

Carbon Footprint 2019

Company and Product Assessments

This document presents the results of the carbon footprint assessments undertaken by ABG for the 2019 calendar year. The assessments have been independently verified by **Carbon Footprint Limited**, a leading international carbon footprint accreditation body, and ABG is certified to use the 'Carbon Footprint Standard' branding.

ABG Products

The majority of ABG's manufactured products are drainage geocomposites designed for use in a wide variety of civil engineering applications. ABG drainage geocomposites typically consist of a cusped polyethylene (HDPE) core with a geotextile thermally bonded to one or both sides to create optimal water and gas flow.

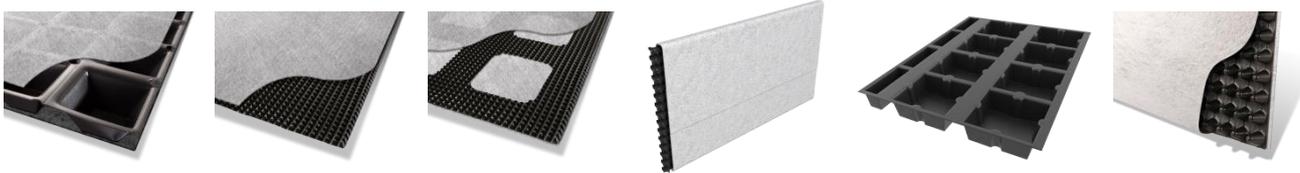


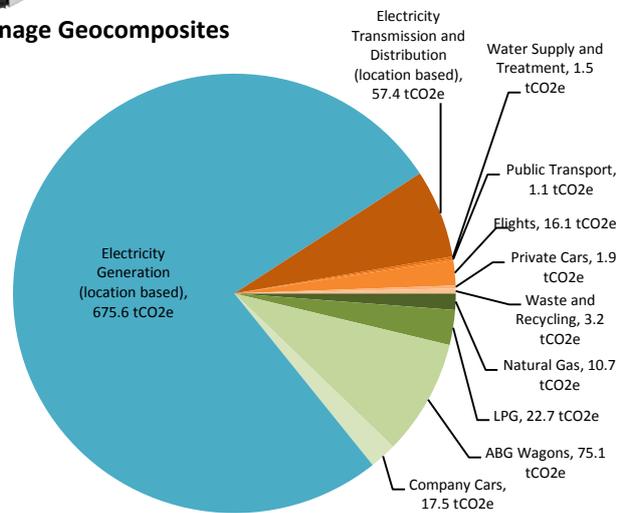
Figure 1: Typical ABG Drainage Geocomposites

Company Footprint

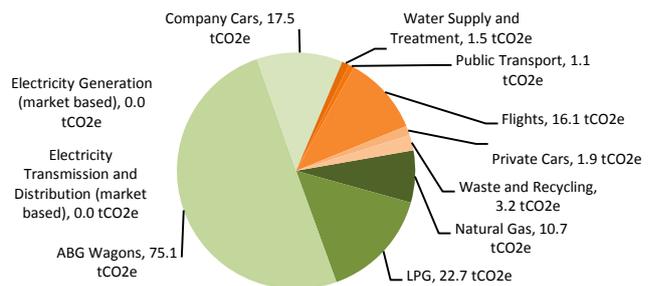
ABG's carbon footprint has been assessed in accordance with both **ISO 14064-1** (the international standard for assessing the carbon footprint of companies) and the **Greenhouse Gas Protocol (GHGP)**, the world's most widely used greenhouse gas accounting standard. It has also been audited according to **ISO 14064-3**. The scope of the assessments was as follows:

- **Scope 1:** Natural gas, LPG, company vehicles
- **Scope 2:** Purchased electricity (generation)
- **Scope 3:** Business travel (air, public transport, and personal car), electricity transmission and distribution, water supply and treatment, and waste disposal.

The carbon footprint associated with electricity can be assessed in two ways - a **'Location Based'** assessment (emissions from electricity based on UK electricity grid average values), or a **'Market Based'** assessment (emissions from electricity based on the electricity tariff). **In 2019 ABG had a 100% renewable energy electricity tariff** and hence the emissions assessed via a market based assessment are significantly lower. Both assessments are compliant with both ISO 14064 and the GHGP.



'Location Based' Assessment



'Market Based' Assessment

Figure 2: Company Footprint Results Distribution

Table 1: Company Footprint Assessment Results

Assessment	Greenhouse Gas Emissions (tonnes CO ₂ e)				Accuracy
	Scope 1	Scope 2	Scope 3	Total	
Location Based	125.9	675.6	81.1	882.6	±1.1%
Market Based	125.9	0	23.8	149.7	±1.4%



CO₂e Assessed

Carbon Footprint 2019

Company and Product Assessments

Product Footprint

The assessment of the carbon footprint of ABG's products is a 'Cradle to Gate' analysis using the **Greenhouse Gas Protocol (GHGP)** and considers both 'Location Based' and 'Market Based' assessments of emissions from electricity use. The results vary for each product and are typically in the range of **1.2-3.1 kg CO₂e per kg of manufactured product**. This analysis includes the embodied carbon in the raw materials ABG uses to manufacture its products, transportation to ABG, and emissions during manufacturing.

Recycled or Virgin HDPE

The HDPE core of ABG geocomposites can be manufactured with either virgin HDPE or recycled HDPE sourced from quality controlled supplier. Shown below is a comparison of the carbon footprint of one of ABG's most common drainage geocomposites (Pozidrain 7S250/NW8) manufactured using 100% virgin HDPE, or a mixture of 80% recycled and 20% virgin HDPE. The results show that a **42% reduction in the carbon footprint of the product can be achieved by using 80% recycled HDPE**.

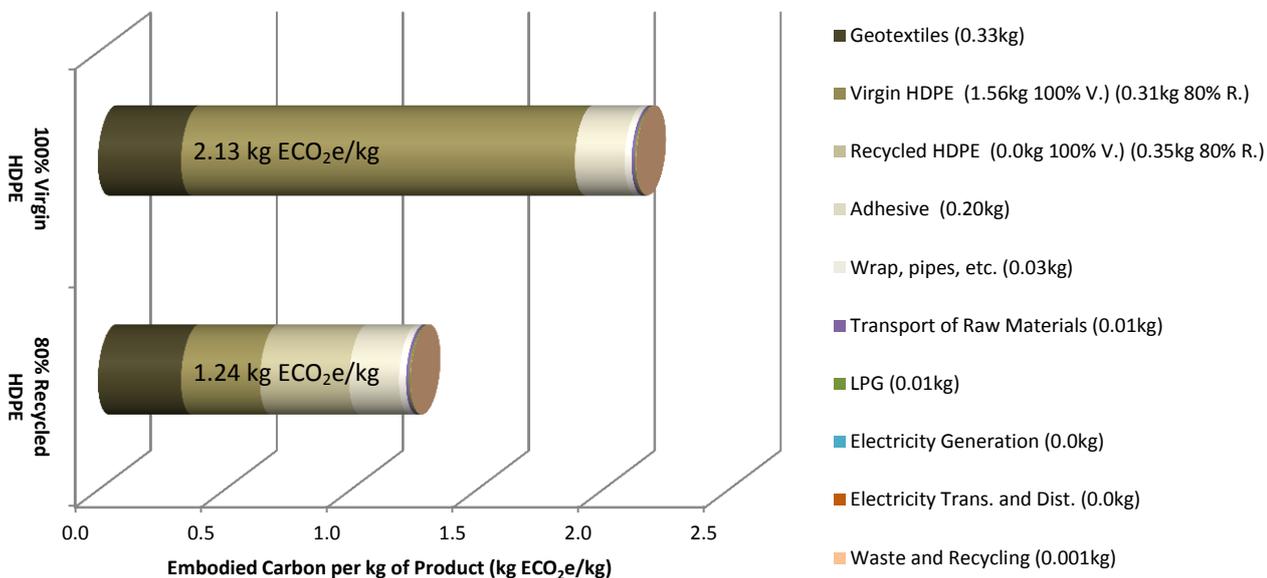


Figure 3: Embodied carbon of Pozidrain 7S250/NW8 made with 100% Virgin or 80% Recycled HDPE (established via 'market based' assessments)

Drainage Geocomposites vs. Granular Drainage Layers

The use of geosynthetic solutions in civil engineering applications in lieu of traditional methods reduces the carbon footprint of a project in most situations – this is particularly true for ABG drainage geocomposites as the water flow rate achieved in light-weight drainage geocomposites is equal to as much as 1000 x that of an equivalent weight of drainage stone. In a paper authored by Heritage and Shercliff, a range of different scenarios were assessed which demonstrated significant reductions in the carbon footprint of drainage projects, summarised in Table 2. For further information on the overall results or a specific product, please contact ABG directly who will be pleased to supply further details, or visit the carbon footprint section of the ABG website.

Table 2: Results of Heritage and Shercliff Analysis

Analysis	Reduction in Carbon Emissions	
Drainage Trench	4.4 kg CO ₂ e / m	55%
Structural Drainage	30.3 kg CO ₂ e / m ²	94%
Drainage Blanket	4.0 kg CO ₂ e / m ²	64%

<http://www.abg-geosynthetics.com/technical/carbon-footprint-reduction-section>