

SUSTAINABILITY: NET ZERO INITIATIVE

FINALIST: Base Materials

Base Materials has developed a structured, data-led approach to decarbonisation, using Life Cycle Assessment (LCA) to measure and reduce the embodied carbon of its composite tooling materials. Unlike generic carbon calculators, its bespoke LCA tool reflects actual formulations, manufacturing processes, energy use, waste, packaging and supply chain inputs, providing consistent cradle-to-gate carbon footprints across its portfolio. Assessments are standardised to 1kg of product, enabling meaningful comparison between materials and supporting evidence-based decisions around formulation and manufacturing. LCA modelling has demonstrated that raw material composition is a key driver of embodied carbon, with bio-based inputs offering opportunities to reduce impacts depending on sourcing and processing.



This data-led approach has directly influenced product development, with 96% of Base Materials' tooling board range now containing biobased raw materials as standard. Product carbon footprints across the portfolio typically range from approximately 2–6 kg CO₂e per kg, providing a clear baseline against which future improvements can be measured.

The initiative addresses a significant industry challenge: customers increasingly need accurate, application-specific carbon data to understand and reduce their Scope 3 emissions, but often lack consistent information to support material and process decisions. Base Materials' approach brings quantified carbon analysis into technical and commercial discussions, enabling customers to consider environmental performance alongside cost and technical requirements.

The capability has already been applied collaboratively with customers, including an extended cradle-to-grave LCA for a high-performance automotive application. This identified key carbon hotspots within tooling production and end-of-life and provided a basis for exploring alternative materials, process efficiencies and waste reduction.

By embedding LCA into product development and customer engagement, Base Materials is moving from qualitative sustainability commitments towards measurable, evidence-based decarbonisation. The approach provides a foundation for continuous improvement and supports customers across aerospace, automotive and motorsport in making lower-carbon material choices.

Learn more at: www.base-materials.com