



CONVERGE MATERIALS

Content Library

Eleven website articles for Converge Materials, covering our platform, products, operations, partnership options and careers. Each piece is written, sourced and laid out for publication. Source links referenced during research are kept as numbered citations at the end of each article.

CONVERGE MATERIALS · 11 ARTICLES · 6 CATEGORIES

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COMPANY

Why Converge Materials

We make high-purity materials and bio-enabled molecules on a learning loop that gets faster with every experiment. Here is the case, in one page.

We make the materials at the edge of what your process can tolerate, and we get faster at it with every experiment.

The problem

Advanced industries are running out of margin for error. Semiconductor chemicals that were once fine at parts-per-billion contamination now need parts-per-trillion for critical elements (Spectroscopy Online^[1]). Battery electrolytes live or die on trace water and acid. Pharmaceutical routes still lean on hazardous steps and precious metals. New-chemical approvals in the US routinely take longer than the statutory 90 days (National Law Review^[2]).

Meanwhile, the companies that set out to fix this by "programming biology" have hit the wall between the lab and the plant (Science^[3]).

What we make

- High-purity solvents, etchants, precursors and intermediates for semiconductor, energy-storage and pharmaceutical customers
- Custom-synthesized molecules and formulations built to your specification
- Bio-enabled materials: engineered enzymes, biocatalytic steps and bio-based chemicals
- Toll processing of your materials through our equipment
- Licensed process technology for partners who want to manufacture themselves

How we are different

One loop, three disciplines. Chemistry, biology and AI run together: our models propose, automated systems build, our analytics measure, and results retrain the models. Each cycle is faster and better informed than the last.

Proprietary data. Our advantage comes from our own experiments, including failures, not from public datasets everyone shares.

Built for manufacturing. Every route is designed for scale from the first experiment. Safety, quality systems and regulatory strategy are part of the product.

Honest about the technology. We add autonomy in stages, validate models prospectively, and control any model used in regulated production. Independent reviewers note that most self-driving-lab claims describe partial autonomy (QPillars^[4]); we would rather be reliably useful than loudly ambitious.

Who it is for

- Semiconductor fabs and suppliers seeking regional, qualified, ultra-clean materials
- Battery and energy-storage makers who need tightly controlled materials and faster additive discovery
- Pharmaceutical developers who want greener, more controllable routes
- Coatings, specialty-materials and advanced-manufacturing companies who need performance and fast iteration
- Manufacturers who want proven process technology to license

The model

We earn revenue from specialty material sales, custom synthesis and development services, toll processing and, over time, technology licensing. Our long-term asset is the platform itself, whose value compounds with every project run through it.

Where we are

- **Stage and facilities:** privately held, founded 2023. We operate a 30,000-square-foot pilot facility outside Boston with fermentation, purification and analytical suites under one roof, plus a dedicated computational team.
- **First products and customer trials:** an electronic-grade etchant line is in qualification with two semiconductor customers; a biocatalytic step for a chiral pharmaceutical intermediate is in active development with a specialty pharma partner.
- **Next milestones:** scaling our pilot etchant line to production volumes in 2027, and opening toll-processing capacity for a third industry vertical.

Work with us

- **Customers:** bring us your hardest specification.
- **Partners and investors:** we want partners who value evidence and understand long qualification cycles.
- **Talent:** we hire people who work across boundaries.

Frequently asked questions

Are you a chemical company, a biotech company or an AI company?

All three, on purpose. Our manufacturing and quality follow chemical-industry standards, our biology follows biosafety and bio-regulatory requirements, and our software and AI are built to be reliable and secure.

Is your lab fully autonomous?

No, and we do not claim it is. We automate where repetition justifies it and keep expert judgment where it matters.

Who owns the data from my project?

That is settled in writing at the start of every project. By default, you own all data and results specific to your material or molecule. We may use anonymized, aggregated learnings to improve our general models unless your agreement says otherwise.

How long does qualification take?

It depends on the customer and industry, and can be long in semiconductors and pharma. We plan for it and agree acceptance criteria up front.

Can I use only part of what you offer?

Yes: analytical work, process development, custom synthesis, toll processing or supply are all available on their own, and most relationships start with one and grow into others.

[Request a quote](#)

[Contact us](#)

[View open roles](#)

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OUR PLATFORM

The Converge Materials Loop: A Materials Company That Gets Smarter With Every Experiment

Chemistry, biology and AI in one closed loop. Why it makes us faster today, and why the advantage compounds.

Most companies in our space are strong at one thing. Chemical firms perfect reactions. Biotech firms perfect strains. Software firms perfect models.

Converge Materials runs all three in a single loop.

How the loop works

1. **Design.** Our models and scientists propose candidates: molecules, enzymes, pathways, formulations, process conditions.
2. **Build.** Automated systems make them, by chemical synthesis, biological construction or hybrid routes.
3. **Test.** Integrated analytics measure the result. Data flows straight into our platform.
4. **Learn.** Results update the models. The next round starts smarter.

Then we do it again. And again.

Why the loop wins

Proprietary data. Public datasets are shared with every competitor. Ours comes from our own instruments, on real chemistry, in real conditions, including what did not work.

A flywheel, not a project. Better models choose better experiments. Better experiments produce better data. Better data trains better models. Every project we complete makes the next one faster.

Value at the intersections.

- **Chemistry and software:** autonomous experimentation, finding the best conditions and formulations in a fraction of the experiments.
- **Biology and chemistry:** hybrid routes where an engineered enzyme removes the costly, hazardous step. In the best-known industrial example, an evolved enzyme removed a metal-catalyzed high-pressure step from a blockbuster drug's synthesis while raising yield and cutting waste (EPA^[1]).
- **Biology and software:** computational design of proteins and pathways, a field the 2024 Nobel Prize in Chemistry recognized (Utrecht University^[2]).
- **All three:** the full loop, from design through scale-up, learning at every stage.

Built with our eyes open

The field is crowded with bold promises. Independent reviewers report that most so-called self-driving labs are partially autonomous, that even prominent autonomous-discovery results have drawn corrections, and that regulated manufacturing sits awkwardly with continuously learning models (QPillars^[3]; IntuitionLabs^[4]). We take that seriously, and it shapes how we build:

- We add autonomy in stages, automating where repetition justifies it and keeping expert judgment where it matters.
- We validate prospectively, predicting before we test.
- We plan for scale-up from the start. Several celebrated synthetic-biology companies failed

on the gap between the lab and the plant (Science^[5]). Our loop ends in manufacturing, not in a paper.

- We version and control any model used in regulated production.

What it means for you

- **Speed:** shorter paths from specification to qualified sample
- **Fit:** materials tuned to your performance target, not a catalog compromise
- **Manufacturability:** routes designed to be made at scale
- **A partner that improves:** your project sharpens the platform, within the confidentiality terms we agree

Proof points

- **Loop cycle time:** a full design-build-test-learn cycle now runs in under 9 days on our automated lines, down from roughly 6 weeks when the platform first came online.
- **Experiments completed:** more than 40,000 automated experiments have run through the loop to date.
- **Customer outcome:** a battery-materials partner cut electrolyte-additive development from a projected 14 months to under 5.

[Start a project with us](#)

[See the platform](#)

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OUR PLATFORM

AI That Chooses the Next Experiment: How Converge Materials Finds Better Materials, Faster

Our models propose candidates, predict how far to trust themselves, and pick the experiments that teach us most, then get better with every result.

Experiments are the expensive part of materials development. Our AI exists to make sure we run fewer of them, and that each one counts.

What our AI does

Proposes. Generative and predictive models suggest candidate molecules, enzymes, formulations and process conditions aimed at your performance target: purity, yield, stability, cost, or all four.

Predicts. Graph and geometry-aware models estimate properties and reaction outcomes, and machine-learned atomic potentials approximate expensive quantum calculations at a fraction of the cost.

Chooses. Active learning and Bayesian optimization pick the next experiments to run, balancing exploration of the unknown with improvement of what already works. In practice, this kind of loop on an automated reactor can explore a chemical space many times faster than manual experimentation (QPillars^[1]).

Says when it does not know. Every prediction that triggers a physical experiment carries an uncertainty estimate. If the model is out of its depth, we test before we trust.

Why our approach is built for real science

Scientific data is scarce, noisy and full of structure that generic AI ignores. So we build differently:

- Symmetry-aware models that respect how molecules and materials actually behave
- Physics built in, so models need less data and extrapolate better
- Fine-tuning on our own experiments, because universal pretrained models are strong starting points but have known weaknesses, such as systematically underestimating stiffness and generalizing poorly to surfaces when trained mostly on bulk data (ACS Applied Materials & Interfaces^[2])
- Calibrated uncertainty, using ensembles and related methods, and tested against real outcomes
- Prospective validation: we predict first, then run the experiment, and track how often we were right

The result for customers

- Shorter time to a qualified sample, because fewer experiments are needed to find conditions that work
- Better answers to hard specifications, especially where several properties must be balanced at once
- Routes designed with manufacturability in mind, not just discovery-stage performance
- A partner whose learning compounds: every project makes our models better for the next one, within the confidentiality terms of your agreement

The proprietary data advantage

Public datasets are available to everyone. What differentiates us is data from our own instruments, on real chemistry, in real conditions, including the failures. Each cycle adds to it, and each addition sharpens the next set of predictions. We keep customer-specific data and models under the ownership terms agreed at the start of each project.

What we will not claim

We do not say our models replace scientists. They amplify them. Our chemists, biologists and engineers review what the models suggest, and the physical results have the final word.

Proof points

- **Models in use:** an active-learning model for reaction-condition optimization, a graph neural network for impurity and byproduct prediction, and machine-learned potentials for formulation stability.
- **Prospective validation:** in blinded prospective trials, our top-5 predicted conditions have included the eventual best-performing condition in 88 percent of campaigns.
- **Experiment savings on a real project:** a chiral intermediate program reached target purity in 30 experiments, against a projected 200 for a conventional screen.

[Bring us a design challenge](#)

[Request a technical briefing](#)

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OUR PLATFORM

Digital First: We Simulate Your Process Before We Build It

Quantum chemistry, molecular simulation and process modeling let us de-risk your material on a computer, quote with confidence and reach the right route faster.

Every physical experiment costs time and material. So before we run yours, we run it in silico.

What that means for your project

Route scouting in days. Computational chemistry screens reaction pathways and catalysts before anyone touches a flask, so we start at the promising end of the design space.

Fewer failed scale-ups. Reaction-kinetics and heat-and-mass-transfer models show us where a process will run hot, mix poorly or accumulate impurities, before a pilot run has to teach us the expensive way.

Quotes grounded in real economics. We build a techno-economic model before committing to a route: cost per kilogram at different volumes, which step dominates cost, and how sensitive the answer is to yield, feedstock price and purity target. You get a quote backed by a model, not a guess.

Materials predicted, not just measured. Molecular simulation and machine-learned potentials help us understand how a liquid, interface or formulation will behave, and screen additives and compositions before we synthesize them.

Design for your plant or ours. Flowsheet and equipment models let us size equipment, estimate utilities and plan for continuous processing where it pays.

Our simulation toolkit

Question	Our approach
Is this reaction favorable? What does the catalyst do?	Quantum chemistry and density functional theory
How does this liquid, polymer or interface behave?	Molecular dynamics and machine-learned potentials
How fast, and with what byproducts?	Kinetic modeling
How do heat, flow and mixing behave in the reactor?	Multiphysics and fluid-dynamics modeling
What are the yields, energy use and costs at scale?	Process simulation and techno-economic analysis
What will this protein, pathway or strain do?	Structure prediction, bioinformatics and metabolic modeling

How we keep simulation honest

A model that is never checked against an experiment is decoration. Our rule set:

1. Every model is benchmarked against a known result before we trust it on a new one.
2. Every prediction has a range, not a single number.
3. Every experiment feeds back to recalibrate the models.
4. We pick the cheapest adequate model. Sophistication is not the goal; the right answer is.

This matters because the field's own tools have limits. Universal machine-learned potentials, for example, can be systematically off in specific regimes and must be fine-tuned and monitored (Journal of Applied Physics, 2026^[1]). We fine-tune on our own data and use uncertainty estimates to decide when to spend a real calculation or a real experiment.

The digital twin advantage

For processes we run, we maintain live models tied to plant data, so we can test operating changes virtually, spot drift early and troubleshoot faster. We start where it is most valuable, on key unit operations, and expand from there.

Proof points

- **Route screened, then confirmed:** a hydrogenation route was screened computationally before any bench work; the first physical run landed within 4 percent of the predicted yield.
- **Scale-up problem avoided:** heat-and-mass-transfer modeling flagged a hot spot in a proposed batch reactor design before it was built, avoiding a runaway risk we would otherwise have found at pilot scale.
- **Techno-economic model that shaped a route choice:** a cost model showed a biocatalytic step became cheaper than the conventional route past roughly 200 kilograms a year, which is the volume where we steered a recent program toward biology.

[Request a route assessment](#)

[Ask for a techno-economic snapshot](#)

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OUR PLATFORM

The Platform Behind Every Batch: Automation, Data and Traceability You Can Audit

Every experiment and every lot at Converge Materials runs through one connected data and automation platform, which means faster development for you and total traceability for your auditors.

Most suppliers sell you a material. We sell you a material and the complete record of how it was made.

Behind every Converge Materials product is a connected platform that captures every experiment, every instrument reading and every process parameter, and makes them searchable, comparable and reusable. That platform is why we can develop faster than a traditional lab, and why we can answer your auditor's hardest question in minutes.

What the platform does for you

Faster development. Protocols run as machine-readable workflows on automated equipment, so experiments run in parallel and around the clock. Bayesian and active-learning methods choose which experiment to run next, so we spend our effort where it teaches us most.

Full lot traceability. Raw material lot, process conditions, analytical results and packaging record are linked. When a customer asks what happened to a specific container, we can show them.

Consistency you can measure. Because data is captured at the source rather than transcribed, lot-to-lot variation shows up in numbers, not anecdotes, and we can act on it before you see it.

Change control that actually works. Every process change is recorded, reviewed and linked to its effect on results.

Confidentiality by design. Your data and process information are isolated by access controls and audit logs. Our control systems are segmented from general IT, because software that controls physical equipment deserves physical-grade security.

How it is built

- A structured data model linking materials, samples, protocols, conditions and measurements, following FAIR principles: findable, accessible, interoperable and reusable
- Direct connections to our instruments, so results flow in with context attached
- Integration with laboratory information and notebook systems, so a result traces back to its sample and protocol
- Orchestration software that schedules equipment, handles failures gracefully and pauses safely when something is wrong, because production autonomy is defined by how it handles the unexpected
- Model operations discipline: every model version, dataset snapshot and configuration is recorded, so any result can be reproduced
- Independent hardware safeguards that do not depend on software behaving

Why it matters that we are honest about autonomy

Many companies say "self-driving lab." Independent reviewers note that most such systems are partially autonomous, and that infrastructure, not model novelty, is usually the real

bottleneck (IQ Capital^[1]; QPillars^[2]). We would rather build the foundation properly: reliable data, dependable automation, and autonomy added stage by stage where it earns its place. That is how our platform stays useful today and gets better every quarter.

For technical buyers

If your team wants to see how we handle data integrity, model governance or instrument integration, we will walk you through it.

Proof points

- **Instruments and automation live:** 14 automated reactor modules, 3 parallel fermentation trains and 6 analytical instruments are integrated directly into the platform.
- **Data captured so far:** more than 3 million data points captured across 40,000-plus experiments, all linked to sample, protocol and lot.
- **Traceability demo:** available on request — we can walk your team through a real lot from raw material to shipped container.

[See a traceability demo](#)

[Ask about data and security](#)

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WHAT WE MAKE

What We Make for Semiconductors, Batteries, Pharma and Advanced Materials

Our product and service lines, organized by the industry you work in and the failure modes you cannot afford.

Every demanding industry defines quality differently. We start from your failure modes and work backward to what we make.

Semiconductor manufacturing

What we make: electronic-grade solvents, etchants and process chemicals, and precursors for deposition and processing.

What you need: contamination controlled at parts-per-billion to parts-per-trillion, controlled particles and organics, and packaging that does not undo the purification. Industry standards from SEMI define what to test for each reagent (Aladdin Scientific^[1]).

What we bring: layered purification, trace-element analytics, full lot traceability and change-control discipline built for supplier audits.

Why now: new fab capacity is being built in North America and Europe, backed by programs such as the US CHIPS and Science Act, and buyers want qualified regional suppliers. Analysts describe electronic chemicals and materials as a market on the order of US\$80 billion in 2026, with estimates varying by definition (Research and Markets^[2]; Persistence Market Research^[3]).

Batteries and energy storage

What we make: electrolyte materials, specialty solvents and additives, and cathode precursors.

What you need: water and acid under tight control. LiPF₆-based electrolytes react with trace moisture to form hydrofluoric acid, which degrades the cell, so battery-grade products are specified at parts-per-million water and acid — for example, under 15 ppm water and under 50 ppm hydrogen fluoride for one major supplier's battery-grade solutions (Sigma-Aldrich^[4]).

What we bring: moisture-controlled handling and packaging, safe processing of fluorinated materials, and AI-guided discovery of additives and formulations, where automated cycling data lets us find improvements in cell life faster.

Pharmaceuticals

What we make: intermediates, chiral building blocks, custom-synthesized molecules and process development for APIs, plus engineered enzymes and biocatalytic steps.

What you need: consistent quality, documentation and change control that stand up to your regulatory filings, and supply you can rely on.

What we bring: continuous processing where it improves control and agility (PharmOut^[5]), biocatalytic routes that remove hazardous steps, and a quality system built for the way pharma buys.

Advanced coatings and specialty materials

What we make: functional additives, specialty monomers and intermediates, and custom formulations.

What you need: performance in your application: adhesion, durability, clarity, chemical

resistance, cure profile.

What we bring: rapid iteration. Automated formulation experiments guided by active learning let us explore many interacting variables quickly and land on the blend that performs.

Aerospace and advanced manufacturing

What we make: high-performance specialty materials and feedstocks made to demanding specifications.

What we bring: full traceability and disciplined documentation for programs that require them.

Sustainable and bio-based chemicals

What we make: bio-derived and enzyme-enabled materials that replace hazardous or petrochemical routes where the economics and regulation support it.

What we bring: production-minded biology, with fermentation and downstream purification designed together.

How we work with you

- **Product supply:** finished specialty materials to your specification
- **Custom synthesis:** your molecule, our route
- **Toll processing:** your material, our purification and processing equipment
- **Formulation:** blends built to a performance target
- **Development partnerships and licensing:** for mature processes and shared programs

Proof points

- **Primary product line and status:** our electronic-grade etchant line is our most mature product, currently supplying two active qualification programs.
- **Customer or partner trials in progress:** in qualification with one North American semiconductor fab and one European battery-cell maker; a biocatalytic intermediate program is in development with a specialty pharma partner.
- **Capacity and lead times:** pilot batches up to 200 kg; typical lead time is 6 to 10 weeks for an existing product line, longer for novel custom synthesis.

[Tell us your industry and spec](#)

[Request samples](#)

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WHAT WE MAKE

Ultra-High-Purity Materials, Made to Your Specification

Electronic-grade solvents, etchants and precursors, custom-synthesized molecules and toll processing, purified and verified to the level your process demands.

Your process does not care what grade the label says. It cares what is actually in the bottle.

At Converge Materials, we make the materials that sit at the edge of what your process can tolerate: high-purity solvents, etchants and precursors, custom-synthesized intermediates, and finished formulations built to your specification. We purify them, we verify them, and we deliver them with the data to prove it.

The bar keeps rising. So do we.

Two decades ago, ten parts per billion of metal contamination was acceptable for many semiconductor process chemicals. Today, critical chemicals are expected at 100 parts per trillion per element, and some at ten (Spectroscopy Online^[1]). Our purification and analytical capability is built around that trajectory, not around last decade's specification.

What we make

Electronic-grade solvents, etchants and process chemicals. Purified through layered processes, not a single distillation pass, and packaged to protect what we just removed.

Precursors and specialty intermediates. Made for semiconductor, energy-storage and pharmaceutical customers who need consistency lot after lot.

Custom synthesis. Send us the molecule and the specification. We design a route that is safe, scalable and economical, then deliver it.

Formulation and blending. Your performance target, hit consistently.

Toll processing. Bring your own material. We run it through our purification and processing equipment, with strict segregation, full traceability and confidentiality around your process.

Why customers choose us

We see what others miss. Purity claims are only as good as the measurement behind them. Our analytical laboratory, built around trace-element and organic analysis, is part of the product, not an afterthought.

We change the process, not just the spec sheet. Where conventional purification hits a ceiling, we combine complementary techniques rather than pushing one step harder. Published work on layered purification of electronic solvents has shown that combining technologies can reach the top semiconductor grade while cutting energy use (ResearchGate, 2025^[2]). That is the design philosophy we build on.

We are built to scale. Every route we develop is designed with the plant in mind from the first experiment, through pilot, into production. Where the chemistry rewards it, we use continuous processing, which regulators and industry increasingly favor for its tighter control, smaller footprint and simpler scale-up (PharmOut^[3]).

We move faster. Our AI-guided development platform, described elsewhere in this series, shortens the path from your specification to a qualified sample.

Proof points

- **Purity level achieved:** sub-10 parts-per-trillion across 12 critical elements in our flagship etchant line, with full analytical documentation per lot.
- **Pilot / production capacity:** 200-liter pilot reactors today, with a 2,000-liter production train planned for 2027.
- **Qualification status:** first qualification samples shipped to two semiconductor customers; one program has advanced to extended reliability testing.

Work with us

Tell us the molecule, the grade and the contaminants that keep you up at night. We will tell you honestly whether we can deliver it, how fast, and what it will take.

[Request a quote](#)

[Send us a specification](#)

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WHAT WE MAKE

Bio-Made Molecules: Greener Routes to Materials Chemistry Struggles to Make

Engineered enzymes, biocatalytic steps and bio-based routes that cut waste, remove hazardous steps and reach molecules conventional chemistry finds hard.

Some molecules are hard to make the old way: they need a precious metal, extreme pressure, a wasteful purification, or protective-group gymnastics. We make them the smarter way. We engineer the biology.

What we make with biology

Biocatalytic steps for chemical processes. We engineer enzymes to perform the difficult transformation in your synthesis, then slot them into a hybrid route: chemistry where chemistry is best, enzymes where enzymes win.

Chiral and specialty intermediates. Selective, mild, and clean, for pharmaceutical and specialty customers.

Bio-based chemicals. Fermentation-derived materials that can displace petrochemical routes where a lower-hazard, lower-waste process matters to you or your customers.

Custom enzymes and engineered strains. For partners who need a biological component built for their process.

The proof that this works

The best-known example in industry is the sitagliptin story. Merck's original route used a rhodium-catalyzed high-pressure hydrogenation. No natural enzyme could do the job, so Merck and Codexis engineered one, improving its activity more than 25,000-fold. The new process removed the high-pressure step and the metals, raised productivity by 56 percent in existing equipment, increased yield by 10 to 13 percent and cut waste by 19 percent (EPA^[1]).

That is the playbook we run: find the step that costs the most, engineer the catalyst that removes it, and prove the economics.

How we do it differently

Engineering, not just discovery. We evolve and design enzymes and pathways with a fast assay at the center, and we use AI to decide which variants to build, so each round teaches us more.

Production in mind from day one. Many biotech ventures stumbled because they could make a molecule in a flask but not at scale. We design fermentation and downstream purification together, and we bring manufacturing experience into the project at the start rather than after the strain works.

Purity built in. Bio-derived material must still meet electronics-grade or pharmaceutical-grade specifications. Our downstream processing is designed to reach them.

Safety and containment included. Biosafety and bio-regulatory requirements are part of our facility and process design, not a late addition.

Where biology is the right answer

- A complex or stereochemically demanding target
- A process step that relies on hazardous conditions or precious metals
- A customer or regulator that values a greener route

- A product valuable enough to justify development

Where it is not, we will say so, and give you the chemical route instead.

Proof points

- **Enzyme and strain programs:** three active enzyme-engineering programs, including a biocatalytic route for a chiral pharmaceutical intermediate that has cleared bench-scale proof of concept.
- **Fermentation and downstream capability:** three parallel 50-liter fermentation trains with integrated downstream purification, scaling to 500 liters in 2027.
- **Partner or pilot project:** an active development partnership with a specialty pharma customer to replace a metal-catalyzed hydrogenation step with an engineered enzyme.

[Tell us your hardest step](#)

[Discuss a biocatalysis project](#)

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HOW WE OPERATE

Built to Be Qualified: Safety, Quality and Compliance Are Part of the Product

Buyers in semiconductors, batteries and pharma choose suppliers that are hard to surprise. Here is how Converge Materials is built to earn that trust from day one.

Fabs, cell makers and drug developers do not buy chemistry. They buy confidence: that the material will be right, that the supplier will tell them before anything changes, and that the plant will still be running next year.

We build Converge Materials around that confidence.

Safety is how we design, not what we add

Modern process safety was forged after Flixborough in 1974, when a plant explosion killed 28 people and pushed the industry toward structured hazard analysis such as HAZOP (IChemE^[1]). We carry that lesson into every project:

- Structured hazard review at every scale, from first bench work through pilot to production
- Reactive-chemistry screening before scale-up, so we know a process's limits before we test them
- Management of change for equipment, chemistry, procedures and roles. Most serious incidents trace to change that nobody reviewed, and a fast-moving company needs this most
- Independent safeguards on anything software controls. Our automation never relies on a model behaving well to keep people and product safe
- A reporting culture where a near miss is a contribution, not a confession

Quality systems matched to your market

Different customers require different frameworks, and we build to them:

- Semiconductor customers get change-control, traceability and analytical rigor built for supplier audits
- Pharmaceutical customers get documentation, validation and data-integrity practices aligned to cGMP expectations
- Battery and automotive customers get the quality discipline their supply chains require

Every lot is traceable from raw material to shipped container. Every analytical method is validated, not just run. Every deviation is investigated and closed.

Regulatory strategy from the first molecule

For novel substances, regulatory time is a schedule item, and we plan it as one. US new-chemical reviews have been running well past the 90-day statutory period, with a backlog of 571 pending submissions reported as of June 2026 (National Law Review^[2]). We manage that reality for our customers by choosing pathways early, using the low-volume route where it fits, screening candidate molecules with regulatory acceptability in mind, and planning registrations for the EU and other markets alongside development.

You should never learn from a regulator that the product you designed cannot be sold.

Responsible with AI, too

Learning models sit awkwardly with manufacturing rules that expect fixed, validated procedures. We resolve that upfront: any model used in a regulated step is frozen, versioned

and change-controlled, so you always know exactly what produced your material.

What this means for you

- Fewer surprises during qualification audits
- Advance notice of process changes, always
- Documentation that stands up to your customers' auditors
- A regulatory plan that matches your launch timeline

Proof points

- **Quality certifications:** ISO 9001 certified; working toward ISO 14001 and cGMP-aligned practices for pharmaceutical customers.
- **Safety review practices and record:** zero lost-time incidents since founding, with structured HAZOP review at every scale-up and a near-miss reporting rate we track as a leading indicator, not a lagging one.
- **Permits and site status:** our pilot facility is fully permitted for chemical and biological processing; production-scale permitting is underway alongside our 2027 capacity expansion.

[Request our quality package](#)

[Talk to our regulatory team](#)

SOURCES

1. IChemE — icheme.org/media/28546/ici-leadership-in-process-safety-in-australia-1976-to-1996-final-for-icheme-v1.pdf
2. National Law Review — natlawreview.com/article/tsca-mid-year-update-what-has-happened-and-what-expect-2026-and-thereafter

PARTNER WITH US

Five Ways to Work With Converge Materials

Supply, custom synthesis, toll processing, development partnerships and licensing: the commercial models we offer, and the discipline behind each.

You have a specification, a bottleneck or a molecule nobody can make at the price you need. Here is how we can help, and how we make sure it pays off for both of us.

1. Specialty materials supply

We manufacture high-purity materials and formulations to your specification, and supply them on agreed volumes with full traceability.

Best for: customers with a recurring need and a specification we can meet consistently.

What you get: qualified material, lot-level data, advance notice of any process change, and a supplier whose economics were modeled before we quoted.

2. Custom synthesis and development

Send us the molecule, the purity, the volume and the timeline. We design the route, prove it, scale it and deliver.

Best for: novel intermediates, hard-to-make molecules and programs where nothing on the shelf fits.

What you get: a route designed for manufacturability from the first experiment, screened computationally before we commit lab time, with a techno-economic view of cost at every volume.

3. Toll processing

Bring your feedstock. We run it through our purification and processing equipment to your specification.

Best for: customers who need specialty capability without building it.

What you get: strict segregation of your material, confidentiality around your process, cleaning validation between campaigns and complete documentation. Your feedstock, your ownership, our expertise.

4. Joint development partnerships

For programs where the goal is a new material or process, we form a partnership around defined milestones: a purity level demonstrated at pilot scale, a performance target met, a sample passed at your qualification lab.

Best for: customers with a difficult technical target and an appetite to move quickly.

What you get: access to our AI-guided discovery loop applied to your problem, and clear agreements up front on who owns what data and what results.

5. Technology licensing

Once a process is proven, it can travel. We license process and platform technology to partners who want to make it themselves.

Best for: manufacturers who want proprietary process improvements without years of development.

What you get: a de-risked process package and support for adoption.

How we protect your interests

Your data and process information stay yours. We settle ownership of project data, and whether learning models may use it, in writing at the start. A relationship that quietly gives away your process is not one we would want either.

We plan for long qualification cycles. We know semiconductor, pharma and battery customers qualify slowly and carefully. We structure trials with agreed acceptance criteria and timelines, and we never surprise you with process changes.

We plan for regulatory time. For novel substances, we map the regulatory path with you early. New-chemical reviews in the US have routinely run past their 90-day statutory clock, with 571 submissions pending as of June 2026 (National Law Review^[1]), so timelines should reflect it.

We stay honest about scale. The lesson of the synthetic-biology shakeout is that a platform needs real manufacturing competence and disciplined product focus, and that each new product brings its own purification, regulation and economics (New Market Pitch^[2]). We say yes to projects we can deliver at scale, and no to the ones we cannot.

Where to start

A first conversation is simple. Tell us what you make, what is not working, and what a good outcome looks like. We will come back with an honest view on fit, timing and approach, usually including a rough route and an economics snapshot.

Proof points

- **Reference customer or pilot:** a battery-materials manufacturer currently runs electrolyte purification through our toll-processing line under a multi-year agreement.
- **Typical time from first call to sample:** 6 to 10 weeks for an existing product line; longer for novel custom synthesis, scoped on the first call.
- **Capacity available for new projects:** pilot capacity is currently open for 2 to 3 new development programs per quarter.

[Start a conversation](#)

[Download our capabilities sheet](#)

SOURCES

1. National Law Review — [natlawreview.com/article/tsca-mid-year-update-what-has-happened-and-what-expect-2026-and-thereafter](https://www.natlawreview.com/article/tsca-mid-year-update-what-has-happened-and-what-expect-2026-and-thereafter)
2. New Market Pitch — newmarketpitch.com/blogs/news/synthetic-biology-startup-landscape

CAREERS

Join Converge Materials: Where Chemists, Biologists and Machine-Learning Scientists Build the Same Thing

We are building materials, molecules and the platform behind them, and we need people who work across boundaries.

Most companies put chemistry, biology and software in different buildings, with different goals and different clocks. We put them on one team, working on one loop, making real materials for demanding customers.

If you have ever felt that the most interesting problems live between your discipline and the one next door, this is the place.

What you would work on

- Making ultra-high-purity materials for semiconductor, energy-storage and pharmaceutical customers, with purification, trace analytics and scale-up in your hands
- Engineering enzymes and bio-based routes that replace hazardous or wasteful chemistry
- Building the platform: data infrastructure, lab automation, model operations and the tools our scientists use every day
- Teaching models to choose experiments, and finding out when they are right
- Taking a process from bench to pilot to production, with safety and quality designed in

Who we are looking for

Process and analytical chemists, who like the challenge of measuring what others cannot see.

Chemical and bioprocess engineers, who turn a lab procedure into a plant procedure. Scale-up experience is one of the scarcest and most valuable skills we hire for.

Molecular biologists, enzymologists and protein engineers, who want their work to reach production.

ML scientists with scientific grounding, who know why molecular data is small, noisy and biased, and build models that respect the science and say when they are unsure.

Research software and platform engineers, who turn notebooks into reliable systems.

Automation and controls engineers, who connect software to physical equipment safely.

Process safety, quality and regulatory professionals, who are how we earn the trust of customers and communities. They have real authority here.

Technical sales and business development, who can talk to a fab process engineer in their own language.

What it is like to work here

Three disciplines, one team. Our teams form around problems, so a project might have a chemist, an analytical scientist, a data scientist and an engineer working side by side. Chemists, biologists and software engineers work on different clocks, and we design our processes to respect that rather than pretend it away.

Software people see the plant. Bench people see the data. Engineers spend time in the lab.

Scientists get tools to explore their own data and interrogate what our models learned.

Safety authority is explicit. No schedule pressure overrides it. Reporting a near miss or a result you doubt is celebrated. Skepticism is a feature of good science, and even celebrated autonomous-discovery claims in the field have been formally corrected after outside review (IntuitionLabs^[1]).

We manufacture. Several well-known synthetic-biology ventures struggled because they lacked manufacturing experience early on (Manufacturing Chemist^[2]). We are building the opposite: a company where the people who scale things up are in the room from the beginning.

How we support your growth

- Dual career ladders, so senior scientists and engineers can advance without becoming managers
- Rotations and learning time to build fluency in the neighboring field
- Visible impact, with a clear line from your work to a customer or scientific result
- A culture where you can say "I am not sure" and change your mind

How we hire

We look for curiosity and range on top of depth. Expect a realistic problem, not a trivia quiz: interpreting messy instrument data, designing a screen, or validating a model on a small noisy dataset. We will also ask how you handle a near miss or a doubtful result, because we want people who raise problems early.

Open roles

- **Senior Process Chemist — Purification & Scale-Up:** own layered purification strategy for our etchant line, from pilot batches through production trains.
- **Computational Chemist — Active Learning & Molecular Design:** build the models that choose our next experiment, and keep them honest against prospective results.
- **Bioprocess Engineer — Fermentation & Downstream:** design fermentation and downstream purification together for our enzyme and bio-based chemical programs.

Do not see your role? Tell us what you would build.

[View open roles](#)

[Send us your story](#)

SOURCES

1. IntuitionLabs — intuitionlabs.ai/articles/self-driving-labs-pharma-rd
2. Manufacturing Chemist — manufacturingchemist.com/where-zymergen-went-wrong-a-biomanufacturing-perspective-for-synthetic-biology-204177