



Recycle Ledger

About the Company

Recycle Ledger is a platform that tracks the supply chain of circular materials in the form of recording recycled resource transactions on a blockchain ledger. Its mission is to ensure traceability and transparency of recycling with the help of IT technologies, and to build a reliable system that meets global carbon neutrality regulations.

The company has successfully tracked a total of 120,000 tons of biofuel feedstocks, including used cooking oil, animal oil, and fish oil, in Korea, Japan, and the Philippines, and obtained 16 export certifications from US certification agencies.

Based on these achievements, Recycle Ledger continues to expand global business in the biofuel sector and add services to other resource such as used batteries and used plastics.

Background

Background and Motivation

The US and Europe introduced policies to strengthen their biofuel blending mandates and provide government incentives in an effort to achieve carbon neutrality. While these policies are intended to protect the environment, they can cause greenwashing, where cheap biofuels are disguised as high-end used cooking oil biofuels to fraudulently qualify for government incentives. To prevent this, the US Environmental Protection Agency (EPA) and Europe's International Sustainability and Carbon Certification (ISCC) require mandatory certification for biofuels, and their main objective is ensuring the traceability of the biofuel's recycling supply chain.

What the EU ISCC – a mandatory certification of biofuels - and the ISCC PLUS—a voluntary certification for used plastics and other products made with circular

materials—have in common is that both systems require tracing the supply chain of circular materials. These certification systems play an important role in ensuring sustainable resource management and transparent implementation of policy goals by clearly documenting the source and treatment of circular materials.

Objectives

For biofuel certification, paper receipts have been the dominant method used in generating the supply chain data of circular materials. However, the reliability of paper receipts is limited as they can be forged, and the process of issuing and storing paper receipts and converting the data into spreadsheets requires a significant workload and cost. In fact, some companies managing data with paper receipts to qualify for certification standards employ as many as 40 employees to keep track of receipts and enter data, which can cost about KRW 235 million per month.

These issues can cause greenwashing of biofuels, which is an ongoing concern in Europe and the US. More specifically, environmental organizations are concerned that greenwashing may affect the Sustainable Aviation Fuel (SAF) market. In response to market concerns and

to increase credibility, Europe's certification agency announced plans to make the digital certification of biofuels mandatory from January 1, 2024. The move represents an important step in increasing transparency in the biofuel supply chain and ensuring environmental sustainability.

About the Product

Recycle Ledger: Service Concept

- Collection of recyclables: Upon initial collection of recyclables, the collector uses Recycle Ledger's app and IoT sensors to automatically record the collection information. The system maximizes the efficiency of the collection process and ensures data accuracy.
- Carbon footprint tracking and certification: As the recyclables go through the collection process, their carbon footprint is tracked and certified based on the data collected online. This is key to sustainable resource management and environmental regulations compliance

Automation with Apps & IoT Sensors

- Use of various IoT sensors: The system integrates various IoT sensors including AI image recognition, e-signatures, RFID, and flowmeters to automatically



generate information about circular materials emission. The system is designed to suit different collection conditions around the world.

- Carbon emissions tracking: Recycle Ledger minimizes and manages environmental impact by measuring the distance traveled by trucks during the collection process and calculating carbon emissions.

Web-Based End-to-End Tracking and Certification of Circular Materials Supply Chain

- Transaction tracking: Recycle Ledger tracks the transaction history between collectors, biofuel producers, traders, and end buyers based on the circular materials information registered in the app. The system enables transparent supply chain management of circular materials.

- Transportation carbon emission tracking: Recycle Ledger tracks carbon emissions by measuring the distance traveled in the transportation process (trucks, cargo ships, etc.).

- Certification features: Recycle Ledger provides disposal source validation, automatic calculation of carbon emissions, and random sampling for American and European certification bodies.

Recycle Ledger maximizes the accuracy and efficiency of circular materials management and environmental sustainability with these technologies and services.

Competitive Edge and Business Strategy

Competitive Edge

Recycle Ledger is Korea's only provider of a system that is directly used by two major US certification organizations, which has 16 certifications. The system allows the longest traceability from the disposal source and collectors to biofuel producer and end customer, as well as the certification organizations. Whereas competitors depend on manual data entry, Recycle Ledger uses IoT sensors to automatically record volume data, giving it an edge in reliability. The company is also in the process of filing PCT and European patent applications to secure and protect its technological edge. These technological advancements contribute significantly to Recycle Ledger's

unique position in the market.

Business Strategy

Recycle Ledger is actively expanding its global network with sales activities based on its record of having obtained certifications and tracking circular materials in the US. The company is also setting up booths at biofuel conferences in the US, UK and Singapore to increase brand visibility. At the same time, Recycle Ledger's technology-driven strategy allows it to create more accurate tracking information with IoT technology and focus on technology development. Based on these efforts, Recycle Ledger applied for patents at home and abroad to secure its technological edge and intellectual property rights. These strategies are helping Recycle Ledger to strengthen its competitiveness in the field of circular materials management and further consolidate its position in the market.

Future Plans

Recycle Ledger is pursuing a forward-looking growth plan. In 2024, the company successfully launched its Fish-Fat pilot project in Vietnam and plans to expand its business in the Asian market. In 2025, the company plans to enter the European and American markets, and it is currently negotiating with investors in the US and Switzerland. In 2026, Recycle Ledger plans to expand its plastic waste recycling services and launch a voluntary carbon point project in the circular materials supply chain. The step-by-step approach will play an important role in positioning Recycle Ledger as a leading provider of sustainable resource management solutions in the global market.

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Recycle Ledger

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