Liberty

CASE STUDY / FLUID TRANSFER

Lime Slurry Peristaltic Pump Case Study

10 clog-related shutdowns a year, down to zero — by treating a crystallizing slurry as a mechanics problem, not a strength problem.

SITUATION

A California water treatment plant, a recurring clog problem

> Calcium hydroxide ($Ca(OH)_2$) lime slurry feed for pH control was causing roughly 10 clog-related shutdowns a year, each costing 4–6 hours of downtime.

THE PROBLEM

Lime slurry crystallizes and hardens inside hoses and valves during flow interruptions. The standard response to a "tough" slurry — a stronger pump, a different brand within the same architecture — doesn't address this failure mode, because the problem was never pump strength.

The failure mode is chemistry meeting mechanics, not chemistry beating force. Every valve, seal, and gland in the fluid path is a place for the slurry to sit still long enough to crystallize.

EQUIPMENT SPECIFIED

Component	Detail
Transfer pump	Graco SoloTech peristaltic hose pump — single-roller design
Hose	Thick-wall engineered hose, rated for abrasive/alkaline $Ca(OH)_2$ service
Fluid path	No valves, seals, or glands — the hose is the entire wetted path
Operation	Reversible (clears lines without disassembly), self-priming (reliable restarts after pauses)

THE SPECIFICATION RULE

Fewer places for the chemical to sit, not more force to move it

A crystallizing or hardening slurry — lime, calcium hydroxide, and similar chemistries — is a chemistry/mechanics mismatch, not a pump-strength problem. The correct reframe is fewer places for the chemical to sit, dry, and crystallize, not more force behind it. A single-roller peristaltic hose pump with no valves, seals, or glands in the fluid path removes nearly every one of those sites, which is what a stronger conventional pump can't do regardless of how much force it adds.

RESULT

10/year → 0 clog shutdowns

Hose life of 12+ months. Labor savings of $3,900–$6,500 per year from eliminated clog-clearing events.

NEXT STEP

Every crystallizing or abrasive slurry has a different concentration, particle behavior, and duty cycle. A spec review starts with your actual process data — not a generic pump swap.

Request a spec review

NEXT STEP

Send LibertyCES the process data, not a part number.

Slurry composition, concentration, flow, pressure, duty cycle, and current equipment — that's what a real spec review needs to start.

Request a spec review

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