CBAM embedded emissions — Example Screw Production Plant

Screw street 2023, Example City, United States · Reporting period 1 Jan – 31 Dec 2026 · Prepared 2026-10-05 with CBAM File

Using the supplier's actual data instead of EU default values lowers the importer's CBAM cost by **€40,105** in 2026 and by **€1,604,219** per year at full phase-in, at €75/tCO_2 (price as of 2026-10-05).

Specific embedded emissions (direct)

Process	Product	CN	Produced t	SEE tCO_2e/t	EU default 2026	Exported t	Buyer saving 2026
P1	Carbon steel screws and nuts Iron or steel products	73181542	17,000	**2.007**	2.838	17,000	€26,490
P2	High alloy steel screws and nuts Iron or steel products	73181535	8,200	**1.952**	2.838	8,200	€13,615

How each value is built

Process	Own direct emissions tCO_2	Precursors used	Total embedded tCO_2	÷ tonnes	= SEE
P1	3,338.0	20,000 t Carbon steel (China) × 1.539 verified	34,118.0	17,000	**2.007**
P2	1,610.1	10,000 t High alloy steel (United States) × 1.440 verified	16,010.1	8,200	**1.952**

Fuels and materials (installation total)

Source stream	Method	Tonnes	Factors	tCO_2
Natural gas	Combustion	1,837.5	NCV 48 GJ/t · EF 56.1 tCO_2/TJ	4,948.0

Method

1. Fuel emissions — `tonnes × NCV [GJ/t] × EF [tCO₂/TJ] ÷ 1000`. Standard factors (IPCC 2006) from EC Guidance No. 3, Annex D. Carbonates: `tonnes × EF [tCO₂/t]`. Carbon materials (mass balance): `tonnes × carbon content × 3.664`.

2. Specific embedded emissions (SEE) of each process — Guidance No. 3, eq. 59–60: `SEE = (process direct emissions + Σ tonnes of precursor used × SEE of precursor) ÷ tonnes produced`. Tonnes used include offcuts and scrap (Guidance No. 3, p. 34).

3. Scope. Iron, steel and aluminium: direct emissions only in the definitive period (Regulation (EU) 2023/956, Annex II; Guidance 5d/5e, pp. 8–9).

4. Purchased precursors. A supplier value counts only with a verification report from an accredited verifier. Otherwise the country default applies, including the mark-up: 2026: 10% · 2027: 20% · 2028: 30% (Guidance No. 3, pp. 110–116).

5. Default values for the comparison: EC file of 06.08.2026 (Annex I, IR (EU) 2025/2621 as corrected by IR (EU) 2026/1740), matched on the longest CN prefix.

6. Buyer cost. `tonnes × SEE × EU carbon price × CBAM phase-in factor`. The free-allocation adjustment is the same for both scenarios, so it does not change the saving; absolute costs shown are before that adjustment.

Checked against the European Commission's worked examples (Communication Template v2.1): cell by cell for the screws & nuts example, and on the final values per tonne for the EAF steel with alloys and aluminium examples and Guidance 5d Example 3 — the same results.

Verification-ready draft — not verified. Actual emission values used in CBAM declarations must be verified by an accredited verifier. Default values are from the European Commission's informational file of 06.08.2026; the legally binding values are those of Implementing Regulation (EU) 2026/1740. Data quality declared: Four eyes principle. The EU carbon price is an estimate entered by the user. This report was generated entirely in the user's browser.

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