

GCCA EPD TOOL · GUIDE 5 OF 7

Worked exercises

Four products, built in sequence with the figures used in GCCA training. Each one feeds the next: the clinker goes into the cement, the cement into the concrete.

These are teaching numbers, not a real plant. Their job is to make you touch every screen once, read the control indicators, and see how a change in one place moves the results elsewhere. Work in the International version with **India** as the country; any country works, but the defaults you compare against will differ. Tick each row as you go.

Do not export training records as declarations. Name them "Test ..." as below and delete them when you are done, so they never get confused with real products in the dashboard.

EXERCISE 1 · ABOUT 20 MINUTES

Aggregate

Declared unit: 1 tonne Scope: A1-A3 Dashboard: New aggregate → New empty aggregate

Section	Enter
☐ Create	Product name Test Aggregate . Country India . Reference year 2024 , data set valid until 2030 .
☐ Materials	Primary raw materials: 824 kg Natural rock . A default 50 km road leg is already there; add a second leg of 30 km by rail .
☐ Materials	Secondary materials, waste: 206 kg End-of-life concrete , 30 km by truck.
☐ Manufacturing	Grid electricity 20 kWh . Primary fuels: 30 kg Diesel , 50 km by truck. Blasting: 1 kg Explosives , 150 km by rail.
☐ Waste management	Non-hazardous waste to landfill 15 kg , 20 km by truck. Materials/waste to recycling 15 kg , 50 km by truck.
☐ Results	Read the mass balance ($824 + 206 - 30 = 1,000$ kg). Open EPD results and the detailed breakdown; the diesel and the explosives should dominate GWP.
☐ Export	Export the background report and the self-declaration to see what each contains.

EXERCISE 2 · ABOUT 40 MINUTES

Clinker

Declared unit: 1 tonne

Scope: A1-A3

Dashboard: New clinker → New empty clinker

Section	Enter
☐ Create	Product name Test Clinker . Country India . Reference year 2024, valid until 2030.
☐ Materials	Primary raw materials: 600 kg Limestone, raw , 300 km by ship; 900 kg Limestone, crushed , 50 km by truck.
☐ Materials	Secondary materials, co-product: 50 kg Slag, granulated, without drying , 50 km by truck, allocation factor 2% . Secondary materials, waste: 10 kg Aluminium oxide, waste , no transport added (note it, and note what a verifier would say).
☐ Manufacturing · electricity	Grid electricity 100 kWh . Tick Use custom values and enter the mix: coal and peat 30, oil 15, gas 0, biomass 10, waste 0, nuclear 5, hydro 40, geothermal 0, solar 0, wind 0. On-site: 20 kWh Electricity, solar .
☐ Manufacturing · kiln fuels	Primary: 10 m³ Natural gas . Secondary: 100 kg Rubber/used tyres , 50 km by truck. Click the pencil on the tyres, tick Use custom values, and set CO ₂ emission factor 100 kg CO₂/GJ and lower heating value 35 MJ/kg (defaults 113.6 and 27.2).
☐ Manufacturing · kiln emissions	Calcination emissions 525 kg CO₂ . Fuel combustion emissions 20 kg CO₂ .
☐ Manufacturing · other	Non-kiln fuels: 5 m³ Natural gas . Water: 3 m³ Water, unspecified natural origin . Co-products: 2 kWh excess electricity, 9 MJ excess heat .

Electricity, purchased from the grid

Electricity

100

kWh

Electricity mix:

☒ Use custom values

Source of electricity	Custom value (%)
Coal and peat	30
Oil	15
Gas	0
Biomass	10
Waste	0
Nuclear	5
Hydro	40
Geothermal	0
Solar	0
Wind	0

Electricity, produced on site

Electricity, produced on site

Quantity

Electricity, solar

20

kWh

The clinker exercise electricity mix, with 20 kWh of on-site solar below.

Analysis

1. In **Detailed breakdown**, identify the three largest contributors to GWP. Calcination should lead.
2. In **Product description**, tick **GWP is reported as net GWP** and re-read the results. Untick it.
3. Back in **Manufacturing**, untick **Use custom values** on the electricity mix, then on the tyres, and watch the results move each time. This is the value of primary data, and the size of the evidence a verifier will want.

EXERCISE 3 · ABOUT 40 MINUTES

Cement

Declared unit: 1 tonne Scope: A1-A3 Dashboard: New cement → New empty cement

This exercise also practises the three ways of bringing a clinker into a cement record. Do the import steps first.

Section	Enter
☐ Import practice	From the dashboard create a New default clinker named Test Default Clinker . Export its background report (Excel) and save it. Back on the dashboard, use Import GCCA tool EPD(s) from background report to load it, and rename the result Test Clinker Imported from BR . Then use Import third party EPD and type the same clinker's headline results in by hand.
☐ Create	Product name Test Cement . Country India. Reference year 2024, valid until 2030.
☐ Materials · clinker	500 kg of clinker, 30 km by rail, using any one of: specific clinker → Test Default Clinker; specific clinker → Test Clinker Imported from BR; the third-party EPD you typed in; or default clinker. Try two and compare.
☐ Materials · raw	10 kg Calcareous marl , 400 kg Sand , 100 kg Gypsum , all 50 km by truck.
☐ Materials · secondary and packaging	Secondary materials, waste: 50 kg Recycled railway ballast aggregate , 50 km by truck. Packaging: 5 kg Plastic bags and 1 unit Wooden pallets , both 200 km by rail.
☐ Manufacturing	Grid electricity 100 kWh , default mix. On-site transport fuels: 10 L Diesel , 10 km by truck; 5 L Gasoline , 50 km by truck.
☐ Waste management	Non-hazardous waste to landfill 60 kg , 15 km by truck. Then check the mass balance.

Secondary materials, waste	Quantity		Transport mode	Distance	
Recycled railway ballast aggregate	50	kg	Truck	50	km
+Add exchange					
Water					
+Add exchange					
Additives					
+Add exchange					
Packaging					
Packaging	Quantity		Transport mode	Distance	
Plastic bags	5	kg	Rail	200	km
+Add transport					
Wooden pallets	1	unit	Rail	200	km
+Add exchange					
Cement exercise: secondary waste material and packaging with rail transport.					

EXERCISE 4 · ABOUT 45 MINUTES

Concrete

Declared unit: 1 m³ Scope: A1 to D Dashboard: New concrete → New empty concrete

Section	Enter
☐ Create	Product name Test Concrete . Country India. Density 2,200 kg/m³ , strength class 15-20 MPa . Reference year 2024, valid until 2030. In the product description, set the cement strength class to 20-35 MPa .
☐ Materials	Specific cement: 800 kg Test Cement , 100 km by rail. 500 kg Sand , 50 km truck. 550 kg Calcined clay , 50 km truck. 450 kg Recycled concrete, crushed, fines , 50 km truck. 1 L Plasticiser , 600 km rail.
☐ Manufacturing	Grid electricity 100 kWh . Fuels: 10 kg Heavy fuel oil and 10 kg Diesel , each 50 km by truck.
☐ Waste management	Materials/waste to recycling 100 kg , 15 km by truck.
☐ A4-5 Construction	Delivery 20 km by truck . Leave losses at 3% and the installation defaults. Packaging: 80% to incineration, 40% of that with energy recovery.
☐ B Use	Try all three recarbonation approaches: Default value with type of construction "unknown"; Calculation with 100 years, 5 m ² /m ³ , exposed to rain; User-specific with 100 years and 5 kg CO ₂ /m ³ . Compare the resulting recarbonation each time.
☐ C End of life	C1 and C2 are fixed. In C3 set incineration with energy recovery 40% and recycling rate 80% . Set the recarbonation approach for both C3 and C4 to Default value .
☐ D Benefits and loads	Nothing to enter. Read the recycled concrete OUT figure and confirm it equals 80% of 2,200 kg.
☐ Results	Read the full A1 to D table. Note the negative B1-B7 column (recarbonation) and the negative D column (credits), and that GWP-GHG for A1-A3 is dominated by the cement.

Independent exercise: precast. Create a new empty precast element with a declared unit of your choice, define the concrete volume per unit, add reinforcement, and repeat the concrete workflow. Precast has no default record, so you will meet every field.

Clean up

- Compare two of your test records with the dashboard **compare** function to see the side-by-side view.
- Delete all "Test ..." records, including the imported clinkers and the third-party EPD, once you are done.
- Then start your real product with Guide 3's checklist in hand.