

GCCA EPD TOOL · GUIDE 1 OF 7

EPD fundamentals

What an Environmental Product Declaration is, the standards and rules behind it, and the vocabulary you will meet in the tool: modules, indicators, PCRs and programme operators.

Read this before you open the tool for the first time. Every field in the GCCA EPD Tool maps onto a concept here, and verifiers use this vocabulary when they question your data. Twenty minutes now saves a round of questions later.

The series

Guide	What it covers	Read it when
1 · EPD fundamentals	Standards, modules, indicators, roles. This guide.	Before you start
2 · Your first EPD	Login to export, screen by screen.	First session in the tool
3 · Plant data checklist	What to collect, who holds it, what evidence to keep.	Before data collection
4 · Modelling reference	Every input section of the tool, module by module.	While modelling
5 · Worked exercises	Aggregate, clinker, cement and concrete with training figures.	Learning by doing
6 · Verification and publication	From background report to registered EPD.	When results are stable
7 · Moving to Version 6	For existing clients: what changed and how to migrate.	Existing users

From LCA to EPD

A **Life Cycle Assessment** (LCA) is the systematic method for evaluating the potential environmental impacts of a product across its whole life, from raw material extraction to disposal or recycling. It is governed by ISO 14040 and ISO 14044, and its output is a long, detailed report whose goal, scope and impact method are chosen by the practitioner. Two LCAs of similar products can therefore be impossible to compare.

An **Environmental Product Declaration (EPD)** is built on an LCA, but fixes those choices in advance so that declarations for products with the same function can be set side by side.

A Type III environmental declaration quantifies environmental information on the life cycle of a product to enable comparisons between products fulfilling the same function.

After ISO 14025:2006

LCA report	EPD
Based on ISO 14040 / 14044	Based on ISO 14025 and, for construction products, EN 15804+A2
Goal, scope and impact method chosen per study	Goal, scope and impact method fixed by the product category rules
Studies of the same product can be incomparable	Declarations of products with the same function are comparable by design
Lengthy and comprehensive	Brief, standardised, third-party verified and registered

In the GCCA EPD Tool the LCA is the **background report**; the EPD is the document a programme operator publishes after independent verification. The tool produces the first; Guide 6 covers the route to the second.

Three kinds of environmental label

Type	Standard	What it is
Type I	ISO 14024	Multi-criteria ecolabels awarded by a third party against a threshold: EU Ecolabel, Blue Angel, Ecologo.
Type II	ISO 14021	Self-declared claims such as "recyclable" or "biodegradable". No independent check; largely marketing.
Type III	ISO 14025	Quantified life-cycle data, third-party verified and registered with a programme operator. This is the EPD.

A self-declaration from the tool is not yet an EPD. Until it has been independently verified and registered, the output of the tool is closer to a Type II claim than a Type III declaration. Call it a self-declaration or Environmental Data Sheet until then.

The standards ladder

Each rung narrows the one above it. The GCCA EPD Tool (International version) is verified against PCR 2019:14 Construction products (EN 15804+A2) and the complementary PCRs c-PCR-001 Cement and building limes (EN 16908) and c-PCR-003 Concrete and concrete elements (EN 16757), under the International EPD® System's General Programme Instructions.

ISO 14025	All Type III declarations, every sector.
EN 15804+A2 / ISO 21930	Core rules for construction products. EN 15804+A2 (2019) fully replaced +A1 and complies with ISO 14025.
Product standards	EN 16908 for cement and building lime, EN 16757 for concrete and concrete elements.
GPI + PCR	A programme operator's General Programme Instructions and its construction-products PCR.
c-PCR	Complementary rules for one product group under one programme operator.

A **Product Category Rule** (PCR) is the recipe. It fixes the scope, the declared or functional unit, the indicators, the calculation rules, the structure of the EPD document and the data quality requirements. It tells you how to do the LCA for your product, so that everyone else declaring the same product does it the same way.

Life-cycle stages and modules

EN 15804 splits the life cycle into information modules. The tool's left-hand menu follows them exactly.

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PRODUCT			CONSTRUCTION			USE						END OF LIFE				D

Module	Name	What it contains for cement and concrete
A1	Raw material supply	Extraction and production of every input: limestone, clay, gypsum, clinker, aggregates, admixtures, secondary materials.
A2	Transport	Delivery of those materials to the plant: mode and distance per material.
A3	Manufacturing	Fuels, electricity, water, ancillary materials, packaging, processing of secondary inputs, process emissions and manufacturing waste.
A4	Transport to site	Finished product to the construction site, including mixing-truck fuel for concrete.
A5	Installation	Fuels, electricity, water, material losses and packaging waste during construction.
B1 to B7	Use stage	Use, maintenance, repair, replacement, refurbishment, operational energy and water. For concrete, B1 carries recarbonation; the others are normally zero.
C1 to C4	End of life	Demolition, transport to treatment, waste processing (crushing, recycling, incineration) and disposal (landfill).
D	Benefits and loads	Net credits beyond the system boundary: recycled concrete and steel, exported heat and electricity.

System boundaries are described with the same modules. **Cradle to gate** is A1 to A3, the minimum for clinker, cement and aggregate. **Cradle to gate with options** adds selected modules. **Cradle to grave and module D** is A1 to D, which is what the tool models for concrete and precast.

Indicators

The results table in the tool reports every indicator the PCR requires, per module, in four groups. GWP is where attention goes first, but a verifier will read all of them.

Group	Indicators
Core environmental impact	Climate change total, fossil, biogenic and land use (LULUC); ozone depletion; acidification; eutrophication freshwater, marine and terrestrial; photochemical ozone formation; abiotic depletion of minerals and metals and of fossil resources; water use.
Resource use	Primary energy, renewable and non-renewable, split between energy carrier and material use; secondary materials; renewable and non-renewable secondary fuels; net fresh water.
Output flows and waste	Hazardous, non-hazardous and radioactive waste; components for re-use; materials for recycling and for energy recovery; exported energy. Plus biogenic carbon content in product and packaging.
Additional (optional)	Particulate matter, ionising radiation, ecotoxicity, human toxicity, land use related impacts. Reported with a disclaimer about their robustness.

GWP-GHG versus GWP-total. GWP-total includes biogenic carbon uptake and release; GWP-GHG excludes biogenic CO₂ and is the figure most programmes ask you to communicate. The tool reports both. The **net GWP** option in the product description additionally nets off recarbonation; use it only where the PCR you are declaring under allows it.

Who is who

Party	Role
Producer (you)	Owns the data, the declaration and any claim made from it.
LCA practitioner / tool	Builds the model and the background report. The GCCA EPD Tool is a pre-verified practitioner in software form.
Independent verifier	Checks data, assumptions and PCR compliance. Must be independent of the producer and approved by the programme operator.
Programme operator	Supervises the EPD process, develops and maintains PCRs, administers verification, registers and publishes EPDs, keeps the programme rules current. Examples: the International EPD® System (Envirodec), IBU, EPD Norge, EPD Italy, EPD Danmark, BRE.

Kinds of EPD

Kind	Covers	Example
Product-specific	One product from one manufacturer.	A producer's CEM II 32.5 from one plant
Group / multiple products	Several products from one manufacturer, typically with an average and a range.	A producer's whole CEM II range
Sector	Several products from several manufacturers, published by an association.	An industry-average CEM I EPD

Why EPDs matter

- **Specification.** Green building rating systems award credit for products with EPDs; public procurement increasingly requires them.
- **Comparability.** The same PCR and the same tool mean differences between products are real, not methodological.
- **Compliance.** Carbon regulation and disclosure rules lean on verified, life-cycle data.
- **Improvement.** The detailed breakdown shows where the impact sits, which is where product development should start.
- **Trust.** Third-party verification carries weight with customers that a self-declared claim does not.

Next: Guide 2 walks through the tool from login to export. Guide 3 lists the plant data to collect first.