203 mm) o.c. for walls, 6 in. (152 mm) o.c. for ceilings, with perimeter fasteners at least 3/8 in. (10 mm) and less than 5/8 in. (16 mm) from ends and edges. Drive nails and screws so bottoms of heads are flush with panel surface to ensure firm panel contact with framing. Do not overdrive fasteners. Approved fasteners include: USG Durock™ Brand Tile Backer Screws for steel framing (or equivalent), 1-1/4 in. (32 mm) and 1-5/8 in. (41 mm) for 14- to 20-gauge steel framing; USG Durock™ Brand Tile Backer Screws for wood framing (or equivalent), 1-1/4 in. (32 mm), 1-5/8 in. (41 mm) and 2-1/4 in. (57 mm) for wood framing. Prefill joints with tile-setting mortar or adhesive and then immediately embed USG Durock™ Brand Tile Backer Tape and level joints.

1.3 Product Technical Data

Table 1: Performance Data

Properties	Unit of Measure	ASTM Test Method	1/4" Panel	1/2" Panel	5/8" Panel
Weight	psf (kg/m^2)	C473	1.7 (8.3)	2.4 (11.7)	3.0 (14.6)
Flexural strength	psi (MPa)	C947	>1000 (6.9)	>750 (5.2)	>480 (3.3)
Indentation strength	psi (MPa)	D2394	>1250 (8.6)	>1250 (8.6)	>1250 (8.6)
Shear bond strength	psi	ANSI 118.4	>50	>50	>50
Nail-pull resistance	Lb. (0.375 in. [10mm] head diameter, wet or dry	C473	-	>90	>90
Freeze/thaw resistance	Procedure B, Number of cycles with no deterioration	C666	100	100	100
Mold resistance		G21	Rating 0, No growth	Rating 0, No growth	Rating 0, No growth
Surface-burning characteristics	Flame/smoke	E84	0/0	0/0	0/0
Thermal	“R”(°F-ft²-h/Btu)/k (Btu-in/°F-ft²-h)	C518	-	0.39/1.27	.49/1.27
Standard method for evaluating ceramic floor tile installation systems	Passes cycles 1-6	C627	Light commercial	Light commercial	Light commercial
Minimum bending radius	ft. (requires special framing details available upon request)	-	-	6	6

1.4 Placing on the Market/Application Rules

USG Durock® Brand Cement Board with EdgeGuard must be installed using recommended fasteners, see Durock® Brand Cement Board with EdgeGuard Submittal Sheet for Recommended Fasteners (CB321618). Reference the installation guide for additional instructions (CB321650).

1.5 Delivery Status

USG Durock® Brand Cement Board with EdgeGuard™ panels typically come in the following sizes and packaging, while other lengths are also available. The panels are put on wooden pallets and shipped in packaging units shown below.

Table 2: Product Data: Sizes and Packaging

Size (thickness × width × length)	Units (pcs)
1/4 in. x 3 ft. x 5 ft. (6.4 mm x 915 mm x 1525 mm)	60
1/2 in. x 3 ft. x 5 ft. (12.7 mm x 915 mm x 1525 mm)	50
1/2 in. x 4 ft. x 8 ft. (12.7 mm x 1220 mm x 2440 mm)	40
5/8 in. x 3 ft. x 5 ft. (15.9 mm x 915 mm x 1525 mm)	40
5/8 in. x 4 ft. x 8 ft. (15.9 mm x 1220 mm x 2440 mm)	32

1.6 Product Composition

Table 3: Product Formula

Material	Value
Portland cement	<50%
Fly ash	<20%
Calcium sulfate dihydrate	<10%
Perlite	<10%
Glass-fiber mesh	<5%
Total	**100%**

1.7 Product Manufacturing

The manufacturing of Durock® Brand Cement Board with EdgeGuard starts with the blending of the dry ingredients in a screw conveyor, feeding of this dry ingredient mixture into a mixer where these dry ingredients are mixed with water and wet additives. Glass-fiber mesh is used as the reinforcement on the top and the bottom of the slurry. The resulting slurry is formed into a panel and allowed to hydrate at ambient conditions. The finished product is then stacked on wooden pallet, covered with plastic bag. Waste material is either used as reclaim back into the process or landfilled depending on the equipment available at the plants.

1.8 Environment and Health During Manufacturing

USG and CGC lead the building sector in developing and supplying sustainable construction materials. Today, sustainability is integrated into the design and manufacturing of every wall, ceiling, and flooring product. In the manufacturing of our products, we review and select each material with consideration of environmental protection, health, and safety. Raw materials used in our products are carefully selected and go through a qualification procedure. Raw materials are tested for contaminants by an internal lab and third-party labs.

1.9 Packaging

USG Durock® Brand Cement Board with EdgeGuard are put on wooden pallets and covered with a pre-printed heat shrink plastic bag. The production and transportation of these packaging materials were modeled in this LCA study.

1.10 Conditions of Use

For wall applications, the maximum stud spacing is 16 in. (406 mm) o.c. (24 in. [610 mm] o.c. for cavity shaft wall assembly). Framing shall be designed (based on stud properties alone) not to exceed L/360 deflection for tile and thin brick, L/240 for direct-applied exterior finish systems. For floor applications, the maximum joist spacing is 24 in. (610 mm) o.c. The subfloor system should be designed with a maximum deflection limit of L/360 for the span.

1.11 Environment and Health During Use Stage

This product is not expected to produce any unusual hazards during normal use.

1.12 Reference Service Life

The reference service life (RSL) is considered not to be relevant for this cradle-to-gate study.

1.13 Re-Use Phase

USG Durock® Brand Cement Board with EdgeGuard cannot generally be re-used at the end of life.

1.14 End-of-Life Disposal

USG Durock® Brand Cement Board with EdgeGuard are generally put in landfill at the end of life.

2. LCA Calculation Methodology

2.1 Declared Unit

The declared unit is defined as 1,000 square feet (92. 9 square meters) of the panels.

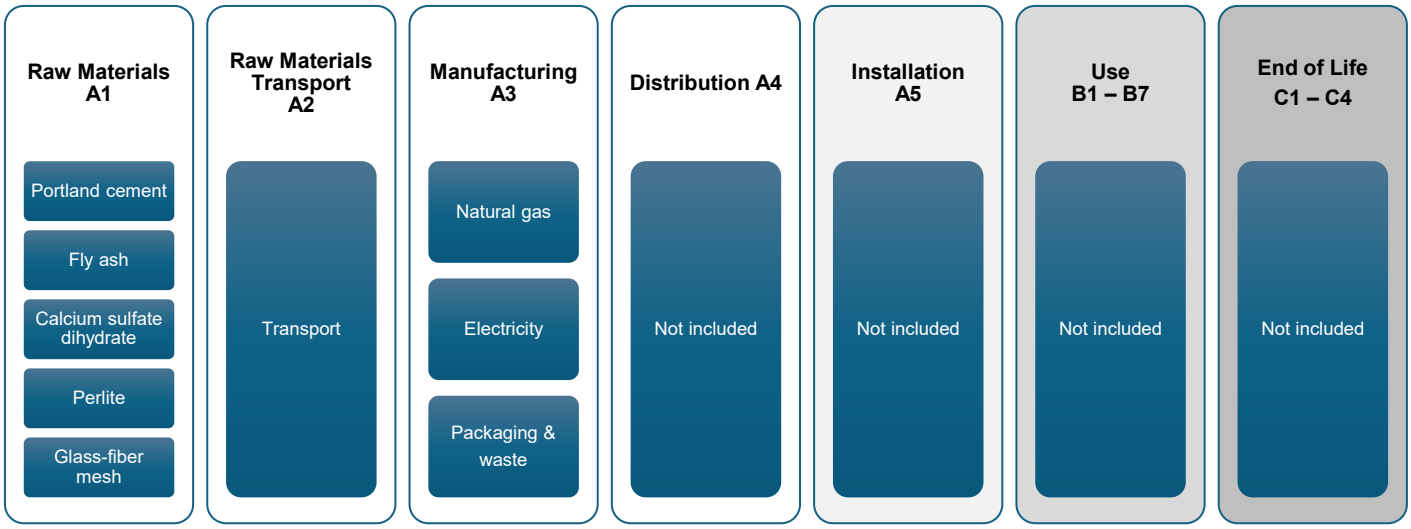
Table 4: Declared Unit

Name	1/4" Panel	1/2" Panel	5/8" Panel
Declared Unit	1,000 ft^2 (92.9 m^2)	1,000 ft^2 (92.9 m^2)	1,000 ft^2 (92.9 m^2)
Declared Thickness	0.25 in (6.4 mm)	0.5 in (12.7 mm)	0.625 in (15.9 mm)
Density	75.5 lb/ft^3 (1,210 kg/m^3)	60.0 lb/ft^3 (960 kg/m^3)	58.5 lb/ft^3 (940 kg/m^3)
Surface weight per declared unit	1.7 lb/ft^2 (8.3 kg/m^2)	2.4 lb/ft^2 (11.7 kg/m^2)	3.0 lb/ft^2 (14.6 kg/m^2)

3. System Boundary

This EPD represents a “cradle-to-gate” LCA analysis for USG Durock® Brand Cement Board with EdgeGuard. It covers all the production steps from raw material extraction (i.e., the cradle) to packaged panels ready for shipment (the gate). The infrastructure/capital goods are excluded for upstream, core, and downstream processes in the LCA report and in the EPD. Heating and cooling of the manufacturing facility is included in the analysis.

Figure 1: Specific Processes Covered by this EPD by Life Cycle Stage



3.1 Estimates and Assumptions

Primary energy and raw material input data were collected from the Baltimore, MD, Detroit, MI, and New Orleans, LA plants for the 2023 calendar year. Data collection of energy and raw material inputs was aided by the presence of an extensive computer monitoring system which tracked product formulas by product type. Additional data limitations include the use of proxy processes rather than actual supplier generated primary data. This would include such processes as Portland cement, which is representative of Portland cement but may not necessarily be representative of USG's particular supplier. In addition, the data is limited in that the primary data was collected during the 2023 year and changes in operations may increase/decrease impacts in the future. Other data limitations include the use of secondary data sets instead of primary data for upstream and downstream processes, local impacts vs. global impacts, possible impacts vs. actual impacts, inherent uncertainty in the data sets, accuracy and precision of impact assessment methodology, etc.

3.2 Cut-off Criteria

The requirements for the exclusion of inputs and outputs (cut-off rules) shall follow the guidance in ISO 21930 Section 7.1.8.

3.3 Background Data

All background data was sourced from critically reviewed LCA for Experts databases from Sphera.

3.4 Data Requirements and Data Sources

The LCA model was created using LCA for Experts software (version 10.9.0.31) from Sphera. Specific comments related to data quality requirements cited in ISO 14025 Section 4.2.3.6.2 include the following.

Temporal: In the case of USG Durock® Brand Cement Board with EdgeGuard production, the LCI data was collected from the manufacturing plants for the 2023 production year.

Geographical: Where possible, all processes were chosen as being representative of US manufacturing processes.

Technical: The data selected for this study is specific to the technology used in the preparation of the various raw materials.

Precision: The raw material usage amounts were derived from plant quality data on finished products and product formulas.

Completeness: Virtually all the significant raw material flows (> 99%) in Durock® cement board production have been modeled.

Representative: Where possible all the data sets were selected to be representative of US-based production, are less than 10 years in age and are representative of the technology being employed.

Consistency: All the manufacturing processes were modeled in a consistent manner throughout this study in accordance with the goal and scope definitions.

Reproducibility: The information contained in this study, including raw material, energy and transportation distance inputs, have been fully documented in the LCA report.

Sources of Data: The sources for the processes used in this study have been fully provided in the LCA report and are representative of the material and energy sources used in actual production.

Uncertainty: The relative uncertainty associated with this study has been minimized. No significant assumptions have been made.

3.5 Allocation

Energy inputs were allocated based on the production line speed of each product. Since the production conditions are similar for each product, the energy usages are inversely proportional to the line speed for each product.

4. Life Cycle Assessment Results

Production Stage			Construction Stage		Use Stage							End-of-Life Stage			
Raw Material Supply	Transport to factory	Manufacturing	Transport to site	Construction/Installation Process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	De-construction/Demolition	Transport	Waste Processing	Disposal
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Figure 2: System Boundary

4.1 LCA Results

Table 5: North American LCA Environmental Impacts – 1,000 Square Feet (92.9 Square Meters) of USG Durock® Brand Cement Board with EdgeGuard™ (A1-A3) Baltimore, MD plant

Impact Category	Units	1/4" Panel	1/2" Panel	5/8" Panel
Global Warming Potential, excl. biogenic carbon (GWP)	kg CO2 eq.	5.78E+02	7.15E+02	8.62E+02
Global Warming Potential, incl. biogenic carbon (GWP)	kg CO2 eq.	5.40E+02	6.72E+02	8.10E+02
Ozone Depletion Potential (ODP)	kg CFC-11eq.	3.44E-05	3.44E-05	3.44E-05
Acidification Potential (AP)	kg SO2 eq.	1.76E+00	2.14E+00	2.51E+00
Eutrophication Potential (EP)	kg N eq.	1.12E-01	1.29E-01	1.48E-01
Photochemical Ozone Creation Potential (POCP)	kg O3 eq.	3.02E+01	3.58E+01	4.27E+01
Abiotic Depletion Potential (ADP) fossil fuels	MJ, LHV	2.07E+03	2.20E+03	2.31E+03

Table 6: Resource and Waste Flows for 1,000 Square Feet (92.9 Square Meters) of USG Durock® Brand Cement Board with EdgeGuard™ (A1-A3) Baltimore, MD plant

Use of primary resources	Units	1/4" Panel	1/2" Panel	5/8" Panel
Renewable primary resources used as an energy carrier (RPRE)	MJ, NCV	9.49E+02	1.20E+03	1.43E+03
Renewable primary resources with energy content used as material (RPRM)	MJ, NCV	1.18E+02	1.18E+02	1.18E+02
Non-renewable primary resources used as an energy carrier (NRPRE)	MJ, NCV	5.56E+03	6.85E+03	8.01E+03
Non-renewable primary resources with energy content used as material (NRPRM)	MJ, NCV	2.01E+02	2.01E+02	2.01E+02
Secondary material, fuel, and recovered energy	**Units**	**1/4" Panel**	**1/2" Panel**	**5/8" Panel**
Secondary material (SM)	kg	7.11E+01	7.83E+01	8.62E+01
Renewable secondary fuel (RSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuel (NRSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00
Recovered energy (RE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00
Consumption of fresh water (FW)	m3	1.68E+00	2.00E+00	2.27E+00
Emissions inventory parameters for transparency	**Units**	**1/4" Panel**	**1/2" Panel**	**5/8" Panel**
Biogenic carbon content of product	kg CO2 eq.	9.24E+00	1.11E+01	1.39E+01
Calcination uptake from carbonation	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon of bio-based packaging	kg CO2 eq.	2.00E+01	2.40E+01	3.00E+01
Land use change	kg CO2 eq.	1.48E-01	2.04E-01	2.46E-01
Combustion of waste from renewable sources used in production	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00
Combustion of waste from non-renewable sources used in production	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00
Indicators describing waste	**Units**	**1/4" Panel**	**1/2" Panel**	**5/8" Panel**
Hazardous waste disposed (HWD)	kg	1.97E+00	1.97E+00	1.97E+00
Non-hazardous waste disposed (NHWD)	kg	3.31E+01	3.91E+01	4.70E+01
High-level radioactive waste (RWD)	kg	1.05E-01	1.23E-01	1.52E-01
Intermediate and low-level waste	kg	N/A	N/A	N/A
Assignments of output flows at the end-of-life	**Units**	**1/4" Panel**	**1/2" Panel**	**5/8" Panel**
Components for re-use (CRU)	kg	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (MR)	kg	3.00E-01	3.00E-01	3.00E-01
Materials for energy recovery (MER)	kg	2.00E-01	2.00E-01	2.00E-01
Recovered energy exported (EE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00

Table 7: North American LCA Environmental Impacts – 1,000 Square Feet (92.9 Square Meters) of USG Durock® Brand Cement Board with EdgeGuard™ (A1-A3) Detroit, MI plant

Impact Category	Units	1/4" Panel	1/2" Panel	5/8" Panel
Global Warming Potential, excl. biogenic carbon (GWP)	kg CO2 eq.	5.21E+02	6.40E+02	7.67E+02
Global Warming Potential, incl. biogenic carbon (GWP)	kg CO2 eq.	4.84E+02	5.97E+02	7.16E+02
Ozone Depletion Potential (ODP)	kg CFC-11eq.	3.44E-05	3.44E-05	3.44E-05
Acidification Potential (AP)	kg SO2 eq.	1.73E+00	2.06E+00	2.42E+00
Eutrophication Potential (EP)	kg N eq.	1.05E-01	1.19E-01	1.36E-01
Photochemical Ozone Creation Potential (POCP)	kg O3 eq.	2.75E+01	3.28E+01	3.86E+01
Abiotic Depletion Potential (ADP) fossil fuels	MJ, LHV	2.05E+03	2.16E+03	2.26E+03

Table 8: Resource and Waste Flows for 1,000 Square Feet (92.9 Square Meters) of USG Durock® Brand Cement Board with EdgeGuard™ (A1-A3) Detroit, MI plant

Use of primary resources	Units	1/4" Panel	1/2" Panel	5/8" Panel
Renewable primary resources used as an energy carrier (RPRE)	MJ, NCV	9.86E+02	1.20E+03	1.46E+03
Renewable primary resources with energy content used as material (RPRM)	MJ, NCV	1.18E+02	1.18E+02	1.18E+02
Non-renewable primary resources used as an energy carrier (NRPRE)	MJ, NCV	5.19E+03	6.25E+03	7.35E+03
Non-renewable primary resources with energy content used as material (NRPRM)	MJ, NCV	2.01E+02	2.01E+02	2.01E+02
Secondary material, fuel, and recovered energy	**Units**	**1/4" Panel**	**1/2" Panel**	**5/8" Panel**
Secondary material (SM)	kg	6.91E+01	8.74E+01	1.21E+02
Renewable secondary fuel (RSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuel (NRSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00
Recovered energy (RE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00
Consumption of fresh water (FW)	m3	1.67E+00	1.94E+00	2.22E+00
Emissions inventory parameters for transparency	**Units**	**1/4" Panel**	**1/2" Panel**	**5/8" Panel**
Biogenic carbon content of product	kg CO2 eq.	8.00E+00	9.92E+00	1.22E+01
Calcination uptake from carbonation	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon of bio-based packaging	kg CO2 eq.	2.00E+01	2.40E+01	3.00E+01
Land use change	kg CO2 eq.	1.46E-01	1.90E-01	2.35E-01
Combustion of waste from renewable sources used in production	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00
Combustion of waste from non-renewable sources used in production	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00
Indicators describing waste	**Units**	**1/4" Panel**	**1/2" Panel**	**5/8" Panel**
Hazardous waste disposed (HWD)	kg	1.97E+00	1.97E+00	1.97E+00
Non-hazardous waste disposed (NHWD)	kg	2.96E+01	3.53E+01	4.15E+01
High-level radioactive waste (RWD)	kg	7.15E-02	8.97E-02	1.10E-01
Intermediate and low-level waste	kg	N/A	N/A	N/A
Assignments of output flows at the end-of-life	**Units**	**1/4" Panel**	**1/2" Panel**	**5/8" Panel**
Components for re-use (CRU)	kg	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (MR)	kg	3.00E-01	3.00E-01	3.00E-01
Materials for energy recovery (MER)	kg	2.00E-01	2.00E-01	2.00E-01
Recovered energy exported (EE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00

Table 9: North American LCA Environmental Impacts – 1,000 Square Feet (92.9 Square Meters) of USG Durock® Brand Cement Board with EdgeGuard™ (A1-A3) New Orleans, LA plant

Impact Category	Units	1/4" Panel	1/2" Panel	5/8" Panel
Global Warming Potential, excl. biogenic carbon (GWP)	kg CO2 eq.	5.62E+02	6.54E+02	8.21E+02
Global Warming Potential, incl. biogenic carbon (GWP)	kg CO2 eq.	5.24E+02	6.10E+02	7.68E+02
Ozone Depletion Potential (ODP)	kg CFC-11eq.	3.44E-05	3.44E-05	3.44E-05
Acidification Potential (AP)	kg SO2 eq.	1.66E+00	2.05E+00	2.48E+00
Eutrophication Potential (EP)	kg N eq.	1.09E-01	1.24E-01	1.47E-01
Photochemical Ozone Creation Potential (POCP)	kg O3 eq.	2.83E+01	3.30E+01	4.03E+01
Abiotic Depletion Potential (ADP) fossil fuels	MJ, LHV	2.06E+03	2.18E+03	2.32E+03

Table 10: Resource and Waste Flows for 1,000 Square Feet (92.9 Square Meters) of USG Durock® Brand Cement Board with EdgeGuard™ (A1-A3) New Orleans, LA plant

Use of primary resources	Units	1/4" Panel	1/2" Panel	5/8" Panel
Renewable primary resources used as an energy carrier (RPRE)	MJ, NCV	9.43E+02	1.21E+03	1.50E+03
Renewable primary resources with energy content used as material (RPRM)	MJ, NCV	1.18E+02	1.18E+02	1.18E+02
Non-renewable primary resources used as an energy carrier (NRPRE)	MJ, NCV	5.44E+03	6.53E+03	8.02E+03
Non-renewable primary resources with energy content used as material (NRPRM)	MJ, NCV	2.01E+02	2.01E+02	2.01E+02
Secondary material, fuel, and recovered energy	**Units**	**1/4" Panel**	**1/2" Panel**	**5/8" Panel**
Secondary material (SM)	kg	4.56E+01	5.02E+01	6.86E+01
Renewable secondary fuel (RSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuel (NRSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00
Recovered energy (RE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00
Consumption of fresh water (FW)	m3	1.68E+00	1.95E+00	2.30E+00
Emissions inventory parameters for transparency	**Units**	**1/4" Panel**	**1/2" Panel**	**5/8" Panel**
Biogenic carbon content of product	kg CO2 eq.	9.16E+00	1.02E+01	1.33E+01
Calcination uptake from carbonation	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon of bio-based packaging	kg CO2 eq.	2.00E+01	2.40E+01	3.00E+01
Land use change	kg CO2 eq.	1.42E-01	2.00E-01	2.54E-01
Combustion of waste from renewable sources used in production	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00
Combustion of waste from non-renewable sources used in production	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00
Indicators describing waste	**Units**	**1/4" Panel**	**1/2" Panel**	**5/8" Panel**
Hazardous waste disposed (HWD)	kg	1.97E+00	1.97E+00	1.97E+00
Non-hazardous waste disposed (NHWD)	kg	3.30E+02	3.57E+02	4.38E+02
High-level radioactive waste (RWD)	kg	1.06E-01	1.22E-01	1.67E-01
Intermediate and low-level waste	kg	N/A	N/A	N/A
Assignments of output flows at the end-of-life	**Units**	**1/4" Panel**	**1/2" Panel**	**5/8" Panel**
Components for re-use (CRU)	kg	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (MR)	kg	3.00E-01	3.00E-01	3.00E-01
Materials for energy recovery (MER)	kg	2.00E-01	2.00E-01	2.00E-01
Recovered energy exported (EE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00

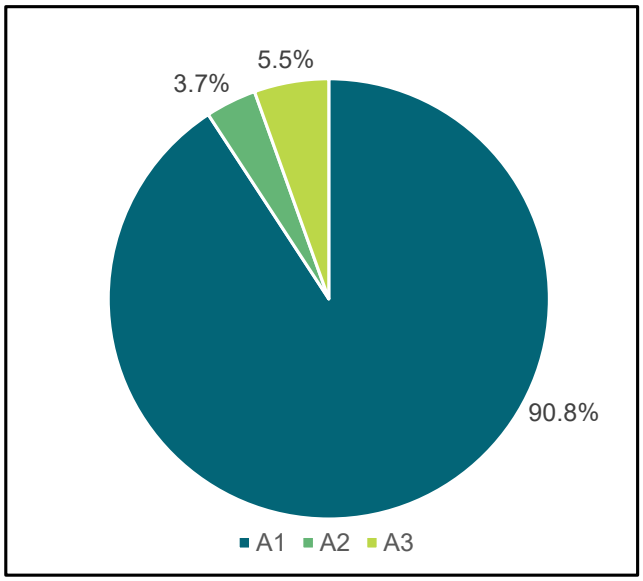
Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building or construction works has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase only when performance and specifications for product or construction works have been established and serve as a functional unit for comparison.

Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Any comparison of EPDs shall be subject to the requirements of ISO 21930 or EN 15804. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparisons can be inaccurate and could lead to erroneous selection of materials or products that have higher impact, at least in some impact categories.

4.2 LCA Interpretation

The LCA results for the production of USG Durock® Brand Cement Board with EdgeGuard were dominated by raw materials, primarily Portland cement and glass-fiber mesh. Figure 3 shows the result for GWP (excluding biogenic carbon) of 1/2" panel, which is the highest volume product.

Figure 3: Process Dominance Analysis for GWP excl. biogenic carbon for the Production of 1,000 Square Feet (92.9 Square Meters) of 1/2" USG Durock® Brand Cement Board with EdgeGuard™, average of three plants



5. References

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