

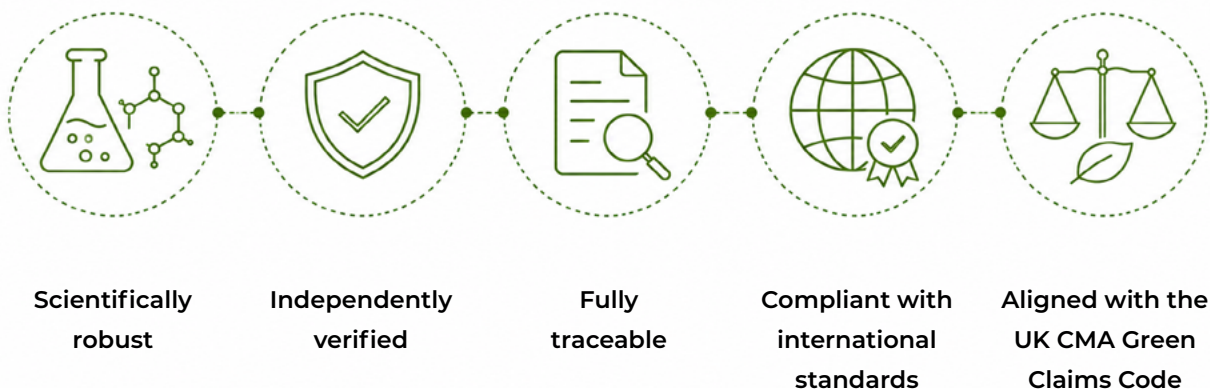
Carbon Transparency You Can Trust

Science-Based Product Carbon
Reporting from Biological Preparations



Our Commitment

Biological Preparations provides transparent, science-based carbon footprint data for our Eco & Biotech cleaning products. Our carbon reporting methodology has been developed to ensure that all reported information is credible, robust, and suitable for customers seeking reliable sustainability data. Our methodology is designed to be:



We are committed to providing customers with credible product-level carbon data that supports Scope 3 reporting, sustainability goals, and responsible procurement decisions. By combining supplier-specific information with recognised life cycle assessment methodologies, we deliver carbon footprint data that is transparent, defensible, and suitable for use in both internal and external sustainability reporting.



Scope of Assessment

All products are assessed using a cradle-to-grave (C2Gv) life cycle approach.

This comprehensive methodology evaluates environmental impacts across the entire life cycle of each product, ensuring that all significant sources of greenhouse gas emissions are captured and reported.



Upstream

The upstream stage includes:

- ✓ Raw material extraction and production
- ✓ Supplier manufacturing processes
- ✓ Energy inputs and regional electricity mixes
- ✓ Land-use change (where applicable)
- ✓ Transport to our manufacturing facility

These upstream activities account for emissions associated with sourcing and producing the raw materials used within our formulations, as well as transporting those materials to our manufacturing operations.

Operations

The operational stage includes:

- ✓ In-house blending and manufacturing
- ✓ Filling and packaging processes
- ✓ Operational energy use

This stage reflects emissions generated during our own manufacturing activities, including the energy and resources required to produce, blend, fill, and package products.

Downstream

The downstream stage includes:

- ✓ Distribution to customers
- ✓ Product use phase
- ✓ End-of-life disposal or recycling

Downstream impacts consider emissions associated with transporting products to customers, product use, and the disposal, recycling, or treatment of packaging and product residues at end of life. This full-system boundary ensures reported values reflect the total life-cycle impact of each product.

All calculations:

- ✓ Apply IPCC AR6 GWP100 emission factors
- ✓ Follow attributional life cycle modelling principles
- ✓ Align with ISO 14067 and the GHG Protocol Product Standard

This approach ensures consistency, transparency, and comparability across all product assessments.



Primary Supplier Data

We prioritise supplier-specific, cradle-to-gate Product Carbon Footprints (PCFs). Where available, supplier-specific PCFs provide the highest quality source of emissions data because they reflect actual production conditions and processes rather than generic industry averages.

For each major raw material, we request:

- ✓ Site-specific production data
- ✓ Energy mix and utilities
- ✓ Geographic manufacturing location
- ✓ Verified cradle-to-gate emissions

These data points allow us to accurately model the environmental impact associated with individual ingredients and raw materials used within our products. These PCFs are generated under recognised frameworks such as:

- ✓ ISO 14067
- ✓ Together for Sustainability (TfS)

They are independently verified by recognised third-party bodies (e.g., TÜV Rheinland), providing additional assurance that supplier emissions data has been developed in accordance with recognised standards and can be relied upon within our carbon footprint calculations.



Current Coverage

Data Source	Coverage
Independently verified supplier PCFs	24%
High-quality secondary datasets	58%
Conservatively modelled lower-volume inputs	18%

Current raw material coverage comprises 24% independently verified supplier PCFs, 58% high-quality secondary datasets aligned with ISO and GHG Protocol standards, and 18% conservatively modelled lower-volume inputs prioritised for supplier-specific PCF conversion.

This approach ensures 100% cradle-to-gate carbon coverage across all raw materials used within the BioHygiene range. By combining verified supplier information with high-quality secondary modelling, we maintain complete coverage while continually increasing the proportion of primary data incorporated into our assessments. We actively engage suppliers to expand verified primary data coverage year-on-year, supporting continuous improvement in data quality, accuracy, and transparency across our product portfolio.

Secondary Data Modelling

Where supplier PCFs are not yet available, we apply a rigorous secondary modelling framework. This modelling process is designed to maintain consistency, reliability, and scientific integrity while ensuring complete emissions coverage for all materials used in our products.

Our secondary modelling:

- ✓ Uses Ecoinvent and Sphera databases
- ✓ Incorporates peer-reviewed industry literature
- ✓ Reflects geographic and technological representativeness
- ✓ Applies current datasets (2022–2024)
- ✓ Follows IPCC AR6 emission factors

These sources are selected because they are widely recognised within the life cycle assessment community and provide robust datasets for modelling environmental impacts. Where multi-output processes occur, allocation is performed using physical mass allocation unless supplier-verified methods are provided. All assumptions are transparent and documented to ensure audit traceability. Comprehensive documentation enables independent review, verification, and replication of calculations where required.





Data Quality and Verification



Our modelling framework is structured under a clear quality hierarchy.

Primary Data

1. Site-specific, independently verified supplier PCFs.
2. All calculations are independently audited under ISO 14067 and TfS frameworks.
3. Primary data represents the highest-quality source of information available and is prioritised wherever supplier-specific carbon footprint information exists.

Secondary Data

1. High-quality, literature-supported datasets calibrated for regional and technological accuracy.
2. Secondary datasets are carefully selected to ensure that they remain representative of the technologies, production methods, and geographic regions relevant to each product or ingredient.

This structured approach delivers:

- ✓ High accuracy
- ✓ Strong audit defensibility
- ✓ Reproducibility
- ✓ Transparent documentation

Together, these principles ensure that our carbon reporting framework remains robust, consistent, and suitable for both customer reporting and regulatory scrutiny.





Why Our Approach Is More Accurate

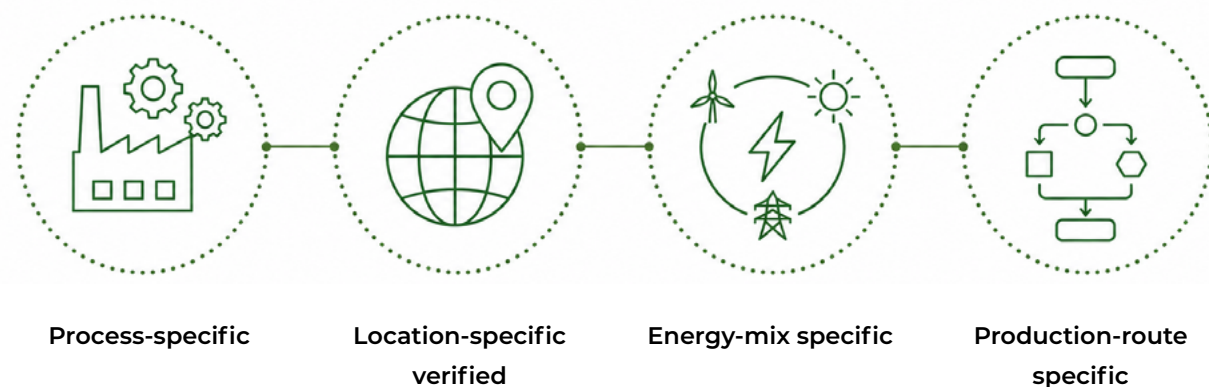


Many carbon reporting systems rely on:

1. Spend-based emission factors
2. Sector-wide averages
3. Financial proxy modelling

While these methods may provide broad estimates, they often lack the process-level detail required for accurate product carbon footprint assessments. These approaches lack process-level detail.

Our methodology is:



By incorporating these factors into our calculations, we are able to better reflect the actual emissions associated with product manufacture and supply chains. This means each emission factor reflects real-world production conditions wherever possible, rather than global averages.

As a result, our product carbon footprints are more representative and defensible for product-level Scope 3 reporting. This provides customers with greater confidence in the accuracy and reliability of the carbon data used to support sustainability strategies and reporting obligations.





Customer Carbon Reporting



For each product supplied, we can provide:

- ✓ Total cradle-to-grave CO₂e footprint
- ✓ Breakdown by life-cycle stage
- ✓ Optional separation of biogenic and fossil emissions (where relevant)

This detailed reporting enables customers to understand the key drivers of product emissions and identify opportunities for carbon reduction.

This supports:

- ✓ Scope 3 reporting
- ✓ ESG disclosures
- ✓ Carbon reduction planning
- ✓ Procurement assessments

Our reporting outputs are designed to integrate into existing sustainability programmes and support informed decision-making across procurement and environmental management functions.





Comparative Carbon Benchmarking



Where requested, we provide percentage CO₂e savings relative to:

A functionally equivalent petrochemical formulation modelled using global-average industry production data and grid emission factors derived from peer-reviewed LCA literature.

This benchmarking approach enables customers to understand the relative carbon performance of alternative formulations while maintaining methodological consistency.

To ensure fairness and compliance:

- ✓ Identical system boundaries are applied
- ✓ The same data-quality standards are used
- ✓ IPCC AR6 emission factors are applied consistently
- ✓ Functional equivalence is maintained

These controls ensure that all comparisons are conducted on a like-for-like basis. This ensures comparative claims are transparent, science-based, and aligned with the UK CMA Green Claims Code.





Standards & Compliance

Our carbon reporting framework aligns with:

- ✓ ISO 14067
- ✓ GHG Protocol Product Life Cycle Standard
- ✓ GHG Protocol Scope 3 requirements
- ✓ UK CMA Green Claims Code

Alignment with internationally recognised standards ensures our methodology reflects current best practice in carbon accounting and life cycle assessment. Our independently verified modelling is designed to meet regulatory and audit requirements, giving customers confidence in the accuracy and credibility of reported carbon footprint values.

Continuous Improvement

Life cycle assessment is an evolving discipline. To maintain accuracy and credibility:

- ✓ Models are version controlled
- ✓ Data is reviewed annually
- ✓ Background databases are updated when new releases become available
- ✓ Supplier PCF coverage is expanded
- ✓ Emission factors are updated in line with IPCC guidance

These continuous improvement measures ensure that our methodology remains current and reflects the latest scientific understanding and available data.

This ensures our reporting remains aligned with international best practice.

Through regular review and enhancement, we continue to strengthen the quality, transparency, and reliability of our carbon reporting framework.

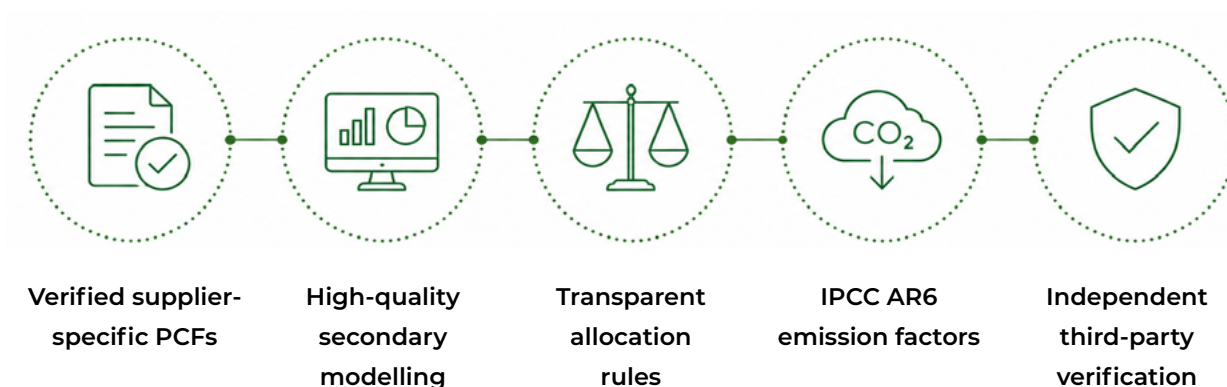




Summary



Biological Preparations delivers cradle-to-grave product carbon footprints built on:



Together, these elements create a robust and comprehensive methodology capable of delivering accurate product-level carbon footprint information. This provides customers with robust, defensible, and regulator-aligned carbon data that supports credible sustainability reporting and informed procurement decisions.