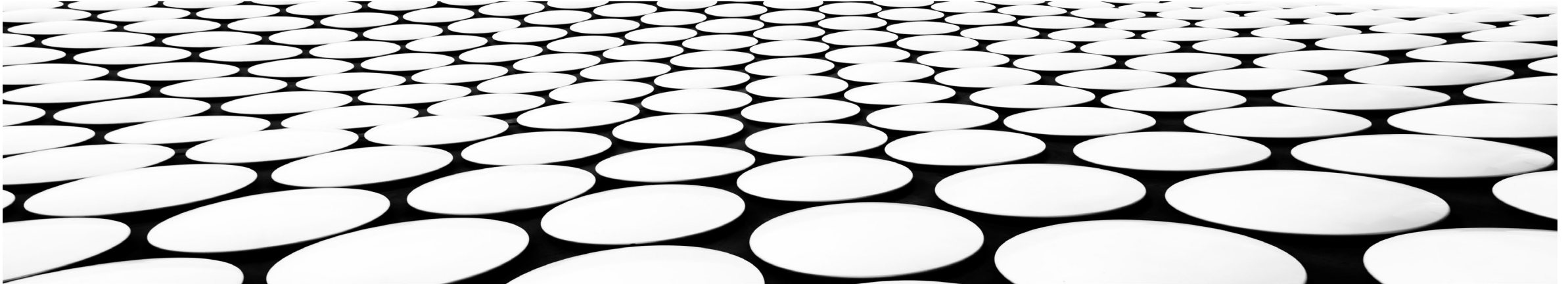

OVERVIEW OF ENVIRONMENTAL PRODUCT DECLARATIONS

INTERAGENCY SUSTAINABILITY WORKING GROUP
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ISO CHARACTERIZATION OF ENVIRONMENTAL DECLARATIONS

Type 1

- Business → Consumer
- Shows product meets minimum standards (Eco-label):
 - One stage of lifecycle*
 - Single environmental attribute*
- ISO 14024



Type 2

- Business → Consumer/Business
- Self declared
- ISO 14021



Type 3

- Business → Business
- Shows product environmental impact (environmental product declaration [think nutrition label]):
 - Across lifecycle
 - Multiple impact categories
- ISO 14025



Example EPD

ENVIRONMENTAL IMPACTS

Declared Product:

Mix 1412725 Plant Name
 4P 470 C+F 15% BLEND
 Compressive strength: 3000 PSI at 28 days

Declared Unit: 1 m³ of concrete

Global Warming Potential (kg CO ₂ -eq)	297
Ozone Depletion Potential (kg CFC-11-eq)	7.7E-6
Acidification Potential (kg SO ₂ -eq)	1.07
Eutrophication Potential (kg N-eq)	0.40
Photochemical Ozone Creation Potential (kg O ₃ -eq)	24.1
Abiotic Depletion, non-fossil (kg Sb-eq)	1.3E-6
Abiotic Depletion, fossil (MJ)	626
Total Waste Disposed (kg)	2.39
Consumption of Freshwater (m ³)	3.14

Product Components: natural aggregate (ASTM C33), Portland cement (ASTM C150), fly ash (ASTM C618), batch water (ASTM C1602)

Existing Buy
Clean initiatives
use Type 3
environmental
labels

Table shows key characteristics of attributes of many but not all labels in each category.

STEPS TO CREATE AN EPD

Product
Category Rules
(PCR)

Guidelines for conducting LCA and developing an EPD of a *specific product category*. Led by Program Operator with input from interested parties

Informed by ISO 14027 *Development of product category rules*



Lifecycle
Assessment
(LCA)

Quantifies environmental impacts of a product based on terms of PCR and other ISO standards.

Informed by ISO 14040 *LCA principles and framework* and ISO 14044 *LCA Requirements and guidelines*



Environmental
Product
Declaration
(EPD)

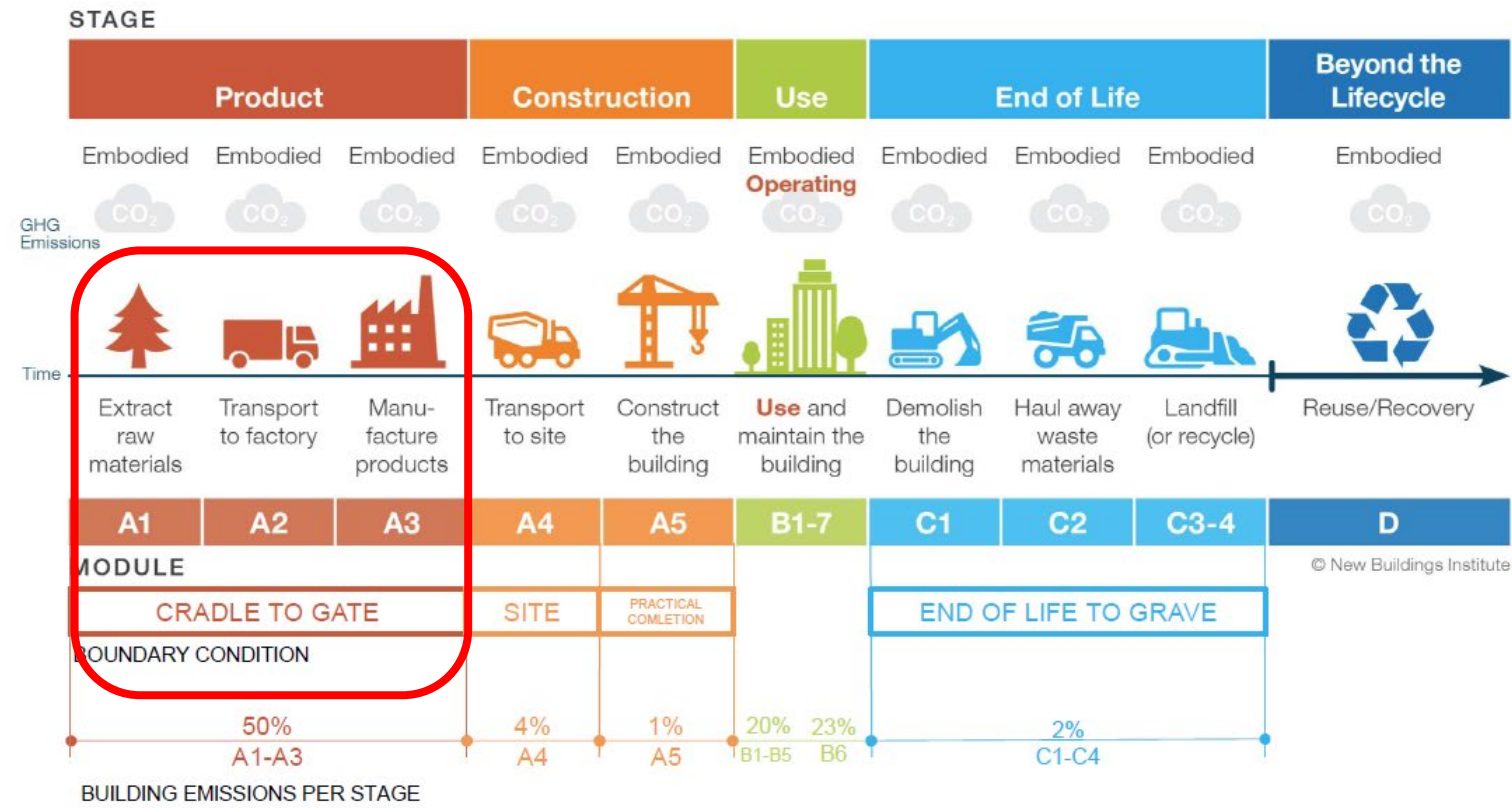
Reports LCA results in standard and comparable format

Informed by ISO 14025 *EPDs Principles and procedures* and ISO 21930 *Sustainability in buildings and civil engineering works*

Table 1: Impact assessment results for 1 metric ton of merchant bar

Indicator	Unit	Total (A1-A3)
GWP 100	kg CO ₂ eq	748

LCA OVERVIEW



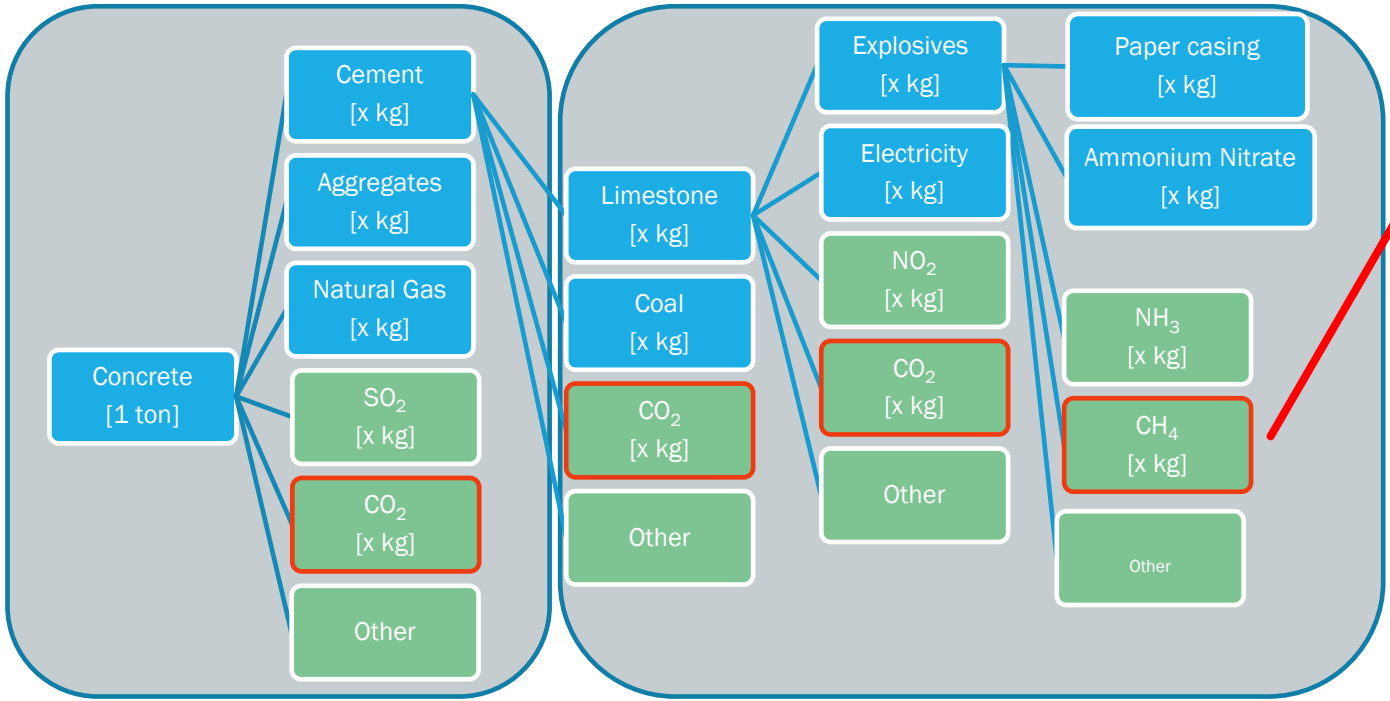
BD EN 15978 Lifecycle stages
<https://newbuildings.org/wp-content/uploads/2021/12/Embodied-Carbon-Bootcamp-Slides.pdf>

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Most construction-related EPDs report stages A1-A3 (emissions that already occurred). Some report A4 and A5 separately based on average distances travelled to construction site (emissions in the future).

LCA OVERVIEW

1) Life Cycle Inventory (Cradle-to-Gate)

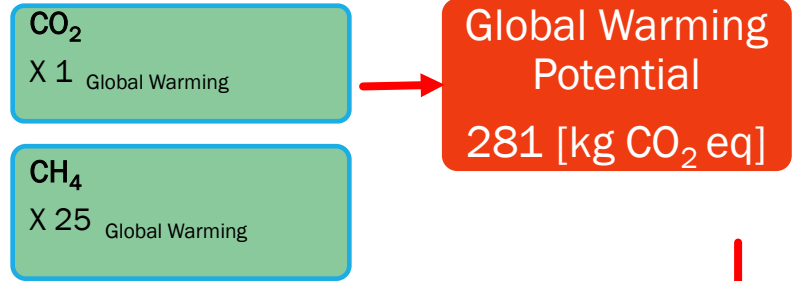


Foreground Data (Usually A3)

Background Data (Usually A1-A2)

Displays illustrative, not comprehensive, inputs and outputs for concrete manufacturing. Each substance can have over a dozen inputs and types of emissions.

2) Life Cycle Impact Assessment (Classification & Characterization)



3) Environmental Product Declaration

ENVIRONMENTAL IMPACTS	
Declared Product: Plant name	
Compressive strength: 3000 PSI at 28 days	
Declared Unit: 1 m ³ of concrete	
Global Warming Potential (kg CO ₂ -eq)	281
Ozone Depletion Potential (kg CFC-11-eq)	7.8E-6
Acidification Potential (kg SO ₂ -eq)	0.84
Eutrophication Potential (kg N-eq)	0.37
Photochemical Smog Creation Potential (kg O ₃ -eq)	16.9



WHAT IS AN EPD

Discloses the “lifecyle”
environmental impacts of a product
similar to a nutrition label

ENVIRONMENTAL IMPACTS	
Declared Product:	
Plant name	
Compressive strength: 3000 PSI at 28 days	
Declared Unit: 1 m ³ of concrete	
Global Warming Potential (kg CO ₂ -eq)	281
Ozone Depletion Potential (kg CFC-11-eq)	7.8E-6
Acidification Potential (kg SO ₂ -eq)	0.84
Eutrophication Potential (kg N-eq)	0.37
Photochemical Smog Creation Potential (kg O ₃ -eq)	16.9

*In other words, 281 kg
of CO₂e were emitted
when producing 1
cubic meter of this
concrete.*

....but without the
“recommended values”

Up to “buyer” to specify
thresholds

Nutrition Facts	
Serving Size 2/3 cup (55g)	
Servings Per Container 8	
Amount Per Serving	
Calories 230	Calories from Fat 70
% Daily Value*	
Total Fat 8g	12%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	2%
Dietary Fiber 4g	16%
Sugars 12g	



EXTRACTION
(A1)

TRANSPORT
(A2)

MANUFACTURING
(A3)



TRANSIT
(A4)



CONSTRUCTION
(A5)



USE
(B)



DISPOSAL
(C)

EPDs for construction materials usually only report “Cradle-to-Gate” emissions.

WHAT IS AN EPD

Types of EPDs

Facility-Specific EPD

Represents the impacts for a specific product from a single facility

Ex: [Company B's] Fabricated Hot-Rolled

GWP [KG CO2 EQ.]	TOTAL
Steel plant A, AR	1.83E+03
Steel plant B, SC	9.96E+02

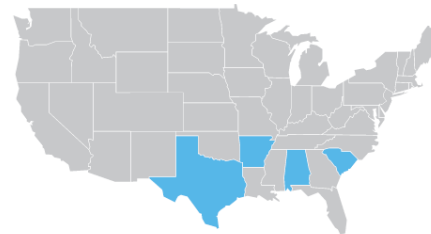
Product (Company-Specific) EPD

Represents the impacts for a specific product for a single manufacturer across multiple facilities

Ex: [Company A's] Merchant Bar and Light Structural Shapes

Table 1: Impact assessment results for 1 metric ton of merchant bar

Indicator	Unit	Total (A1-A3)
GWP 100	kg CO ₂ eq	748



Industry EPD

Represents the average environmental impacts of a product across multiple manufacturing plants and manufacturers in an industry.

Supply Chain EPD

A product EPD that uses actual (instead of generic or average) data from the most impactful area of a product's lifecycle

SUMMARY: WHAT EPDS DO AND DON'T DO

Do	Do not
Quantify impact in terms of environmental performance	Explain how the impact was made (management, technology, electricity grid)
Typically, use actual data from last leg of chain	Use actual data from entire supply chain
Rely on established standards for PCR, LCA and EPD generation	Address all questions that may want to be considered for procurement