

“The most technologically innovative water treatment application I have laid eyes on this decade.”



Reference Project

Sludge Dewatering for
Municipal Lagoon System

CarboNet ●●

A regional municipality was dredging a lagoon in preparation for upgrades. Our customer was contracted to dewater the dredged biosolids and enable the construction of the new system.

The problem:

Our customer didn't have enough make-down systems on hand to address the opportunity.

↳ Operators often turn down work or limit job throughput as they lack enough rigs, the rigs are wonky and creating bottlenecks, or both.

Behind the scenes:

Without a make-down system, the incumbent flocculant could not be applied to the sludge on the way to the geotextile. The operator was faced with finding a new strategy or turning down work.

The solution:

SimpleFloc, CarboNet's pre-activated, no make-down chemistry was chosen as a way to break the logjam. SimpleFloc arrives ready-to-use in plug-and-play tanks that pump directly into the line without requiring any additional gear.

↳ This removed the equipment bottleneck that would otherwise have scuttled the project.

↳ SimpleFloc's NanoNet technology also reduced the requirement for PAM by 75%, adding margin to the project and reducing chemical use.

Results:

SimpleFloc not only allowed our customer to take on new business and scale throughput, but delivered additional benefits:

- Crews were more efficient as they didn't have to babysit make-down
- Merge and de-merge was nearly eliminated since no water was piped or transported to support PAM make-down
- Significantly less chemicals were introduced into the operating envelope, ensuring no permits were breached
- Crews enjoyed safer working conditions not having to deal with dry make-down dust or slips from emulsion slop

KPIs

- 75% reduction in PAM
- 58% reduction in Scope 3 CO₂
- 420k litres of water conserved in 20 days

CarboNet: As freshwater becomes increasingly scarce and regulated, companies from energy and mining to food and beauty turn to CarboNet to reduce, recycle, and renew the water they need to compete.

Sludge Dewatering

Dredgers, TRD/hydrovac operators, and sludge dewaterers use SimpleFloc, our no make-down flocculant that cuts CAPEX, OPEX, and emissions.

No make-down, no break-down.

Make-down is the weak link in sludge dewatering. Even with constant babysitting it's easy to mess up flocs and gum up your bags, belts, presses, or centrifuge—leading to NPT, expensive rentals, and, at the end of the day, lower margins.

↳ **For dredgers**, make-down equipment limits the jobs you can take, cutting your quarterly revenue and giving your competitors a leg up.

↳ **For TRD and hydrovac operators**, make-down is the difference between hitting your KPIs and expensive NPT or shut-downs—not to mention watery sludge that's costing you a bundle in trucking fees.

SimpleFloc for sludge dewatering means:

- No make-down equipment: better CAPEX, less bottlenecks
- Consistent dosing: Less NPT from gummed-up feed equipment
- Fewer HS&E incidents: no inhalation risks, no emulsion slips
- Drier cakes: cuts transport and disposal fees
- Near-zero toxicity: dose to hit KPIs, don't breach your permit

CarboNet: As freshwater becomes increasingly scarce and regulated, companies from energy and mining to food and beauty turn to CarboNet to reduce, recycle, and renew the water they need to compete.



Behind-the-scenes: SimpleFloc is built with NanoNets, nanomolecular superchargers that cut PAM by 80% and boost flocs by 10x. An 80% cut in PAM use not only slashes your chemical bills, but gives you more headroom within your permit limits.

↳ **Keep in mind:** Water insecurity (droughts and floods) is changing regulations, permits, and emission limits. Commodity chemicals—created 70 years ago and rapidly aging out—hit you where it hurts: the balance sheet.

The bottom line: Dredgers get paid by the output of their sludge production. TRD and hydrovac operators live and die by the quality of their liquid/solid separation. SimpleFloc addresses both:

↳ **Dredgers** can get on more sites and produce more cakes with a plug-and-play solution

↳ **TRD/hydrovac operators** can squeeze out more water (and profits) when they don't have to worry about inconsistent flocs and babysitting their make-down rigs

SimpleFloc

Cationic Flocculant

CarboNet SimpleFloc is a pre-activated flocculant that is dosed neat without dilution or make-down required—for a streamlined and simplified process.



TECHNICAL SPECIFICATIONS

PRODUCT	3130C-G1	3180C-G1	3190C-G1
Charge density	+30	+80	+90
Molecular weight	Very high	Very high	Very high
Specific gravity	1.01 - 1.04	1.01 - 1.04	1.01 - 1.04
Bulk viscosity	5500 - 7000cP	3500 - 5000cP	3500 - 5000cP
pH	3.0 - 4.5	3.0 - 4.5	3.0 - 4.5
Storage Temperature	41 - 86°F (5 - 30°C)	41 - 86°F (5 - 30°C)	41 - 86°F (5 - 30°C)
Shelf life	6 months	6 months	6 months
Appearance	Translucent gel	Translucent gel	Translucent gel
Color	Light yellow	Light yellow	Light yellow
Odor	Mild	Mild	Mild
Freezing point	32°F (0 °C)	32°F (0 °C)	32°F (0 °C)
Boiling point	212°F (100°C)	212°F (100°C)	212°F (100°C)
Reactivity	Non-flammable, non-reactive, stable		

DEWATERING APPLICATIONS

Dredging

Industrial waste dewatering

Municipal dewatering

Sludge dewatering

Agricultural/disgestate dewatering

INDUSTRY APPLICATIONS

COD / FOG Removal

Secondary Water Clarification (WAS)

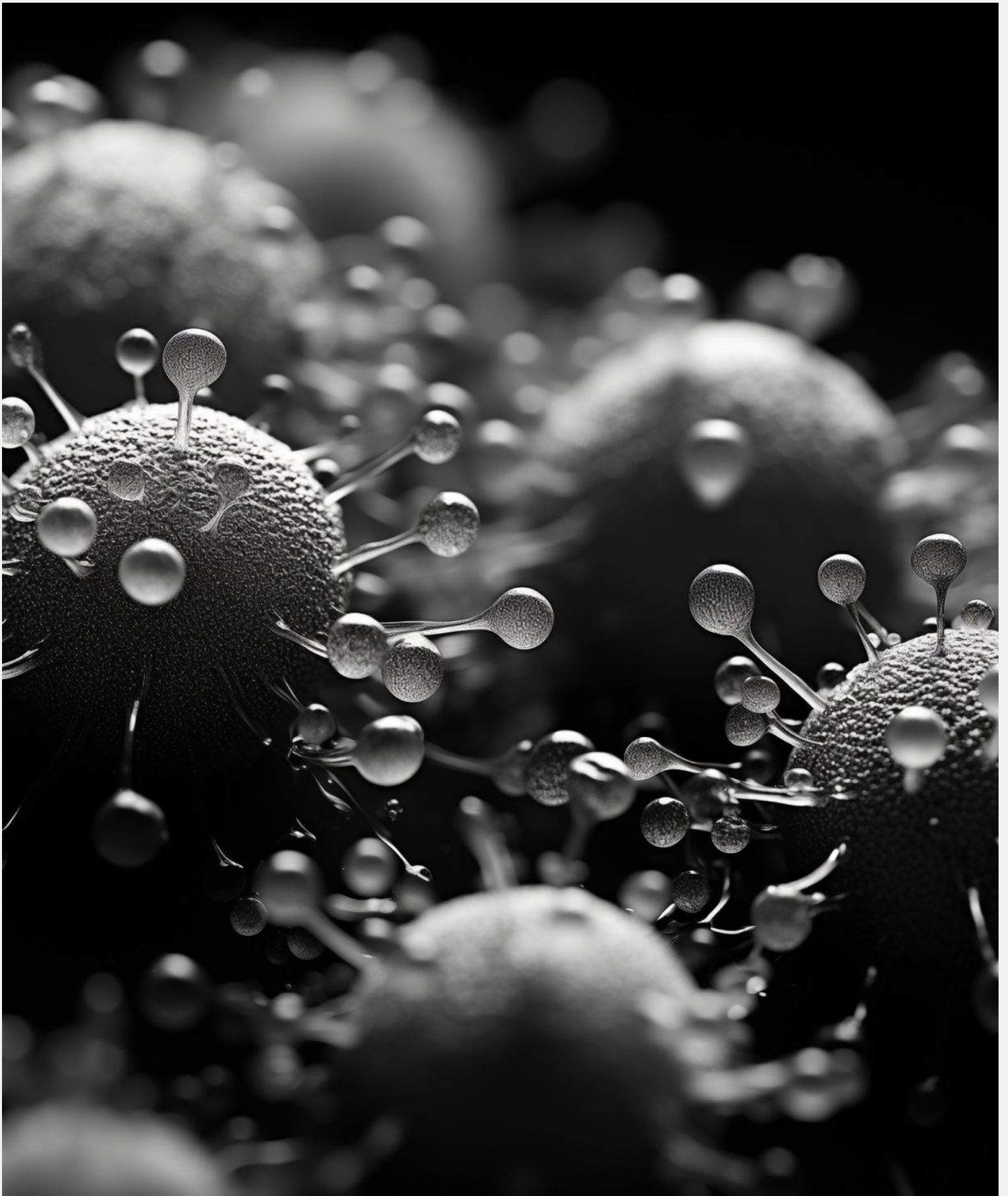
Sludge Dewatering

TSS Removal

Water Clarification

*Average values measured at 60 rpm

**When stored inside at stable temperature of 72-86°F



NanoNets

The platform behind the products.

CarboNet ●●

A machine to make machines: NanoNets are a proprietary library of molecular agents that can sequester particles in water 10x more efficiently than industry norms at a fraction of the price.

How it works: NanoNets mix a targeting surfactant with a scaffolding polymer:

↳ **Surfactant:** The glue that helps the flocculant attach to particles or impurities in water. It's responsible for ensuring the flocculant can find and stick to the target particles.

↳ **Polymer:** This gives the flocculant its shape and stability. Just like the frame of a house provides support and structure, the polymer ensures the flocculant can hold together and effectively do its job.

A bit deeper: Together, and guided by AI, these components behave like a programming platform, capable of outputting an array of products to address any water treatment application.

Why it matters: Water insecurity is changing regulations and emission limits. Commodity chemicals like polyacrylamide (PAM)—created 70 years ago for a different era of water treatment and rapidly aging out—aren't up for the task at hand:

↳ **Chemically,** PAM has weak bonds that won't create strong flocs, often forcing wastewater teams to overdose and breach permit levels.

↳ **Technically,** crews have to constantly babysit make-down equipment to ensure PAM is properly dosed. When they miscalculate, they gum up bags, belts, presses, or centrifuges and the site or plant has to shut down for flushes or equipment swaps.

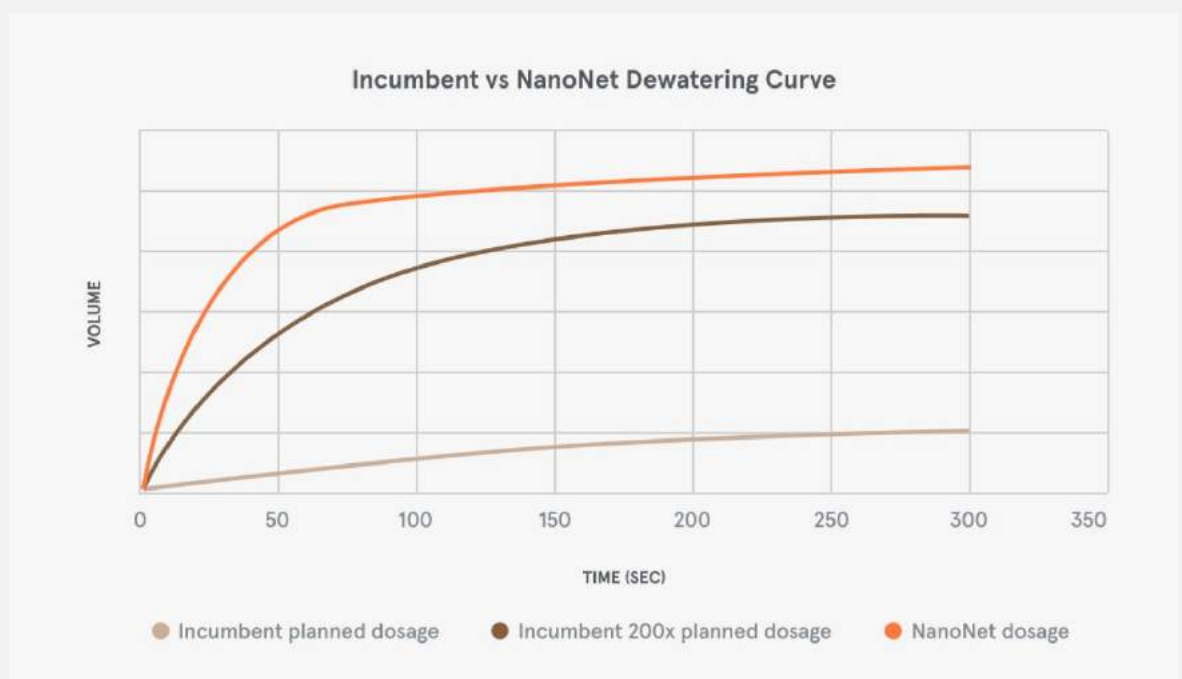
↳ **Practically,** PAM is dangerous: crews regularly suffer from inhalation burns (dry) and slips and breaks (emulsion slop).

↳ **Legally,** PAM heightens profile risk. A site overburdened with PAM will inevitably see seepage, spills, and dosing miscalculations push too much chemical into the environment and breach EC50/LC50 limits.

↳ **Financially,** PAM hits the bottom-line several times over, from the chemical costs to CAPEX purchases and maintenance to OPEX inefficiencies.

NanoNets in action:

SimpleFloc's pre-activated, made-down state faces no rate-limiting on speed of reaction compared with dry, emulsion, and solution polymers that must reckon with improper aging, variable water temperature, and dozens of other factors that impact performance.



In contrast: NanoNet chemistry resets the boundaries and can have a big impact on the P&L:

↳ **Chemical spend:** CarboNet flocculants alter the throughput of water treatment, reducing cost-to-treat by up to 50%.

↳ **OPEX:** CarboNet chemistry requires no make-down and dramatically reduces time spent on dosing calibration and monitoring. And, increasingly, NanoNet sites use automated pumps that send data back to a monitoring dashboard for aggregation and analysis.

↳ **CAPEX:** CarboNet flocculants don't require make-down equipment and often improve the performance of other tools in the pipeline, helping maintain existing CAPEX or avoid new investments entirely.

↳ **Toxicity:** NanoNets reduce PAM by up to 90%, helping hit increasingly stringent regulatory targets.

↳ **Emissions:** NanoNet chemistry reduces Scope 3 Emissions up to 70%. To date, the commodity chemicals we've displaced has cut 300 million tonnes of CO2 production.

↳ **Health & safety:** CarboNet products arrive pre-activated and plug-and-play, removing the need for makedown and crew exposure to toxic inhalants, spills, slips, and other machine interactions.

↳ **Regulatory exposure:** Broadly, CarboNet chemistry slashes emissions and improves performance KPIs related to zero discharge or permit targets

CarboNet: As freshwater becomes increasingly scarce and regulated, companies from energy and mining to food and beauty turn to CarboNet to reduce, recycle, and renew the water they need to compete.

Behind-the-scenes: CarboNet scientists and field technicians are focused on products for a new reality: a world with less water and more regulations—but persistent demands of customers and shareholders.

↳ This has led to the NanoNet platform and new chemistry, one which eliminates chemicals from water treatment entirely, another that isolates valuable particles for extraction.

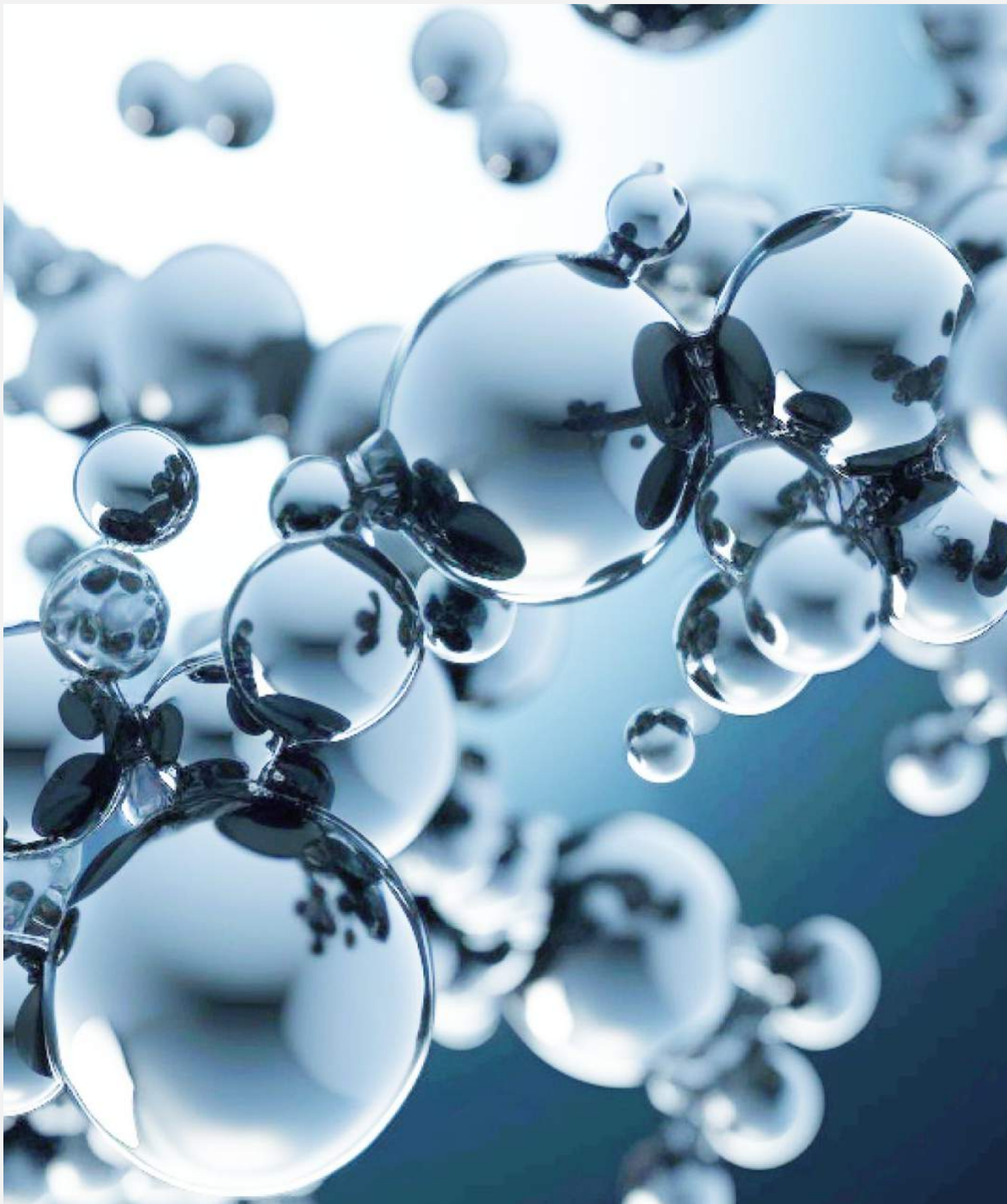
The bottom line: Water treatment has moved from a line item in the P&L to a key strategic advantage for companies looking to boost profits as they navigate regulatory hazards and the increasing costs of freshwater.

↳ **Smart chemistry** can reduce drawdown, recycle wastewater—even reclaim waterborne materials—while cutting costs and improving unit performance.

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Randy Khalil

Dewatering & Water Treatment SME



OVERVIEW

Chemistry to Compete

CarboNet ●●

As freshwater becomes scarce and increasingly regulated, companies from energy and mining to food and beauty turn to CarboNet to reduce, recycle, and renew the water they need to thrive.

Adaptive chemistry: a new competitive advantage.

CarboNet's NanoNet platform generates programmable flocculants, coagulants and targeting agents that adapt to any application and significantly impact your P&L and market position.

CHEMISTRY FOR THE P&L

Chemical spend

Reduce cost-to-treat by up to 50%

Toxicity & emissions

Reduce PAM by up to 90%

OPEX spend

Greater crew efficiency, reduced NPT, lower labour costs

CAPEX investments

Avoid new equipment, prolong existing infrastructure, increase throughput

Regulatory exposure

Reduced exposure to govt or collective action



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Products

CarboNet chemistry is powered by NanoNets, novel molecules that sequester particles 10x more efficiently than industry norms at a fraction of the price.

- [SimpleFloc Anionic](#)
- [SimpleFloc Cationic](#)
- [NanoNet Select](#)



Applications

CarboNet chemistry is designed to adapt to most applications and water conditions.

- [Leachate](#)
- [Meat & dairy](#)
- [Groundwater](#)
- [Personal care wastewater](#)
- [Produced water](#)
- [Sludge dewatering](#)
- [Water clarification](#)



Industries

Products for industrial brands and operators across industries and applications:

- [Construction](#)
- [Food & beverage](#)
- [Mining](#)
- [Municipal](#)
- [Oil & gas](#)
- [Pharmaceutical](#)
- [Pulp & paper](#)



About Us

Five-years in, CarboNet has set the standard in modern water chemistry and set their sites on major North-American markets.

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