

# FACTSHEET

## About Optocycle

Optocycle pursues a clear vision: a world in which every piece of construction waste becomes a new building material.

As a leading innovator in the construction and recycling industry, Optocycle combines state-of-the-art optical sensor technology with advanced artificial intelligence to efficiently and transparently transform mineral construction waste into sustainable building materials.

Founded in 2022 and already recognized with multiple awards, the startup actively promotes the circular economy and makes a significant contribution to a transparent and environmentally friendly construction industry.

## Overview

**Founded:** 2022

**Location:** Tübingen, Germany

**Founders:** Max-Frederick Gerken, Lars Wolff

**Technology:** Artificial Intelligence, Computer Vision, Machine Learning, Multispectral Sensing

**Business Model:** Product-as-a-Service (PaaS)

**Status:** Various customers in Germany, France, and Spain

**Team Size:** More than 20 Employees in two offices

## The Challenge

**The construction industry is responsible for the largest material flow worldwide, yet it faces major challenges:**

**Lack of transparency:** The composition of mineral construction waste is estimated manually through visual inspection. This process is slow, subjective, and prone to errors. A reliable data foundation is missing.

**Resource waste:** Valuable materials such as concrete or bricks often end up in downcycling (e.g., road construction) or in landfills due to insufficient sorting, instead of being reused as high-quality secondary raw materials. At the same time, landfill space is already scarce and will become a major problem in the coming years.

**Economic inefficiency:** Missing data leads to disputes in billing, inefficient transport routes, and suboptimal utilization of recycling facilities. In practice, this uncertainty often results in risk surcharges, machine downtime, and economic disadvantages.

**Environmental impact:** The continuous production of new building materials—especially cement—is extremely energy- and CO<sub>2</sub>-intensive. The potential of the circular economy remains largely untapped. In addition, unnecessary transport routes further burden the environment.

## Our Solution

### Transparency through AI

With its unique three-stage technology, Optocycle has developed a solution that addresses these challenges at their root:

**How it works:** A robust camera system scans mineral construction waste at key points in the process—for example directly on construction sites or at recycling and sorting facilities, such as at the truck scale, unloading areas, or along conveyor belts. The artificial intelligence developed by Optocycle analyzes the image data in real time and classifies material types (e.g., concrete, bricks), their quantities, particle sizes, attributes, and detects contaminants within seconds. The resulting data is made available to customers in real time through a clear and intuitive dashboard.

Optocycle's **“Single Source of Truth”** replaces subjective estimates with an objective data foundation that is visible to all parties. Negotiations are replaced by facts, which not only reduces costs but also minimizes friction caused by discussions and contractual disputes. In this way, we create a single, indisputable source of truth for material flows.

#### Capture



Our camera captures the material directly at the point of process — on the truck, at the unloading point, or on the conveyor belt.

#### Analyze



The data is analyzed locally via edge computing by our latest AI model in real time.

#### Deploy



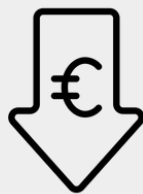
The customer receives a precise analysis on our Material Intelligence platform — objective and clearly presented.

## Customer Benefit



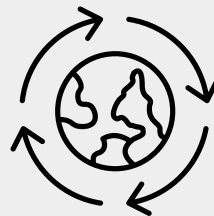
#### Efficiency Improvement

Automated and digitized processes as well as optimized sorting.



#### Cost Reduction

Lower sorting losses, fair billing, and the avoidance of disputes.



#### Circular Economy

Increase in recycling rates and reduction of the CO<sub>2</sub> footprint.



#### Transparency

Seamless documentation for verification and material planning.

## Competitive Advantage

**Smarter & Earlier:** We analyze with superhuman accuracy directly at the beginning of the process, while others only sort at the end.

**Accessible to Everyone:** Our flexibly integrable PaaS model makes deep tech accessible even for mid-sized companies—without requiring high upfront investments.

**Holistic Data:** We provide comprehensive material data for strategic planning and billing, not just a simple sorting decision.

**Deep Value Chain:** We keep the entire expertise in-house—from the sophisticated camera systems to the algorithms, all developments are created entirely by our own team.

## The Founders



**Max-Frederick Gerken, Co-Founder & CEO**

Max-Frederick Gerken is the CEO and strategic mind behind Optocycle. He is responsible for business development and drives the company's mission to make the construction industry circular. As a recognized expert and visionary for AI in sustainable processes, he was named to the Forbes "30 Under 30" list in 2024. Gerken holds a degree in Business Administration from the University of Tübingen.



**Lars Wolff, Co-Founder & CTO**

Lars Wolff, Optocycle's Chief Technology Officer, is the mastermind behind the company's technology. He is responsible for product development—from optical sensing and machine learning algorithms to the customer dashboard. Prior to founding Optocycle, Wolff gained experience at a U.S. tech startup and in electrical engineering. The two founders met while studying computer science at the University of Tübingen.

## Awards

The innovative approach of Optocycle has been recognized by numerous, German juries and institutions.

Here is an overview:

**VR Innovation Award 2024**

**Innovation BW 2024**

**BW AI Champions 2024**

**Groundbreakers Award 2024**

**Schwarzer Löwe Award 2024**

**Max-Frederick Gerken listed in Forbes  
30 Under 30 (2024)**

**Awarded "Business Innovator" by the  
German Innovation Institute (2025)**

**Awarded "Best AI-Powered Circular  
Economy Platform 2025" at The SaaS-  
ie Awards 2025**

**WECONOMY Winner 2025/26**



**Optocycle GmbH**

Am Markt 12  
72070 Tübingen

**Media Contact**

Laura Neusser  
Tel: +49 (0)1520 7247161  
E-Mail: [l.neusser@optocycle.com](mailto:l.neusser@optocycle.com)

**Website:** <https://www.optocycle.com/en/home>

**LinkedIn:** [linkedin.com/company/optocycle-gmbh](https://www.linkedin.com/company/optocycle-gmbh)