HAHN READY MIX

Environmental Product Declarations

Technical Bulletin #41 - May 2025

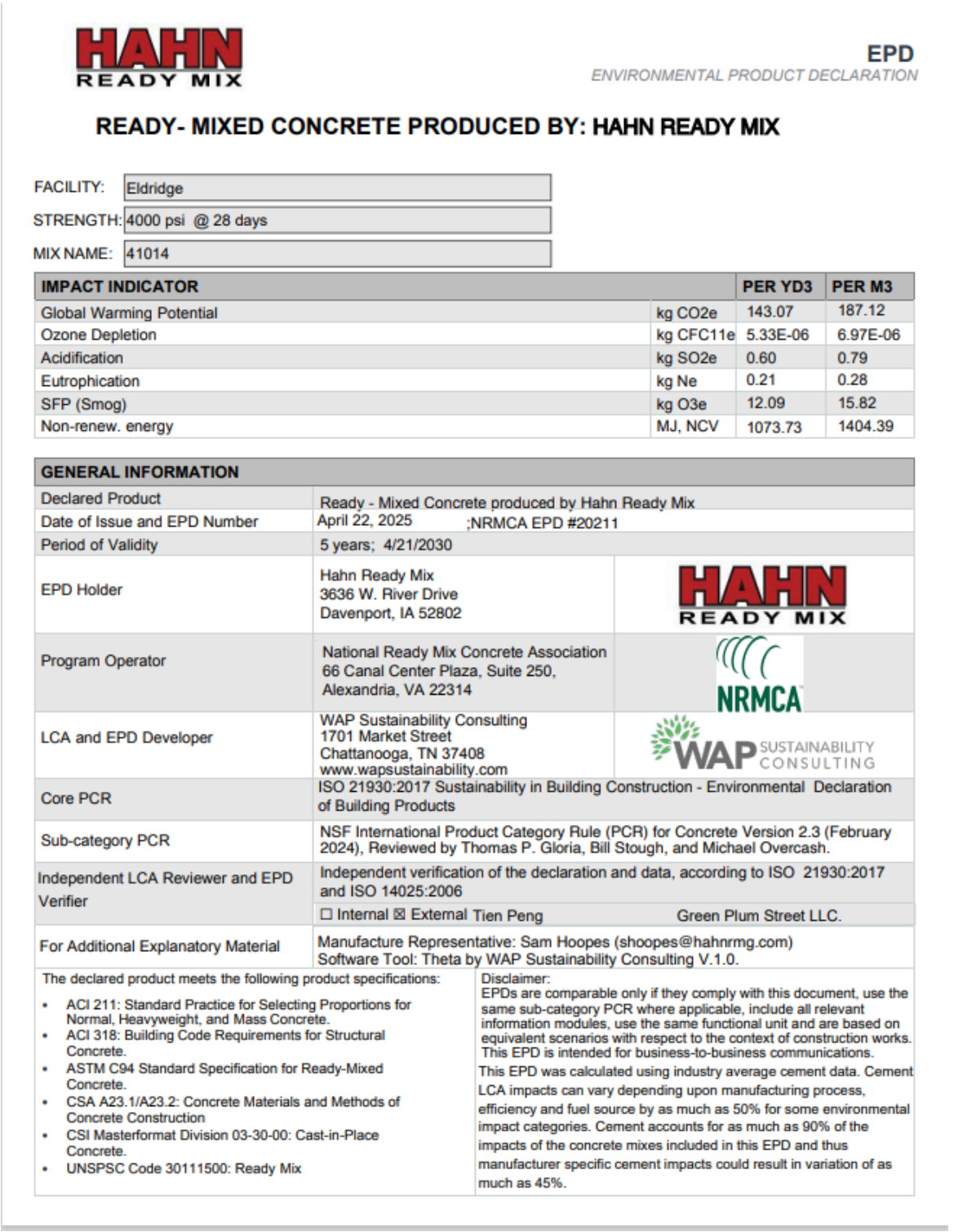
What are EPDs?

As we've discussed in previous Tech Bulletins (such as #26 and #30), there is a worldwide movement for more sustainable building practices across all areas of construction. Due to it's abundant use and heavy carbon output, concrete has been perhaps the most scrutinized material in the construction field for potential improvements in sustainability.

These sustainability improvements can take many forms, including material changes such as IL or CCIL cements, mix design changes such as increased use of SCMs like fly ash or slag, additives for carbon sequestration like carbon cure, or engineering design changes.

However, the drivers of these transformations in the industry knew that the differences would have to be both measurable and enforceable to effect change.

Enter Environmental Product Declarations, or EPDs. EPDs are designed to quantitively describe various environmental effects of the cradle to gate production of a yard of a specific concrete mix design from a specific plant. For most uses, the important number generated in the EPD is the Global Warming Potential (GWP) in kg of CO_2 per yard.



HAHN READY MIX

EPD
ENVIRONMENTAL PRODUCT DECLARATION

READY- MIXED CONCRETE PRODUCED BY: HAHN READY MIX

FACILITY: Eldridge
STRENGTH: 4000 psi @ 28 days
MIX NAME: 41014

IMPACT INDICATOR		PER YD3	PER M3
Global Warming Potential	kg CO2e	143.07	187.12
Ozone Depletion	kg CFC11e	5.33E-06	6.97E-06
Acidification	kg SO2e	0.60	0.79
Eutrophication	kg Ne	0.21	0.28
SFP (Smog)	kg O3e	12.09	15.82
Non-renew. energy	MJ, NCV	1073.73	1404.39

GENERAL INFORMATION	
Declared Product	Ready - Mixed Concrete produced by Hahn Ready Mix
Date of Issue and EPD Number	April 22, 2025 ;NRMCA EPD #20211
Period of Validity	5 years; 4/21/2030
EPD Holder	Hahn Ready Mix 3636 W. River Drive Davenport, IA 52802
Program Operator	National Ready Mix Concrete Association 66 Canal Center Plaza, Suite 250, Alexandria, VA 22314
LCA and EPD Developer	WAP Sustainability Consulting 1701 Market Street Chattanooga, TN 37408 www.wapsustainability.com
Core PCR	ISO 21930:2017 Sustainability in Building Construction - Environmental Declaration of Building Products
Sub-category PCR	NSF International Product Category Rule (PCR) for Concrete Version 2.3 (February 2024), Reviewed by Thomas P. Gloria, Bill Stough, and Michael Overcash.
Independent LCA Reviewer and EPD Verifier	Independent verification of the declaration and data, according to ISO 21930:2017 and ISO 14025:2006 ☐ Internal ☒ External Tien Peng Green Plum Street LLC.
For Additional Explanatory Material	Manufacture Representative: Sam Hoopes (shoopes@hahnrmg.com) Software Tool: Theta by WAP Sustainability Consulting V.1.0.

The declared product meets the following product specifications:

- ACI 211: Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
- ACI 318: Building Code Requirements for Structural Concrete.
- ASTM C94 Standard Specification for Ready-Mixed Concrete.
- CSA A23.1/A23.2: Concrete Materials and Methods of Concrete Construction
- CSI Masterformat Division 03-30-00: Cast-in-Place Concrete.
- UNSPSC Code 30111500: Ready Mix

Disclaimer:
EPDs are comparable only if they comply with this document, use the same sub-category PCR where applicable, include all relevant information modules, use the same functional unit and are based on equivalent scenarios with respect to the context of construction works. This EPD is intended for business-to-business communications.
This EPD was calculated using industry average cement data. Cement LCA impacts can vary depending upon manufacturing process, efficiency and fuel source by as much as 50% for some environmental impact categories. Cement accounts for as much as 90% of the impacts of the concrete mixes included in this EPD and thus manufacturer specific cement impacts could result in variation of as much as 45%.

An EPD from Hahn Ready Mix

How are EPDs Generated?

A Ready Mix supplier needs to partner with one of a few various EPD developers who assist in performing a Life Cycle Analysis (LCA) of all the materials brought into a plant. This includes gathering upstream EPDs, such as from a cement plant, freight distances, electrical and petroleum usage at the ready mix plant, water use, and air emissions. After this LCA is complete, which takes several months, a mix design EPD can be generated using any of the materials included in the LCA instantly. We have partnered with WAP Sustainability and utilized their Theta program to generate EPDs out of our West Davenport and Eldridge plants.

Why does this matter?

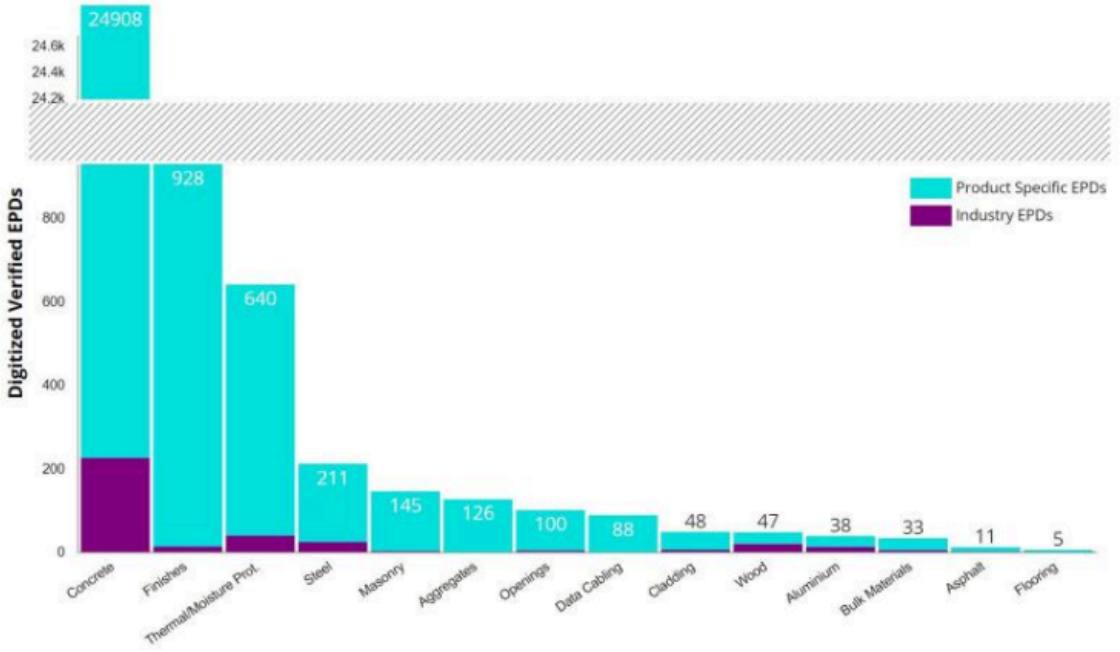
Specifiers for many federal government and tech industry projects are beginning to require that the concrete mixes used on those projects have to beat an industry average GWP for that type of mix by a certain percentage. The EPD is how one can prove that to meet the specification. In some cases, an inability to provide an EPD will prohibit a supplier from being involved with a job.

Are EPDs accurate?

A lot has been made of the fact that LCAs are a best effort of getting information about a production facility and its materials from cradle to gate. A process that assesses the whole life cycle of a material would be described as cradle to grave. This means that we are factoring in environmental output information from the origin point of manufacture or mining of materials, transportation to the ready mix plant, and the plant production itself. An EPD does NOT, however, factor in any environmental output of the transportation from the ready mix plant to the jobsite or any environmental impacts from the placement or use on site. This can create issues. For example, a ready mix plant close to its material sources but far from a jobsite will appear to be more sustainable than one using the same materials close to the job but far from its sources.

Recent research has shown that concrete absorbs around 25% (and maybe up to 60%!) of it's carbon output in production throughout its lifetime. The current LCA process and EPDs do not account for this carbon sink activity and likely overestimate the numerical lifetime carbon output of a yard of concrete.

Additionally, so much of the focus has been on concrete, that relatively little has been done to investigate or understand the full environmental impact of competing materials like asphalt, masonry, steel, or lumber.



The data in the above graph is a few years out of date, but even now, there are over 80,000 concrete EPDs nationwide and less than 6000 asphalt EPDs.

And finally, EPDs fail to consider the *service life* of the material in question. If GWP from a ton of asphalt is 25% lower than the equivalent amount of concrete, but the concrete lasts twice as long, the concrete has actually 50% lower GWP over the life of the concrete.

Click for Previous Tech Bulletins

Hahn Ready Mix
3636 West River Drive, Davenport, IA 52802