



# Delivering Cirttec's landmark tire recycling plant

Turning proven pyrolysis technology into a full-scale industrial installation

## Project scope

Cirttec is pioneering a more sustainable route for end-of-life tires by recovering valuable raw materials through a pyrolysis process. Under oxygen-free conditions, tire material is thermally decomposed into gas, oil fractions, and a solid carbon-rich material. These outputs are refined into sustainable marine fuel, circular naphtha for the chemical industry, and recovered carbon black that can be reused in rubber and plastics production.

Bilfinger supported Cirttec as engineering, procurement and integration partner, translating the proven pilot plant in Poland into a constructible full-scale plant while managing critical interfaces across suppliers, contractors and utilities. Due to the tight schedule, Bilfinger front-loaded long-lead procurement and delivered the engineering required to start early civil works, while continuing multidisciplinary design in parallel with construction.

**Client:** Cirttec

**Project duration:** May 2024 to early 2026

**Location:** Delfzijl, The Netherlands

**Market:** Chemicals

**Key feature:** Full-scale tire pyrolysis plant, delivered in an exceptionally short realisation timeframe

**Bilfinger's involvement:** Engineering, procurement, and system integration

## Bilfinger's involvement

- Developing the integrated plant design based on Cirttec's pilot plant in Poland, covering mechanical, piping, electrical, civil, instrumentation and utility interfaces.
- Driving early procurement and tendering for long-lead equipment and critical materials.
- Contracting and coordinating key contractors and supplier packages, ensuring scope alignment and interface clarity.
- Providing on-site engineering support and rapid issue resolution during construction and close-out.
- Supporting stakeholder alignment and day-to-day coordination through client presence at our office in Groningen and a dedicated Bilfinger team on-site.

## Key highlights

- **Extremely short delivery cycle:** From project start in May 2024 to a completed plant in roughly 18 months, with design and construction running in parallel.
- **International supply chain execution:** Major equipment sourced across Europe, requiring intensive coordination and accelerated information flows.

- **High-temperature piping challenge solved:** Late-emerging, technically complex piping scope (hot gas around 800°C and thermal expansion constraints) engineered and resolved proactively, enabling constructability and safe operation.
- **Room for growth on site:** Layout and reserved plot space support the next step from 6 to 28 reactors at the Delfzijl location.

**Teaming up with the client**

This project was delivered through integrated, hands-on collaboration, with Bilfinger and Cirttec operating as one unified delivery team that combined Cirttec’s process know-how with Bilfinger’s engineering expertise and execution capability. During engineering, Cirttec representatives worked weekly from Bilfinger’s Groningen office, enabling rapid alignment and immediate design feedback.

During construction, Bilfinger moved on-site with the project team to work closely with contractors and the client, accelerating decision-making and issue resolution. Even with schedule pressure and supply-chain challenges, the close collaboration, short communication lines, and strong on-site presence helped maintain momentum and deliver a completed Phase 1 installation, ready for the next phase: growing toward 28 reactors.

**Efficiency and sustainability**

The Cirttec plant is designed to convert end-of-life tires into reusable product streams, supporting circular feedstocks for shipping and the chemical industry, plus recovered carbon black for reuse in rubber and plastics applications.

Upon completion, the Delfzijl facility will have the capacity to process 200,000 tons of tires annually. This delivers CO<sub>2</sub> emissions savings through the displacement of fossil fuel use, equivalent to around 3% of the emissions from the entire chemical industry sector of the Netherlands.

By enabling high-value material recovery from a challenging waste stream, the project strengthens resource efficiency and supports a more sustainable industrial value chain.

