



Circular Economy

Efficient Sludge Incineration for Maximum Performance

A leading European municipal waste management company specialising in hazardous waste incineration faced the challenge of significantly increasing its sludge incineration capacity. The project involved tight spatial constraints and high safety requirements due to the combustible nature of the material. METZEN developed a compact, high-performance plant that maximises efficiency within minimal space. The focus was on safe plant design, optimal space utilisation, and precise planning, enabling full compliance with the client's operational requirements and delivering a powerful solution without conceptual weaknesses.

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Challenge

The project required a sludge incineration plant that simultaneously delivered maximum efficiency, space savings, and operational safety.

- **High Explosion Protection Requirements:** Minimisation of additional protective measures despite complex material handling.
- **Redundancy and Maintenance:** Ensuring uninterrupted operation through innovative conveyor path concepts.
- **Efficient Separation and Storage:** Integration of a silo tower to separate fine fractions and enable space-efficient interim storage in two silos of 150 m³ each.
- **Precise Fabrication and Assembly:** Close monitoring of all process steps and seamless integration into existing building structures.

Solution

METZEN designed an innovative plant tailored to the client's specific requirements, delivering the highest levels of efficiency and safety.

- **Cooling and Conveying:** Planning was optimised to minimise additional explosion protection, significantly reducing investment costs and space requirements.
- **Redundant Conveyor Paths:** Cross-switchable paths allowed maintenance during operation, ensuring maximum operational safety.
- **Silo Tower Solution:** Fine fractions were efficiently separated before the sludge was stored in space-saving silos.
- **Close Client Coordination:** Detailed alignment of production scenarios ensured smooth implementation.

Result

- **Efficiency Gains:** Significant capacity and efficiency improvements in sludge incineration.
- **Cost Reduction:** Reduced space requirements and investment costs through optimised planning.
- **Operational Safety:** 24/7 operation enabled by innovative conveying technology and redundant systems.
- **Customer Satisfaction:** Precise planning and execution ensured smooth production processes and sustainable synergies.

METZEN delivered a turnkey solution that not only met the highest quality standards but also sustainably enhanced the client's economic efficiency and process reliability.

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Highlights

- **Increased Efficiency:** Planning of sludge cooling and conveying with minimal additional structural explosion protection.
- **Safe Operation:** Redundant, cross-switchable conveyor paths allow maintenance during 24/7 operations.
- **Space-Saving Design:** Integration of the plant into limited floor and height dimensions while considering existing building structures.
- **Quality Assurance:** Rigorous inspection during fabrication and precise assembly planning minimise downtime.
- **Customer-Specific Solution:** Comprehensive coordination with the client ensured tailored and efficient implementation.

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