

EPD OPTIMIZATION SUMMARY

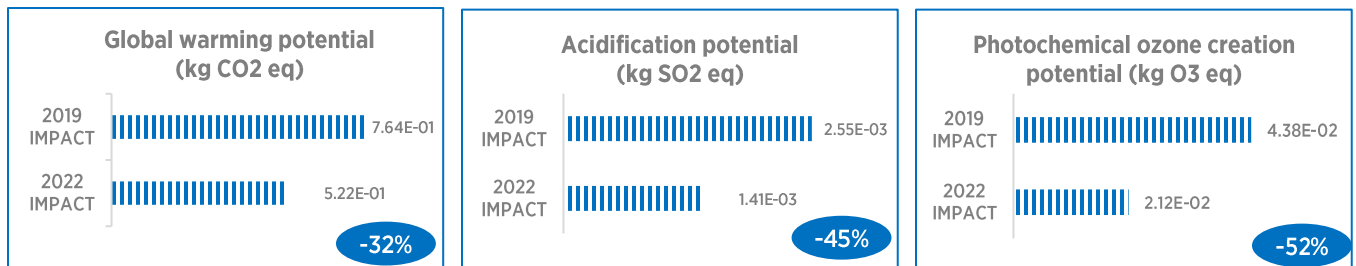
ENVIRONMENTAL PRODUCT DECLARATION

Company Name:	USG Interiors, LLC
Product Name:	7/8 in. Mars™ High-NRC (85/35/90) Acoustical Ceiling Panels
Product EPD name and validity period:	ASTM: 7/8 in. Mars™ High-NRC (85/35/90) Acoustical Ceiling Panels and 7/8 in. Mars™ Healthcare High-NRC (85/35/90) Acoustical Ceiling Panels, 5/16/22 Optimized EPD Link
Reference EPD name and validity period:	UL: 7/8 in. Mars™ High-NRC (85/35/90) Acoustical Ceiling Panels and 7/8 in. Mars™ Healthcare High-NRC (85/35/90) Acoustical Ceiling Panels Reference EPD Link
Product Category Rules:	UL Environment: PCR Guidance for Building-Related Products and Services; Part B: Non-Metal Ceiling Panel EPD Requirements; April 13, 2021
Lifecycle stages:	Cradle-to-Grave (A1-C4)
Functional unit:	1 square foot of product



Environmental Impact Reduction

	Optimized Product	Reference Product	Percent Reduction
Global warming potential (kg CO₂ eq)	5.22E-01	7.64E-01	-32%
Acidification potential (kg SO₂ eq)	1.41E-03	2.55E-03	-45%
Photochemical ozone creation potential (kg O₃ eq)	2.12E-02	4.38E-02	-52%



Optimization Sources: The Mars™ High-NRC Acoustical Ceiling Panels EPD released in 2022 significantly reduces the Impact Category of Global Warming Potential (GWP by 32%). In 2019, the energy usage during the manufacturing stage dominated the LCA results. In response, procurement of renewable energy (wind and solar) helped reduce the product's electricity emissions (see graphs above illustrating the results). Due to the procurement of renewable energy, the impact categories of Acidification Potential (45%) and Ozone Depletion Potential (52%) were also significantly reduced.

Comparison Summary: The improved USG product has greater than a 20% reduction in the global warming potential impact category (GWP) and demonstrates at least a 5% reduction in acidification potential and ozone depletion potential.

Interpretation: Using the criteria outlined below, the comparison can be viewed as very robust. The LCA studies for both the optimized and reference products utilized the same PCR. Both studies further utilized identical scope and system boundaries, software (GaBi) and model, background process datasets, and allocation procedures. All the relevant criteria were identical between the two studies. It is for these reasons that the EPDs are comparable and the comparison valid.

LEED Credit Achieved: GWP Reduction 20%+ and Impact Reduction 5%+ in 2 Additional Categories. Valued at 200% Cost or 2 products for LEED 4.1

Verifier: Tim Brooke, Vice President Laboratory Services

Expiration Date: 12/1/2025

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Comparison Results		Comparison Criteria
Representativeness	4	The LCA studies for the current product and the reference product were representative of the complete life cycle of the product.
Scope	4	Both the current and reference LCA studies include all life cycle stages (A1-C4).
System boundaries	4	Both LCA studies utilized identical system boundaries.
LCI Background Data and LCA Software	4	Both LCA studies utilized identical LCA software, model, and background data. The software used was GABI: v7.3.0.40.
Data Quality	4	All background data sets for both studies were obtained from Sphera and were collected within the last 10 years.
Impact Assessment	4	The impact assessment methodology was identical for both studies, TRACI v2.1 was used.
Use Phase Calculations	4	The use phase criteria were detailed in the PCR listed on page 1. The PCR was identical for both studies.
End of Life Assumptions	4	The end-of-life treatment was detailed in the PCR and was identical for both studies.
Allocation Rules	4	Allocation rules for both studies were equivalent with mass allocation at all plants.
Cut-off Rule	4	Both studies include 99%+ of all raw material and energy flows.
Materials and Additional Information	4	All raw materials percentages were identical in both studies—and there were no changes to product formulas.
EPD Content and PCR Version	4	The format for declaration and PCR did not change between the LCA studies. The only change was the procurement of renewable energy for the optimized product.

Comparison Scores

- 0 Criteria prevents comparison
- 1 Criteria requires significant justification for comparison
- 2 Criteria requires additional interpretation for comparison
- 3 Criteria requires minimal interpretation for comparison
- 4 Criteria is equivalent or identical for comparison