



STRO
CASE STUDY

**Treatment of Landfill Leachate
with STRO Modules
in Brasil**

Customer's Problem

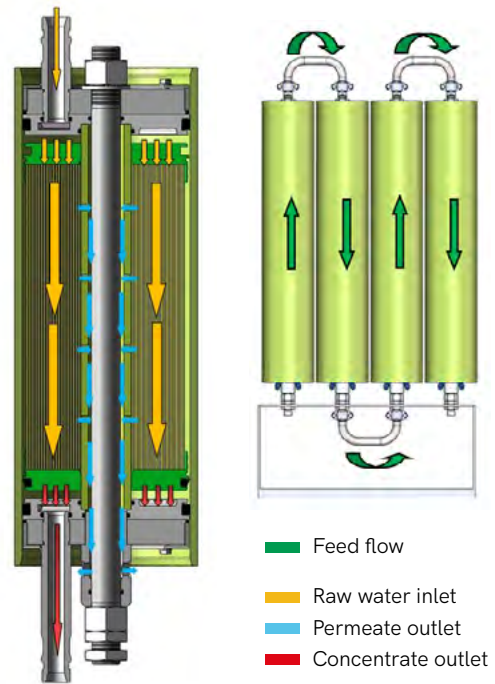
Landfill leachate is liquid formed through the contact of water with waste in landfills. It consists of a mixture of various substances, including pollutants, organic matter, heavy metals, and dissolved salts. These substances can originate from different sources, including household waste, industrial waste, or construction and demolition materials. Managing landfill leachate is a critical task in the fields of environmental protection and waste management to prevent environmental damage and protect the health of people and nature.

In this project in Brazil, the maximum inflow varied significantly. Flow rates between 5.4m³/h and 120m³/h could occur depending on conditions such as dry or rainy seasons. The facility was designed for a capacity of 250m³/day at 90% operating capacity.

Pollutant	Value	Pollutant	Value
SS, mg/L	≤ 10	Total Hardness, CaCO ₃ mg/L	≤ 1,000
Con. µS/cm	≤ 20,000	Alkalinity, CaCO ₃ mg/L	≤ 5,000
NH ₃ -N, mg/L	≤ 1,100	SiO ₂ , mg/L	≤ 30
TN, mg/L	≤ 1,450	Sulfide mg/L	≤ 3
COD, mg/L	≤ 12,000	T, °C	15-35
BOD, mg/L	≤ 3,500	pH	6-9

Solution Proposals

- **Leachate Collection System:** Designed to capture leachate from the landfill and direct it to the treatment facility.
- **Equalization Tank:** To balance out the fluctuations in inflow rates, providing a steady flow to the treatment system.
- **Primary Treatment:** Involves the addition of chemicals to neutralize contaminants and precipitate heavy metals.
- **Biological Treatment (MBR):** Utilizes microorganisms to break down organic matter in the leachate. Submerged membrane filtration for the removal of bacteria and fine particles.
- **STRO membrane pre-concentration system:** To concentrate the leachate prior to evaporation.



Results

Pollutant	BOD ₅	COD	NH ₃ -N	pH
Value	15 mg/L	67 mg/L	5 mg/L	7

Conclusion

The case study of the landfill leachate treatment in Brasil with the STRO Modules illustrates the effectiveness as a cost-efficient solution. The liquid volumes are concentrated to a very high level with the help of the STRO modules, so that the evaporation has significantly less liquid to vaporize. This saves large amounts of energy and contributes to environmental protection in addition to the wastewater treatment.



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