OPTEL's CarboTrace

OPTEL™
Traceability technologies for a better world

GROWING DEMAND FOR VISIBILITY AND MONITORING OF GHG EMISSIONS

TRACEABILITY SOLUTION TO MONITOR YOUR **CARBON FOOTPRINT** AND REDUCE **GHG EMISSIONS**

Companies today face new challenges in an effort to meet the evolving expectations of consumers, regulators, shareholders and investors.

Consumers are increasingly demanding transparency, sustainable products and information on the environmental impact of their purchases, especially when it comes to greenhouse gas (GHG) emissions.

As a result, companies are under unprecedented pressure to achieve and demonstrate carbon neutrality.

Regulators are setting policy agendas aligned with the targets of the Paris Agreement, the COP2 and the Glasgow Climate Pact, as well as introducing legislation and targeted measures, such as the European Union's Product Environmental Footprint. Countries and regions – most recently China and the EU – are also making net-zero commitments that will require significant shifts in governmental strategies.

And finally, shareholders and investors are using their financial muscle to force internal changes, adjusting capital allocation and returns to account for climate risk.

INDUSTRY CHALLENGES

- Today's carbon accounting methods do not enable accurate and consistent calculation, tracking or validation of emissions, making targeted decarbonization action extremely challenging.

- Complex value chains only support limited exchange of emissions data across organizations and stakeholders.

- Accurately understanding, validating, and tracking value chain emissions is difficult.

  - Lack of accurate, granular and verified primary emissions data

  - No consistent methodology for the calculation and allocation of carbon emissions at the product level and lot number

  - Limited exchange of emissions data in already complex, multi-tier value chains

CARBOTRACE SOLUTION

CarboTrace is an innovative cloud-based solution powered by OPTEL's Intelligent Supply Chain platform. The solution captures and tracks end-to-end carbon emission data through the supply chain and stores it in a secure cloud database. OPTEL's algorithms provide strong analytics and activity reports to make the data actionable.

Goal of the solution: OPTEL's traceability solution can track both direct and indirect emissions from a supply chain. Through the visibility of verified product-level primary emissions data, companies will be able to improve and accelerate decarbonization efforts.

You can't change what you can't monitor, so the first step is to gain visibility on where carbon emissions come from in your supply chain.

HOW IT WORKS

1. OPTEL's supply chain mapping tool provides visibility on the product's life cycle and enables carbon footprint tracking. It also allows companies to map upstream and downstream supply chain participants as well as their compliance with specific practices, standards, certifications, etc.

2. From this mapping, we identify where emissions come from and where important data needs to be captured.

3. OPTEL implements its data capture technology stack, which may include:
   - The supply chain mapping tool, including PO and transactional information
   - OPTEL's GeoTrace app, which allows users in the field to manually capture data from farms, mines, transport and transit, warehouses and more
   - IT bridge connected to existing systems (ERP, WMS, MES, DRP, LSP, etc.)

4. All data is gathered in a secure cloud database, and CarboTrace algorithms apply intelligence to empower the data through the life-cycle assessment (LCA) of products. The CarboTrace dashboard provides customized analytics, reports and alerts based on the customer's needs.

5. Audits may be conducted by a third party if needed or required by regulations (optional).

Outcomes

- Accurate and dynamic monitoring of GHG emissions in the supply chain
- Measuring the true and fair carbon footprint of a product throughout its life cycle
- Business intelligence to reduce GHG emissions
- Companies can move from estimating Scope 3 emissions based on industry averages to tracking real emissions based on primary product-level data. This will strengthen their Scope 3 emission management and enable new, high-value use cases.

WHAT ARE SCOPE 3 EMISSIONS?

Scope 3 emissions are the result of activities from assets not owned or controlled by the reporting organization, but that the organization indirectly affects in its value chain.

OPTEL'S CARBOTRACE - SOLUTION OPTIONS

CARBOTRACE'S FIVE LEVELS OF DECARBONIZATION

LEVEL	OPTIONS	BENEFITS AND ADDED VALUE
1	Basic	Traceability at chain of custody level; input/output analysis
2	Reliable	Static LCA on specific characteristics of the product life cycle
3	Authentic	Map the real supply chain and not a theoretical model
4	Adaptable	Automatically updated LCA, based on living supply chain data Capable of diving deep into hot spots
5	Trainable (powered by artificial intelligence)	Trained model that detects and corrects anomalies Anticipates scenarios and proposes actions

Environmental Product Declaration (according to ISO 14025 Type III declaration) is available on demand.

KEY DIFFERENTIATORS

- Turnkey, interoperable solution, scalable to global supply chains
- Ability to adapt to the complexity of individual supply chains
- Applicable in real-time environments
- Carbon tracking from chain of custody to physical product/material/lot
- Dynamic supply chain mapping tools, alerts and reporting
- Capturing true, accurate and validated supply chain data
- LCA conducted with leading-edge research group CIRAIG
- Includes energy consumption and water usage reporting
- Available options based on customer's needs and challenges
- Based on green technologies developed by OPTEL, a Certified B Corporation
- Designed to improve overall supply chain performance

DIRECT AND INDIRECT BENEFITS

CarboTrace enables companies to advance from estimating Scope 3 emissions based on industry averages to generating a more accurate understanding of emissions using primary data. This will strengthen internal decision making and transparency.

- **Sustainability** – Meet decarbonization targets and increase accountability
- **Transparency for consumers** – Provide incentives for purchase decisions that support decarbonization
- **Procurement/Supply chain improvement** – Reduce supply chain inefficiencies and risks
- **Mergers and acquisitions** – Leverage data for more informed investment/divestment decisions
- **Sales and marketing** – Stronger brand differentiation
- **R&D/Innovation** – Gain insights into opportunities/gaps in products and technologies
- **Corporate reporting** – Enable more accurate, transparent and streamlined reporting processes (including energy and water consumption)
- **Compliance** – Meet the requirements of the carbon market, local carbon taxes and carbon border tax
- **HR/Employee engagement** – Improve employee attraction, engagement and retention

OPTEL'S INTELLIGENT SUPPLY CHAIN

CarboTrace is a module of OPTEL's Intelligent Supply Chain (ISC), a powerful end-to-end traceability platform. The ISC can digitize supply chain operations from raw materials to end user, enabling real-time visibility throughout the product life cycle by capturing and empowering data at every step of the value chain. Multiple modules make up the ISC platform, helping businesses solve issues related to supply chain and operational efficiency, product safety and integrity and authentication, sustainability, brand protection, regulatory compliance and user engagement.

Sources:

i.   https://www.stern.nyu.edu/sites/default/files/assets/documents/2020%20Sustainable%20 Market%20Share%20Index.pdf)

ii. https://ec.europa.eu/clima/policies/strategies/2050_en https://news.un.org/en/story/2020/09/1073052

NORTH AMERICA HEADQUARTERS OPTEL Canada 1989

EUROPE OPTEL Ireland 2014

EUROPE OPTEL Germany 2021

ASIA OPTEL India 2016

SOUTH AMERICA OPTEL Brazil 2017

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ABOUT OPTEL

OPTEL is a global company with manufacturing sites on four continents and 600 employees around the globe. The company has 30 years of proven expertise in developing and deploying track-and-trace, vision and traceability systems for the world's leading pharmaceutical, food and beverage, and agrochemical brands. OPTEL is a Certified B Corporation and co-founder of the Canadian AI supercluster for supply chains (Scale AI).

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