



Reference Project

Construction Dewatering for a
Major Sewer Line Installation

Dewatering of a new sewer line struggled with discharge levels and runaway costs, forcing a shutdown and re-evaluation of the chems.

Background: When a main sewer line of a large municipality reached capacity, an alternate line was built and needed dewatering for the trenches.

The problem: Unfortunately, a complex mix of four chemicals was unable to hit the <25 NTU discharge limit and, with constant adjustments slowing down construction, was driving up project costs.

↳ **In the mix:** coagulant (1200 ppm), flocculant (1900 ppm), peroxide (1400 ppm), and caustic solution (280 ppm), averaging around 5000 ppm.

↳ **Including crew and equipment,** the treatment package alone cost \$80k/month

Solution: The introduction of SimpleFloc offered a simpler, less expensive option. Bench scale testing indicated that it could replace all four chemicals and the make-down process itself.

↳ SimpleFloc hit the target discharge levels without the need for supporting chemicals—and at much lower dosing rates (250–450ppm)

↳ SimpleFloc also eliminated the peroxide and caustic solutions (although these may be reintroduced if influent water quality changes or additional KPIs are added).

↳ The plug-and-play nature of SimpleFloc removed make-down, reducing rig rentals, crew hours, and NPT from mis-dosing.

Additionally: SimpleFloc, to its name, simplified the necessary chemistry, but also:

- Crews were more efficient as they didn't have to babysit 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

RESULTS

- Eliminated need for four chemicals
- Cut treatment package cost
- Removed make-down
- Boosted crew efficiency

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.

Construction Dewatering

Carbonet’s SimpleFloc is a no-make-down flocculant designed to adapt to variable conditions and stringent environmental regulations.

The problem:

Groundwater jobs are unpredictable. Water can vary hour-to-hour, flocculants may underperform, and the chemicals you release can run contrary to local or federal laws. On top of that, sites are often remote or frustratingly small—making it hard for crews to work efficiently. For an operator, unpredictability eats into margins, crew morale and safety, and legal exposure.

SimpleFloc for groundwater:

- Requires no makedown, saving time, water, and space in remote or tight locations.
- Its forgiving dosage window means less pump adjustments and labor demand, leading to fewer delays and operational issues.
- Reduces operator variability and error, reducing safety hazards and environmental concerns.
- Acts quickly and produces consistent results, leading to predictable costs and reliable KPIs.
- Cost-competitive with liquid emulsion flocculants, even at a 4:1 ratio.

Between the lines:

Control matters when everything is unpredictable. SimpleFloc’s plug-and-play simplicity, small footprint, and near-zero chemical output boost your ability to deliver results on-time and budget while avoiding environmental snafus.



APPLICATIONS

Groundwater / wellpointing

Construction dewatering

Mining

Dredging

Landfill leachate

Remediation

TOPLINE SPECS

| | |
|---------------------|----------------------|
| Storage Temperature | 41 – 86°F (5 – 30°C) |
| Shelf life | 6 months |
| Appearance | Translucent gel |
| Freezing point | 32°F (0 °C) |
| pH | 3.0 – 4.5 |

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.

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 | | |

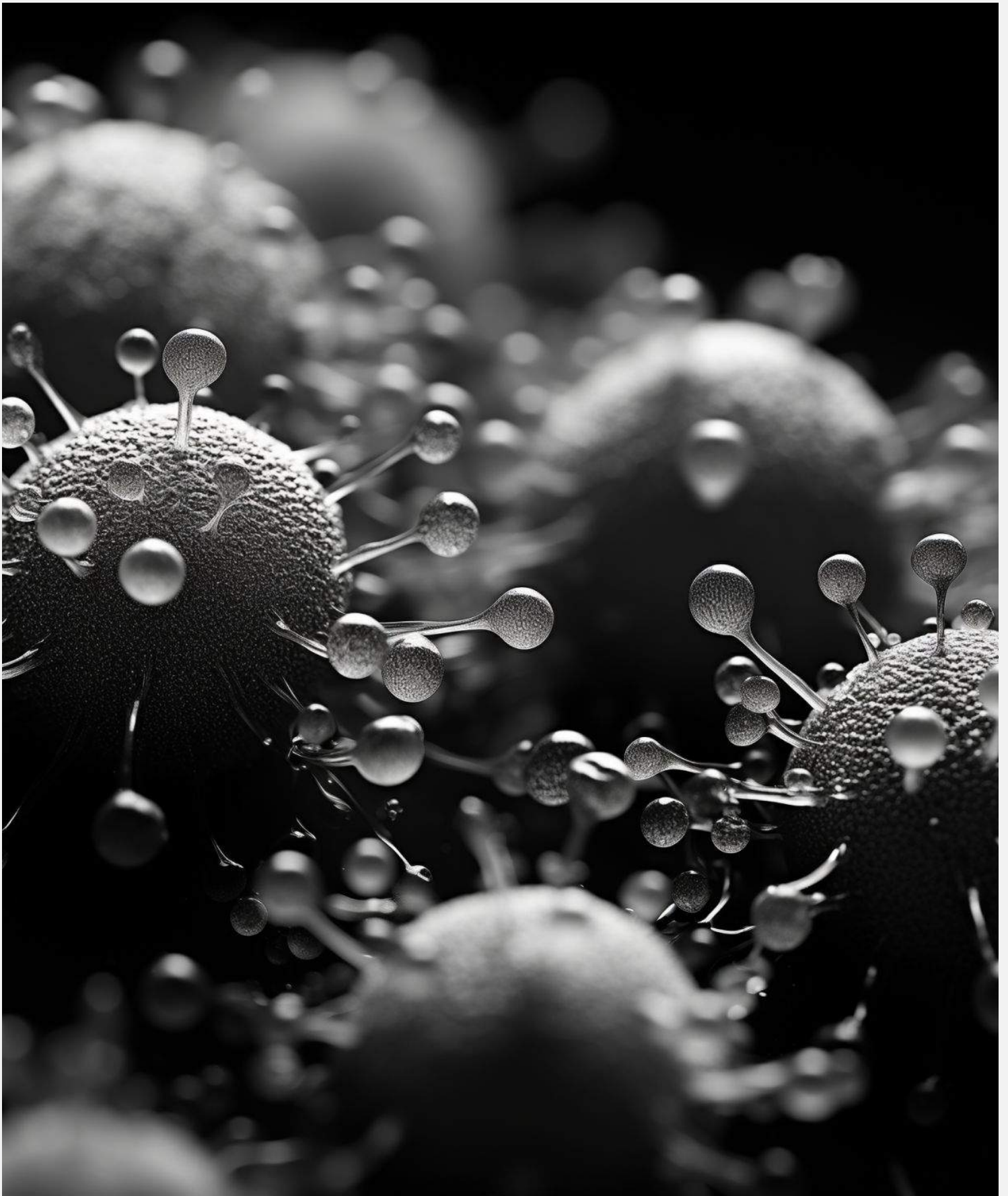
DEWATERING APPLICATIONS

- 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.

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.

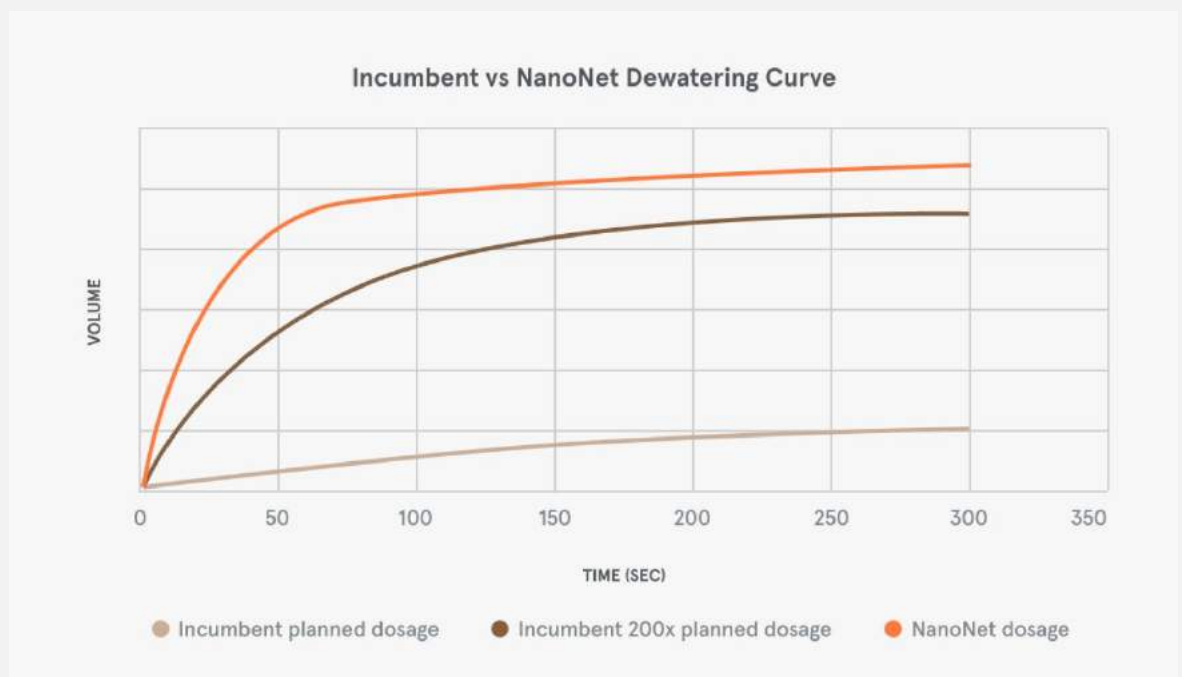
↳ **Practically,** PAM is dangerous: crews regularly suffer from inhalation burns (dry) and slips and breaks (emulsion slop).

↳ **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.

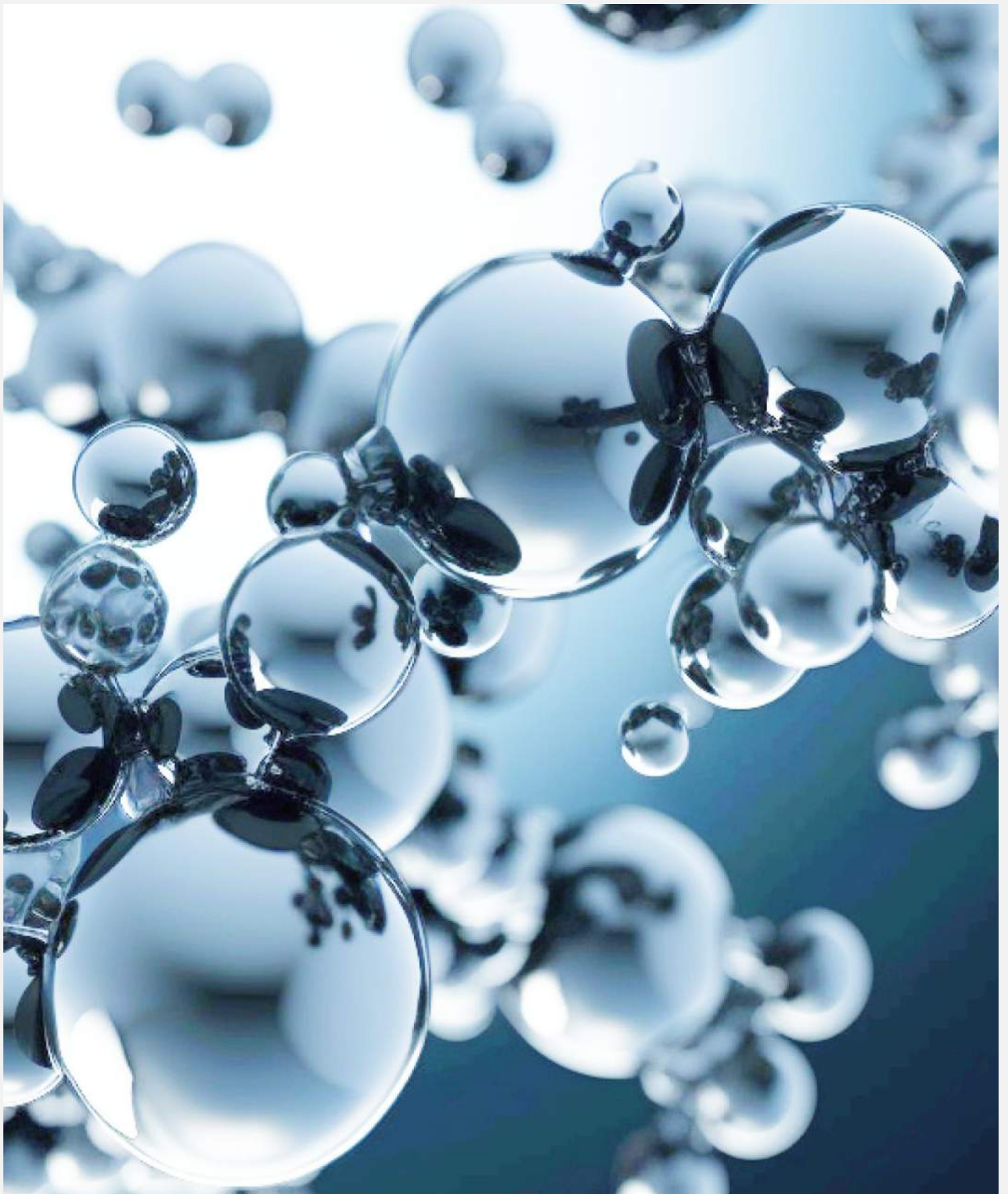
The bottom line: Water treatment has moved from a line item in the P&L to a key strategic advantage for companies looking to boost profits as they navigate regulatory hazards and the increasing costs of freshwater.

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

“It’s the most technologically innovative water treatment application I have laid eyes on this decade. It has been excellent in helping our project operate within spec, and in simplifying our overall process. It’s the difference between a system that just meets regulations and one that’s set up to accelerate and scale.”

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



“It’s the most technologically innovative water treatment application I have laid eyes on this decade. It has been excellent in helping our project operate within spec, and in simplifying our overall process. It’s the difference between a system that just meets regulations and one that’s set up to accelerate and scale.”

Randy Khalil

Dewatering & Water Treatment SME



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.

- About us [↗](#)
- Leadership [↗](#)
- Careers [↗](#)
- LinkedIn [↗](#)

CarboNet ••

