Environmental Product Declaration

USG FIBEROCK® AQUA-TOUGH™ AR INTERIOR PANEL

Gypsum, OH

Features and Benefits

- Outperforms paper-faced gypsum board in abuse-prone areas
- Provides increased resistance to moisture and mold
- Resists denting, breaking, and puncturing, even in high-traffic areas
- Provides excellent fire resistance
- Economical alternative to concrete block and plaster construction
- Ideal for institutional, commercial, and residential Interiors

Environmental Impacts (A1-A3) Cradle-to-Gate
Declared Unit - 92.9 square meters (1,000 square feet)

	1/2"	5/8"
Global Warming Potential-Total (kg CO2 eq.)[1]	1.86E+02	2.24E+02
Ozone Depletion Potential (kg CFC 11 eq.)[2]	6.72E-09	8.12E-09
Acidification Potential (kg SO2 eq.)[2]	1.23E+00	1.51E+00
Eutrophication Potential - marine (kg N eq.)[2]	2.68E-01	3.31E-01
Eutrophication Potential – freshwater (kg P eq.)[2]	1.85E-04	1.78E-04
Photochemical Ozone Creation Potential (kg O3 eq.)[2]	9.68E+00	1.20E+01
Abiotic Depletion Potential fossil fuels (MJ, LHV)[3]	5.12E+03	6.29E+03

[1] IPCC 2021 (AR6)
[2] TRACI 2.2
[3] CML August 2016

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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. The owner of the declaration shall be liable for the underlying information and evidence; ASTM, or its affiliates, shall not be liable with respect to manufacturer information, life cycle assessment data, and evidence.

DECLARATION NUMBER	EPD 974
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 Fiberock® Aqua-Tough™ AR Interior Panel
DATE OF ISSUE PERIOD OF VALIDITY	05/08/25 5 Years
MARKETS OF APPLICABILITY	North America
CORE STANDARD	ISO 21930:2017
CORE PCR	Smart EPD Part A Product Category Rules for Building and Construction Products and Services (Standard 1000), Version 1.2, published March 14, 2025, www.smartepd.com
SUB-CATEGORY PCR	Smart EPD Part B Product Category Rules for Gypsum Panels (Standard 1000-004), Version 2.0, published February 24, 2025 www.smartepd.com
SUB-CATEGORY PCR REVIEW	Independent Panel Review, contact info@smartepd.com
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 Fiberock® Aqua-Tough™ AR Interior Panels are engineered to provide increased resistance to moisture, mold, abrasion, indentation, and penetration for interior walls and ceilings in demanding construction applications. These gypsum-fiber panels are designed to outperform paper-faced gypsum board. Strong, solid, and durable, they are water resistant through the core and are approved for residential use in wet areas, including showers and tub surrounds. The panels are mold resistant and earn the highest score of 10 in independent lab tests per ASTM D3273 *Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber*. They also resist denting, breaking, and puncturing—even in high-traffic areas. USG Fiberock® Aqua-Tough AR Interior Panels are code approved for use in noncombustible construction. They have exceptional surface-burning characteristics (ASTM E84, Flame Spread 5, Smoke Developed 0) and fire resistance (ASTM E119). 5/8 in. USG Fiberock® Aqua-Tough AR Interior Panels may be used in lieu of Type X gypsum panels in over 50 fire-rated wall assemblies as listed in the Underwriters Laboratories Inc. (UL) *Fire Resistance Directory* under “Type FRX-G.”

USG Fiberock® Aqua-Tough AR Interior Panel is nominally 1/2" (12.7 mm), or 5/8" (15.9mm) thick. The panel size is 4 ft.× 8 ft. (1,220 mm × 2,440 mm), 4 ft. × 9 ft. (1,220 mm × 2,745 mm), 4 ft. × 10 ft. (1,220 mm × 3,050 mm), and 4 ft. × 12 ft. (1,220 mm × 3,660 mm).

USG Fiberock® Aqua-Tough AR Interior Panel is fiber-reinforced gypsum panel and meets ASTM standard C1278 *Specification for Fiber Reinforced Gypsum Panel*.

USG Fiberock® Aqua-Tough AR Interior Panel is manufactured at the USG Gypsum, OH plant.

1.2 Designated Application

Position all ends and edges of all gypsum-fiber panels over framing members, except where joints are at right angles to framing members, as in perpendicular application or where end joints are back-blocked.

Install panels vertically whenever possible. For horizontal panel application, panels must be gapped 1/16 of an inch. End joints should be loosely fit. Install panels a minimum of 3/8 in. above the floor. To minimize end joints, use panels of maximum practical lengths. Stagger end joints in successive courses with joints on opposite sides of a partition placed on different studs.

Attach panels to framing supports by standard single nailing method, double nailing method, or power-driven screws. Space fasteners not less than 3/8 in. from edges and ends of panels and drive as recommended for specified fastening method. Drive fasteners in field of panels first, working toward ends and edges. Hold panel in firm contact with framing while driving fasteners. Drive fastener heads slightly below surface of gypsum fiber panels in a uniform dimple.

In areas that will be painted, concealment of joints, fasteners, and trims is done as following: for taping use USG Sheetrock® Brand Paper Joint Tape with USG Sheetrock® Brand Durabond® Joint Compound; for finishing use USG Sheetrock® Brand All Purpose Joint Compound. In areas that will be tiled, finish joints with USG Durock™ Brand Tile Backer Tape and latex-fortified mortar or Type I mastic.

USG Fiberock® Aqua-Tough AR Interior Panel must be surface treated in accordance with USG recommendations that can be found at www.usg.com.

1.3 Product Technical Data

Table 1: Performance Data

Properties	Unit of Measure	ASTM Test Method	1/2"	5/8"
Weight	psf (kg/m^2)	C473	2.4 (11.7)	3.1 (15.1)
Flexural strength	lbf	C473	>110	>155
Compressive strength	psi	N/A	>500	>500
Water Absorption	% by wt. 2hrs	C473	<5	<5
Nail-pull Resistance	lbf	C473	>120	>145
Mold resistance		D3273	10 (No growth)	10 (No growth)
Surface-burning characteristics	Flame/smoke	E84	5/0	5/0
Thermal	"R"/k value	C518	0.30/1.84	-

Table 2: Abuse-Resistant Performance (ASTM C1629)

Property	Performance
Abrasion*	Level 1
Indentation	Level 1
Soft body impact	Level 2
Hard body impact	Level 1

* With a standard primer and two coats of finish paint, USG Fiberock® Aqua-Tough™ AR Interior Panels will achieve level 3 abrasion resistance.

1.4 Placing on the Market/Application Rules

USG Fiberock® Aqua-Tough AR Interior Panels are designed for interior use only. Panels may be attached to wood or steel-stud framing and furring channels. For abuse-resistant or fire-resistant construction, 20-gauge or heavier studs are required. For improved abuse-resistant system performance, USG Sheetrock® Brand and Beadex® Brand Paper-Faced Metal Corner Bead and Trim and USG Sheetrock® Brand Tuff-Hide™ Primer-Surfacer are recommended.

Where USG Fiberock® interior panel systems abut or intersect dissimilar construction or building structural components, isolation techniques, such as caulk and/or slip tracks, are required. Control joints should be spaced at a maximum of 28 ft. o.c. in walls and above door jambs; 28 ft. o.c. in ceilings (50 ft. with perimeter relief) and at L-, T- or U-intersections. Location of control joints is the responsibility of the professional/architect.

Framing members should be straight and true. Studs and joints must be in true alignment; bridging, firestops, etc. must not protrude beyond plane of framing. Due to strength and rigidity of USG Fiberock® interior panels, it may be difficult to compensate for out-of-plane imperfections in framing.

1.5 Delivery Status

USG Fiberock® Aqua-Tough AR Interior Panels typically come in the following sizes and packaging. The panels are protected by cardboard edge protectors, put on wooden pallets, and shipped in packaging units shown below.

Table 3: Product Data: Sizes and Packaging

Size (thickness × width × length)	Units (pcs)
1/2 in. x 4 ft. x 8 ft. (12.7 mm x 1,220 mm x 2,440 mm)	30
1/2 in. x 4 ft. x 9 ft. (12.7 mm x 1,220 mm x 2,745 mm)	30
1/2 in. x 4 ft. x 10 ft. (12.7 mm x 1,220 mm x 3,050 mm)	30
1/2 in. x 4 ft. x 12 ft. (12.7 mm x 1,220 mm x 3,660 mm)	30
5/8 in. x 4 ft. x 8 ft. (15.9 mm x 1,220 mm x 2,440 mm)	24
5/8 in. x 4 ft. x 9 ft. (15.9 mm x 1,220 mm x 2,745 mm)	24
5/8 in. x 4 ft. x 10 ft. (15.9 mm x 1,220 mm x 3,050 mm)	24
5/8 in. x 4 ft. x 12 ft. (15.9 mm x 1,220 mm x 3,660 mm)	24

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. All materials should be stored flat.

1.6 Product Composition

Table 4: Product Formula

Material	Value
Calcium sulfate dihydrate	>90%
Cellulose fiber	<10%
Additives	<2%
Total	**100%**

1.7 Product Manufacturing

The manufacturing of USG Fiberock® Aqua-Tough AR Interior Panels starts with the pulping of waste paper to turn it into cellulose fibers. The cellulose fibers are blended with other ingredients in a large mixing tank. The mixed slurry travels onto a mesh screen, allowing water to drain. The drained water is treated at the plant and recirculated back into the process. The de-watered slurry is transferred to a forming machine, where the material is pressed to achieve the required caliper. Coating is applied to the surface of the panels to promote bond to tiles and other covering materials. The formed sheets are conveyed to a dryer where excess water is removed. The board is cut to its final size, with cardboard edge protectors applied, and put on wood pallets. Trimmed material and off-spec product are reclaimed and fed back into the process. In the manufacturing of this product, there is no hazardous waste generated at the USG facility.

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 wall, ceiling, and flooring products. 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 Fiberock® Aqua-Tough AR Interior Panels are packaged with cardboard edge protectors and put on wooden pallets. The production and transportation of these packaging materials were modeled in this LCA study.

Table 5: Packaging Materials Weight

Product	Packaging Materials Weight (kg/m^2)
1/2"	0.16
5/8"	0.23

1.10 Conditions of Use

USG Fiberock® Aqua-Tough AR Interior Panels are designed for interior use only and should not be used in exterior applications. Panels should not be exposed to sustained temperatures in excess of 125 °F (51.6 °C). For fire-resistant or abuse-resistant construction over steel framing, a minimum of 20-gauge steel framing is required. USG Fiberock® Aqua-Tough AR Interior Panels are not designed to be used in enclosed pool areas. Tiles should only be applied to the front face of the product.

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 Fiberock® Aqua-Tough AR Interior Panels cannot be re-used at the end of life.

1.14 End-of-Life Disposal

USG Fiberock® Aqua-Tough AR Interior Panels are put in landfill at the end of life.

2. LCA Calculation Methodology

2.1 Declared Unit

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

Table 6: Declared Unit

Name	1/2"	5/8"
Declared Unit	92.9 m^2 (1,000 ft^2)	92.9 m^2 (1,000 ft^2)
Declared Thickness	0.5 in (12.7 mm)	0.625 in (15.9 mm)
Surface weight per declared unit	2.4 lb/ft^2 (11.7 kg/m^2)	3.1 lb/ft^2 (15.1 kg/m^2)

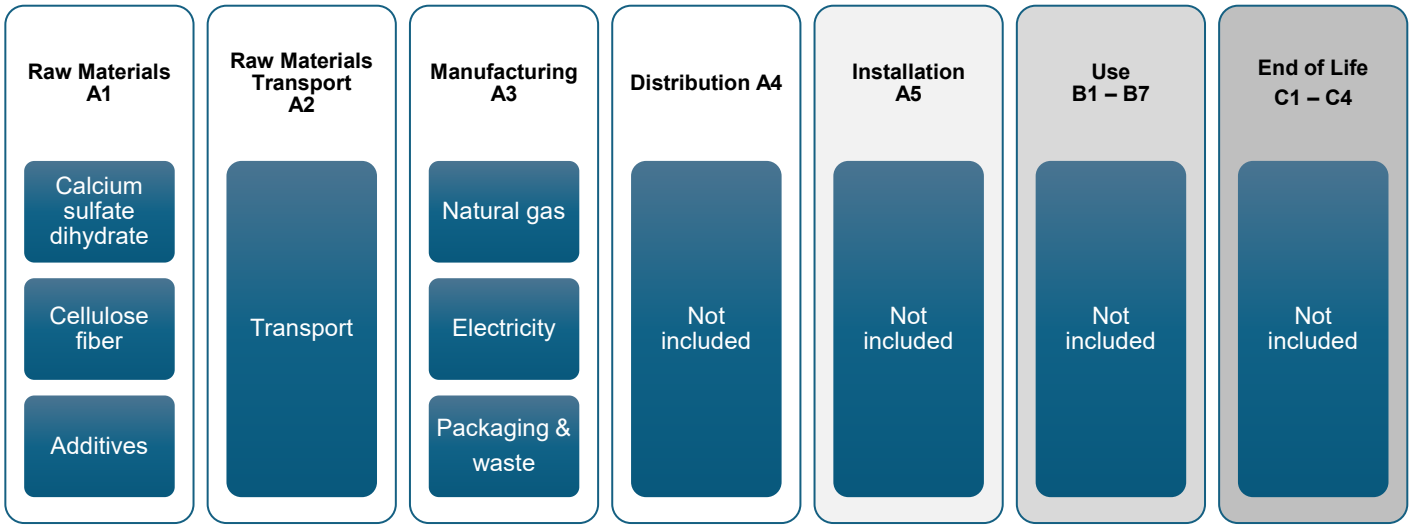
Table 7: Gypsum Panel Specifications

Label	Specification	
CSI/Masterformat	09 28 19	Fibered Gypsum Backing Boards
UNCPC	314	Boards and Panels
UNSPSC	30161509	Gypsum Board
Product class and standard	ASTM C1278	Fiber-Reinforced Gypsum Panels
Product subcategory		Water-Resistant Gypsum Backing Board Gypsum Backing Board Abuse-resistant Gypsum Panel Impact-resistant Gypsum Panel
Core type		Regular and Type X
Facer type		Unfaced
Recycled content	Recycled paper (pre-consumer)	<10%
	Recycled gypsum core (pre-consumer)	>90%
Additional information		Mold-resistant Moisture-resistant

3. System Boundary

This EPD represents a "cradle-to-gate" LCA analysis for USG Fiberock® Aqua-Tough AR Interior Panel. 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



A manufacturer shall not make claims based on an industry-average EDP which leads to the market to believe the industry-average is representative of manufacturer-specific or product-specific results.

3.1 Estimates and Assumptions

Primary energy and raw material input data were collected from the Gypsum, OH plant for the 2024 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 gypsum (calcium sulfate dihydrate), which is representative of gypsum 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 2024 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 10.9.1.10) from Sphera. Specific comments related to data quality requirements cited in ISO 14025 Section 4.2.3.6.2 include the following.

Temporal: The LCI data was collected from the manufacturing plants for the 2024 calendar 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 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.

All foreground data (thermal energy, electricity, raw materials, inbound transport distances) are based on primary data collected at the Gypsum, OH plant for the 2024 calendar year.

Table 8: Data Disclosure Table

Material/ Process Category	Module	Material/ Process Name	Inventory Dataset Name	Dataset Geographic Region	Year Dataset Represents
Raw material/Product	A1	Gypsum	Gypsum (FGD) from hard coal power plant	US	2020-2026
	A1	Waste paper	Recycled, burden free	N/A	N/A
Transportation	A2	Truck	Truck - Heavy Heavy-duty Diesel Truck / 50,000 lb payload -8a	US	2023-2027
	A2	Rail	Rail transport cargo - Diesel, average train, gross tonne weight 1,000t / 726t payload capacity	GLO	2023-2027
Energy	A3	Electricity	Electricity grid mix 1kV-60kV - RFCW	US	2021-2026
	A3	Natural gas	Thermal energy from natural gas	US	2020-2026

3.5 Allocation

Energy inputs were allocated based on the mass of the products. Raw material inputs were allocated to specific products based on established product formulas.

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

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of the thresholds, safety margins or risks.

Table 9: North American LCA Environmental Impacts – 92.9 Square Meters (1,000 Square Feet) (A1-A3)

Impact Category	Units	1/2"	5/8"
Global Warming Potential – Total (GWP-total)[1]	kg CO2 eq.	1.86E+02	2.24E+02
Global Warming Potential – Fossil (GWP-fossil)[1]	kg CO2 eq.	3.82E+02	4.70E+02
Global Warming Potential – Biogenic (GWP-biogenic)[1]	kg CO2 eq.	-1.97E+02	-2.46E+02
Global Warming Potential – Land Use and Land Use Change (GWP- luluc)[1]	kg CO2 eq.	1.25E-01	1.62E-01
Ozone Depletion Potential (ODP)[2]	kg CFC 11eq.	6.72E-09	8.12E-09
Acidification Potential (AP)[2]	kg SO2 eq.	1.23E+00	1.51E+00
Eutrophication Potential - marine (EP - marine)[2]	kg N eq.	2.68E-01	3.31E-01
Eutrophication Potential - freshwater (EP - freshwater)[2]	kg P eq.	1.85E-04	1.78E-04
Photochemical Ozone Creation Potential (POCP)[2]	kg O3 eq.	9.68E+00	1.20E+01
Abiotic Depletion Potential fossil fuels (ADP-fossil)[3]	MJ, LHV	5.12E+03	6.29E+03

[1] IPCC 2021 (AR6)
[2] TRACI 2.2
[3] CML August 2016

Table 10: Resource and Waste Flows for 92.9 Square Meters (1,000 Square Feet) (A1-A3), EN15804+A2

Use of primary resources	Units	1/2"	5/8"
Renewable primary resources used as an energy carrier (RPRE)	MJ, NCV	6.55E+02	8.61E+02
Renewable primary resources with energy content Used as material (RPRM)	MJ, NCV	3.64E-02	3.64E-02
Non-renewable primary resources used as an energy carrier (NRPRE)	MJ, NCV	5.53E+03	6.82E+03
Non-renewable primary resources with energy content used as material (NRPRM)	MJ, NCV	3.53E+00	3.53E+00
Secondary material, fuel, and recovered energy	**Units**	**1/2"**	**5/8"**
Secondary material (SM)	kg	1.15E+03	1.41E+03
Renewable secondary fuel (RSF)	MJ, NCV	0.00E+00	0.00E+00
Non-renewable secondary fuel (NRSF)	MJ, NCV	0.00E+00	0.00E+00
Recovered energy (RE)	MJ, NCV	0.00E+00	0.00E+00
Consumption of fresh water (FW)	m3	1.81E+00	2.24E+00
Emissions inventory parameters for transparency	**Units**	**1/2"**	**5/8"**
Biogenic carbon content of product	kg CO2 eq.	-1.74E+02	-2.14E+02
Calcination uptake from carbonation	kg CO2 eq.	0.00E+00	0.00E+00
Biogenic carbon of bio-based packaging	kg CO2 eq.	-2.32E+01	-3.26E+01
Combustion of waste from renewable sources used in production	kg CO2 eq.	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
Indicators describing waste	**Units**	**1/2"**	**5/8"**
Hazardous waste disposed (HWD)	kg	2.83E-04	3.47E-04
Non-hazardous waste disposed (NHWD)	kg	6.96E+00	8.45E+00
High-level radioactive waste (RWD)	kg	1.50E-01	1.88E-01
Intermediate and low-level waste	kg	N/A	N/A
Assignments of output flows at the end-of-life	**Units**	**1/2"**	**5/8"**
Components for re-use (CRU)	kg	0.00E+00	0.00E+00
Materials for recycling (MR)	kg	0.00E+00	0.00E+00
Materials for energy recovery (MER)	kg	0.00E+00	0.00E+00
Recovered energy exported (EE)	MJ, NCV	0.00E+00	0.00E+00

Table 11: North American LCA Environmental Impacts – 1 Square Meter (10.8 Square Feet) (A1-A3)

Impact Category	Units	1/2"	5/8"
Global Warming Potential – Total (GWP-total)[1]	kg CO2 eq.	2.00E+00	2.41E+00
Global Warming Potential – Fossil (GWP-fossil)[1]	kg CO2 eq.	4.11E+00	5.06E+00
Global Warming Potential – Biogenic (GWP-biogenic)[1]	kg CO2 eq.	-2.12E+00	-2.65E+00
Global Warming Potential – Land Use and Land Use Change (GWP- luluc)[1]	kg CO2 eq.	1.35E-03	1.74E-03
Ozone Depletion Potential (ODP)[2]	kg CFC 11eq.	7.23E-11	8.74E-11
Acidification Potential (AP)[2]	kg SO2 eq.	1.32E-02	1.63E-02
Eutrophication Potential - marine (EP - marine)[2]	kg N eq.	2.88E-03	3.56E-03
Eutrophication Potential - freshwater (EP - freshwater)[2]	kg P eq.	1.99E-06	1.92E-06
Photochemical Ozone Creation Potential (POCP)[2]	kg O3 eq.	1.04E-01	1.29E-01
Abiotic Depletion Potential fossil fuels (ADP-fossil)[3]	MJ, LHV	5.51E+01	6.77E+01

[1] IPCC 2021 (AR6)
[2] TRACI 2.2
[3] CML August 2016

Table 12: Resource and Waste Flows for 1 Square Meter (10.8 Square Feet) (A1-A3), EN15804+A2

Use of primary resources	Units	1/2"	5/8"
Renewable primary resources used as an energy carrier (RPRE)	MJ, NCV	7.05E+00	9.27E+00
Renewable primary resources with energy content Used as material (RPRM)	MJ, NCV	3.92E-04	3.92E-04
Non-renewable primary resources used as an energy carrier (NRPRE)	MJ, NCV	5.95E+01	7.34E+01
Non-renewable primary resources with energy content used as material (NRPRM)	MJ, NCV	3.80E-02	3.80E-02
Secondary material, fuel, and recovered energy	**Units**	**1/2"**	**5/8"**
Secondary material (SM)	kg	1.24E+01	1.52E+01
Renewable secondary fuel (RSF)	MJ, NCV	0.00E+00	0.00E+00
Non-renewable secondary fuel (NRSF)	MJ, NCV	0.00E+00	0.00E+00
Recovered energy (RE)	MJ, NCV	0.00E+00	0.00E+00
Consumption of fresh water (FW)	m3	1.95E-02	2.41E-02
Emissions inventory parameters for transparency	**Units**	**1/2"**	**5/8"**
Biogenic carbon content of product	kg CO2 eq.	-1.87E+00	-2.30E+00
Calcination uptake from carbonation	kg CO2 eq.	0.00E+00	0.00E+00
Biogenic carbon of bio-based packaging	kg CO2 eq.	-2.50E-01	-3.51E-01
Combustion of waste from renewable sources used in production	kg CO2 eq.	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
Indicators describing waste	**Units**	**1/2"**	**5/8"**
Hazardous waste disposed (HWD)	kg	3.05E-06	3.74E-06
Non-hazardous waste disposed (NHWD)	kg	7.49E-02	9.10E-02
High-level radioactive waste (RWD)	kg	1.61E-03	2.02E-03
Intermediate and low-level waste	kg	N/A	N/A
Assignments of output flows at the end-of-life	**Units**	**1/2"**	**5/8"**
Components for re-use (CRU)	kg	0.00E+00	0.00E+00
Materials for recycling (MR)	kg	0.00E+00	0.00E+00
Materials for energy recovery (MER)	kg	0.00E+00	0.00E+00
Recovered energy exported (EE)	MJ, NCV	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.

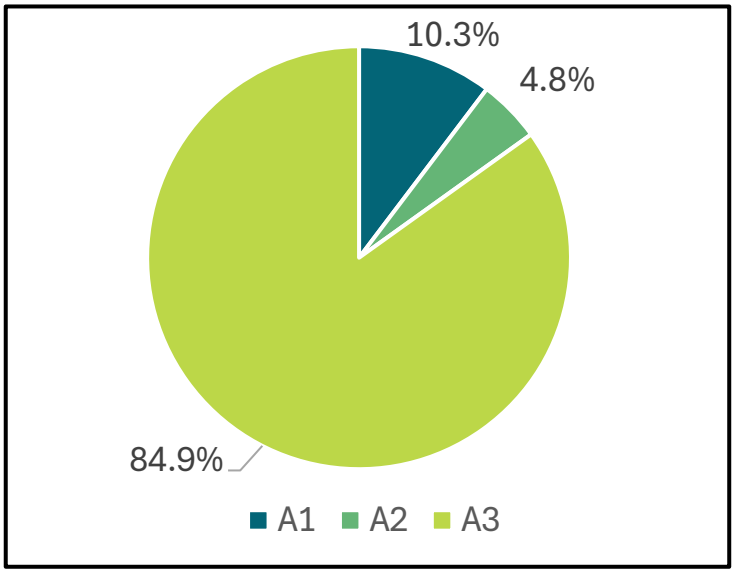
Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of products using EPD information shall be based on the product's use and impacts at the building or construction works level, and therefore EPDs may not be used for comparability 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.

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 Fiberock® Aqua-Tough™ AR Interior Panel were dominated by energy usage during manufacturing. Figure 3 shows the result for GWP-fossil of 1/2" panel, which is the highest volume product. Future efforts to reduce the GWP should focused on reducing the weight of the panels.

Figure 3: Process Dominance Analysis for GWP-fossil for the Production of 92.9 Square Meters (1,000 Square Feet) of 1/2" USG Fiberock® Aqua-Tough™ AR Interior Panel (A1-A3)



5. Additional Environmental Information

Hydrogen sulfide (H_2S) formation in Municipal Solid Waste (MSW) and Construction & Demolition (C&D) landfills requires a sulfate source, carbon source, anaerobic conditions, moisture, pH, and temperature. Gypsum panels are a significant contributor to H_2S formation.

There are no regulated substances of very high concern to be declared.

6. References

LCA Report

A Cradle-to-Gate Life Cycle Assessment of USG Fiberock® Aqua-Tough™ AR Interior Panel, 05/08/25. USG (Confidential)

Product PCR

ISO 21930:2017 Sustainability in buildings and civil engineering works-Core rules for environmental product declarations of construction products and services

Smart EPD Part A Product Category Rules for Building and Construction Products and Services (Standard 1000), Version 1.2, published March 14, 2025, www.smartepd.com

Smart EPD Part B Product Category Rules for Gypsum Panels (Standard 1000-004), Version 2.0, published February 24, 2025, www.smartepd.com

Sustainability Reporting Standards

EN 15804:2012+A2:2019 - Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction product

ISO 14025:2006 - Environmental labels and declarations — Type III environmental declarations — Principles and procedures

ISO 14040:2006/Amended 1:2020 - Environmental management – Life cycle assessment – Principles and framework

ISO 14044:2006/amended 2:2020 - Environmental management – Life cycle assessment – Requirements and guidelines

ISO 14046:2014 - Environmental management- Water footprint- Principles, requirements and guidelines

ISO 15392:2008 - Sustainability in building construction- General principles

ISO 15686-1:2011 - Buildings and constructed assets- Service life planning- Part 1: General principles

ISO 15686-2:2012 - Buildings and constructed assets- Service life planning Part 2: Service life prediction procedures

ISO 15686-7:2017 - Buildings and constructed assets- Service life planning Part 7: Performance evaluation for feedback of service life data from practice

ISO 15686-8:2008 - Buildings and constructed assets- Service life planning Part 8: Reference service life and service life estimation

ASTM General Program Instructions, v8.0, 4/29/2020, ASTM International