

ACIDIFIER

CO₂ wastewater neutralization SYS

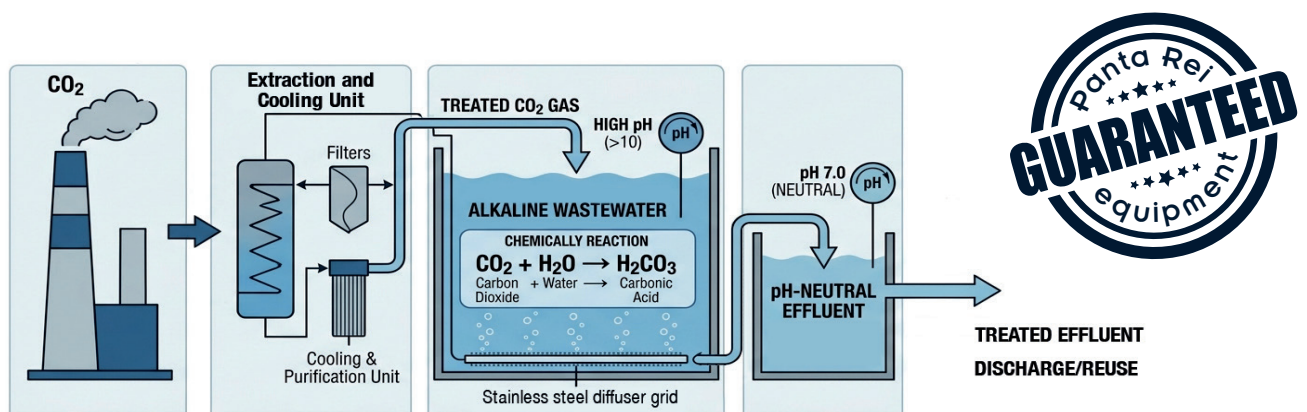
Ecofriendly
Wastewater Alkalinity
Reducer

Panta Rei presents the **on-site pH neutralization system** through CO₂ from flue gas: cost reduction and savings are guaranteed.

What it does: our Acidifier captures CO₂ from chimney flue gas and dissolves it into process wastewater, pumping it liquid-ring pumps and distributing it through a stainless steel diffuser grid. Dissolved CO₂ forms carbonic acid, *automatically lowering and stabilizing pH* to the required treatment levels - without employing other acids or hazardous chemicals.

How it works: the system operates through the following sequence of steps.

1. *Flue gas extraction* - controlled uptake from chimney gas stream.
2. *CO₂ capture & conditioning* - cooling as needed.
3. *Extraction and distribution* - transport through liquid ring pumps and distribution through stainless steel diffusers, maximizing CO₂ dissolution.
4. *Acidification process:* CO₂ + H₂O → H₂CO₃ (carbonic acid), neutralization of alkaline effluents.
5. *Control loop* - pH sensors and PLC regulate dosing to achieve the target setpoints.



Key benefits: the Panta Rei “Acidifier” system is designed to achieve more than one advantages.

- Lower operating costs: replaces consumable sulfuric acid with CO₂ which is available for **free from existing flue gas**.
- Safer operation: **eliminates** storage/handling of **concentrated acids**.
- Regulatory compliance: precise **pH control** for downstream treatment.
- Simple integration: can be easily **implemented** as retrofit in **existing ETP's**.
- Continuous, automated control: **real-time pH feedback** and dosing modulation.
- Sustainable process: turns a greenhouse gas into a **wastewater treatment asset**.



Boiler flue gas becomes a **zero-cost sustainable resource**: this fast and safe neutralization of dyehouse effluent **with CO₂** comes from exhaust line!

Typical Performance & Specs	
Target pH range	adjustable (for example: 6.5–8.4)
Dosing accuracy	± 0.1 pH units
Capacity	all size ranges available, depending on customer's needs
Integration	main components are skid-mounted, plug-and-play with local utilities and control systems
Safety	gas monitoring, backflow protection, fail-safe shutdown

Why choose us: with proven *expertise in wastewater treatment and gas-based neutralization*, we deliver tailored engineering, turnkey solutions, and dependable local after-sales support.

*Transforming emissions
into sustainable water solutions.*

