

Environmental Product Declaration & Carbon Footprint Analysis

Pultruded GFRP Composite Profile Products (1 m² functional unit)

Subject entity	F1 Composite Co., Ltd.
Manufacturing facility	F1 Composite Co., Ltd. — Yancheng manufacturing facility, Dafeng District, Yancheng, Jiangsu Province, China
Product category	Pultruded glass-fibre-reinforced composite profile products (principally GFRP-polyurethane window and door profiles and accessories)
Issuing body	China Academy of Building Research Co., Ltd. (CABR), Certification Centre, Beijing
Report issue date	April 30, 2025
Assessment period	January 2024 — December 2024

1 Scope and Standards

F1 Composite Co., Ltd. has voluntarily commissioned a third-party environmental product declaration (EPD) and product carbon footprint analysis for its pultruded GFRP composite profile range, in order to support continuous improvement of its environmental performance and to provide a transparent disclosure to building owners, designers, and procurement teams.

Standards applied

GB/T 24025-2009 — Environmental labels and declarations — Type III environmental declarations — Principles and procedures

GB/T 32161-2015 — General principles for eco-design product evaluation

ISO 14067 — Carbon footprint of products — Requirements and guidelines for quantification

PAS 2050 — Specification for the assessment of life cycle greenhouse gas emissions of goods and services

2 Life-Cycle Environmental Impact

2.1 Baseline conditions

F1 Composite Co., Ltd.

EPD & Carbon Footprint · Pultruded GFRP Composite Profiles

The assessment covers F1 Composite Co., Ltd.'s full-cycle production of pultruded GFRP composite profile products at the Yancheng manufacturing facility during the January – December 2024 reporting period. Recycled content in the principal raw materials is below 1 % by mass.

2.2 Methodology

A cradle-to-gate life-cycle assessment was performed on a representative production unit of pultruded GFRP composite profile. The system boundary covers raw-material acquisition, manufacturing, and outbound distribution transport. The functional unit is 1 m² of finished profile.

2.3 Key findings

Across the full assessed life cycle, raw-material acquisition and manufacturing together account for more than 90 % of total environmental impact. Energy intensity within the manufacturing stage is tightly controlled.

The principal contributing impact categories are:

- Water-body eutrophication
- Fossil-energy depletion
- Terrestrial acidification
- Particulate-matter formation
- Mineral-resource depletion

3 Product Carbon Footprint

Calculation reference number	CABR-CFC-01(02)-2025(20030)1
Calculation basis	ISO 14067; PAS 2050
System boundary	Raw-material acquisition + manufacturing + distribution and transport
Functional unit	1 m ² of pultruded GFRP composite profile
LIFE-CYCLE SCOPE	CARBON FOOTPRINT (G CO₂E / M²)
Cradle-to-gate total (raw materials + manufacturing)	33,934.34
Outbound distribution and transport	254.59
Cradle-to-grave estimate (with use and end-of-life)	36,099.32

The product carbon footprint demonstrates competitive environmental performance relative to traditional aluminium and PVC window-profile systems on a per-square-metre basis, with the largest residual reduction opportunity located in upstream raw-material energy intensity.

This document is an unofficial English-language summary derived from the original Chinese product environmental impact analysis report and the carbon-footprint calculation book (CABR-CFC-01(02)-2025(20030)1) issued by China Academy of Building Research Co., Ltd., Certification Centre, on April 30, 2025. For regulatory, legal, and contractual purposes, refer to the original Chinese documents held on file at F1 Composite Co., Ltd.