



Circular Economy

From Toxic Residues to Economic Value – METZEN Creates a Sustainable Solution with New Plant

For one of the world's largest circular economy companies, METZEN developed a technically sophisticated bespoke plant that meets the highest demands for both safety and efficiency. The client's goal was to expand its existing business field with a new plant that processes a traditional waste product into a new, market-ready product.

With the successful commissioning, we were able to fulfil the client's requirements as a partner for solving complex problems in industrial plant and machinery engineering. Precise, fast, and decisive.

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Challenge

In the client's existing plant, cans containing paint residues, solvents, and similar highly flammable and toxic substances are emptied completely. This process produces toxic and highly combustible sludges. The client wanted to convert these into alternative fuels for the cement industry.

A conventional mechanical solution was not feasible for several reasons, including the formation of hybrid mixtures during the process, which could be highly explosive. At the same time, the new plant had to be integrated mechanically and in terms of control systems with the existing plant components and silos – all within a very limited space on an already active production site.

Solution

Custom design to maximise client potential

METZEN's senior engineers designed a bespoke solution that met all the client's requirements. This included an automated process control system complemented by a pioneering explosion protection concept, fulfilling both dust and gas ATEX standards. METZEN also provided expert support for the necessary approval procedures to avoid delays.

Result

Efficiency meets safety

The plant developed by METZEN, with a higher degree of automation, reliably meets all relevant safety and environmental standards while setting new benchmarks. From planning and approval procedures to completion, METZEN executed every process with the utmost precision. Thanks to the innovative and seamless integration into the existing infrastructure, the client was able to expand its business sustainably and use toxic residues in an economically viable way – a genuine added value.

This project demonstrates how METZEN leverages technological expertise and innovative strength to implement even the most complex requirements – efficiently, safely, and with a focus on the future.

Highlights

- **Innovative and bespoke solution for complex requirements:** METZEN developed a plant that converts toxic residues into alternative fuels, featuring automated process control and pioneering explosion protection at the highest safety standards.
- **Efficient implementation despite spatial and technical challenges:** The plant was integrated space-efficiently into the existing infrastructure and handled hybrid, explosive mixtures innovatively.
- **Sustainable expansion of the client's business field:** The new plant enabled the client to expand its operations sustainably and utilise toxic residues efficiently.

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