

MAJOR CUSTOMERS

PLASMA-ASSISTED SLUDGE OXIDATION

Innovative sludge processing technology

Hydro-Québec's energy technology laboratory (LTE) has created a technology for treating sludge and other effluents using plasma-assisted sludge oxidation (PASO). This method proves very cost-effective for processing certain liquid industrial wastes. To promote its widespread use and success, Fabgroups Technologies is responsible for the development, manufacturing and marketing of a rotary kiln using an electric plasma torch that is designed for PASO technology.

BENEFITS

- 95% reduction in sludge volume
- Low-energy process, self-igniting
- Possible heat recovery in the form of hot air, hot water or electricity through cogeneration
- Processing of sludge with 20% or more organic matter
- Complete destruction of pathogenic compounds
- Potential reclamation of inert waste
- On-site processing



INERT WASTE*
after processing

*Photo for illustration purposes only.



FEATURES OF THE ROTARY KILN

- Low-power air-based plasma torch
- Operating temperature between 500°C and 700°C
- Kiln works slightly below atmospheric pressure
- Continuous operation
- No fusion or sintering of inert waste
- Use of inert waste to transfer heat
- Power consumption under 125 kWh per wet ton (sludge with 20% or more organic matter)

SECTORS AND APPLICATIONS

Pulp and paper

- Primary and secondary sludge

Municipal services

- Sludge from wastewater treatment plants

Agribusiness

- Sludge containing fats, proteins, glucose

Other areas related to the environment

- Stabilization of industrial waste
- Sludge with high levels of contaminants

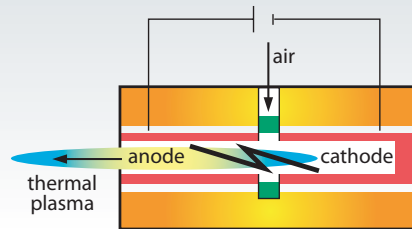
Hydro-Québec relies on its high-level R&D expertise and network of internationally renowned scientists to develop innovative technologies aimed at realizing efficiency gains in electricity.



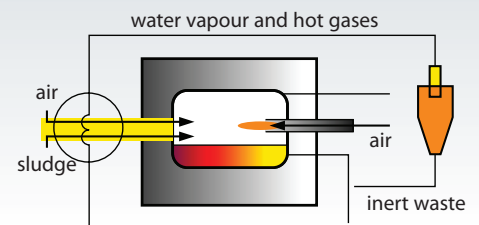
State-of-the-art technology

The sludge oxidation process uses a plasma torch to catalyze the complete destruction of organic matter within biological liquid waste. The process provides a unique heat source, unlike other systems that emit air pollution and greenhouse gases.

DIAGRAM OF A DIRECT-CURRENT PLASMA TORCH



BLOCK DIAGRAM OF THE PLASMA-ASSISTED SLUDGE OXIDATION PROCESS



HYDRO-QUÉBEC LEADING THE WAY

Hydro-Québec's major customers department has joined forces with the LTE and Fabgroups Technologies to actively promote this sludge processing technology, an environment-friendly solution.

The LTE, which engineered this technology, has a two-tier mandate: examine the technical feasibility of a wide range of electrotechnologies and undertake energy-efficiency improvement projects that translate into competitive advantages for our customers.

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