Special Profile

Founder, Chairman & Managing Director | INVENTYS Research For Good

Dr. Deepak Birewar

Redefining Green Chemistry Through **Engineering & Chemistry Excellence**

> The cleanest process is often the smartest, safest, and a profitable one. We strive to prove that — in tonnes, not theory.

Behind every life-saving medicine, crop protection solution, and advanced industrial material lies a chemical manufacturing process. For decades, these processes have often been associated with high energy consumption, material waste, and environmental impact, leading many to view sustainability as a necessary compromise rather than a competitive advantage. Dr. Deepak Birewar, Founder, Chairman and Managing Director of Inventys Research Company, has spent more than two decades challenging that assumption. Guided by the belief that “the cleanest process is almost always the smartest, safest, and most profitable one,” he has demonstrated that environmental responsibility and commercial success are achieved through scientific rigor, engineering excellence, and continuous innovation.

Through pioneering advancements in continuous flow chemistry, process intensification, and sustainable manufacturing, Inventys has transformed conventional chemical production into a model that delivers measurable value while significantly reducing its environmental footprint. His vision continues to prove that when chemistry is reimagined from first principles, sustainability becomes a powerful driver of innovation and long-term business growth.

QUESTIONING CONVENTIONAL THINKING TO CREATE A NEW INDUSTRY STANDARD

After nearly two decades in the global chemical industry, Dr. Birewar recognized that manufacturing was constrained by tradition rather than necessity — reliant on energy- and resource-intensive batch methods. To challenge this, he founded Inventys Research Company in 2005 on a core conviction: rethinking reaction pathways, reactor design, energy balance, and process integration from first principles could produce the same molecules with greater efficiency, lower cost, and a smaller environmental footprint.

This vision was proven through two defining milestones. First, the successful commercialization of continuous flow manufacturing demonstrated that sustainable chemistry could operate at industrial scale. Second, Inventys achieved net-zero carbon status in 2012 — well before sustainability became a mainstream industry priority — establishing a benchmark the company continues to uphold today.

A DIFFERENT WAY TO MANUFACTURE

At Inventys, sustainability is engineered into manufacturing rather than added as an afterthought. Under Dr. Birewar's leadership, continuous flow chemistry and process intensification drive the company's operations — reducing solvent use by up to 91%, cutting energy consumption by 90%, and achieving a 64-fold throughput increase within the same footprint.

Inventys' integrated manufacturing site — continuous flow chemistry engineered for consistent, commercial-scale output.

Moving deliberately away from commodity manufacturing, Inventys prioritizes long-term partnerships through a distinctive "one product, one customer" exclusivity model. To strengthen supply chain resilience, nearly 90% of its raw materials are sourced domestically within India.

This approach delivers proven operational excellence. Since 2011, Inventys has recorded zero lot rejections across 18+ commercial products and more than 5,000 tonnes of production. By embedding sustainability into every kilogram produced, Inventys earned the EcoVadis Gold Medal, placing it in the top 5% of companies assessed globally for sustainability performance.

INDEPENDENTLY VERIFIED RECOGNITION

GOLD | Top 5%
ecovadis
Sustainability Rating
JUL 2026

EcoVadis Gold — Top 5% Sustainability

FICCI
Best Green Process Award
Chemicals Petrochemicals
2022

FICCI Best Green Process Award, 2022

89 TOGETHER FOR SUSTAINABILITY

Together for Sustainability — Score 89

THE SCIENCE BEHIND RESPONSIBLE GROWTH

For Dr. Birewar, innovation, efficiency, safety, and environmental responsibility are not competing priorities but natural outcomes of sound engineering. He holds that when a process is fundamentally redesigned, it becomes safer, cleaner, more efficient, and more profitable simultaneously.

One example illustrates this philosophy precisely. By re-engineering a cryogenic lithiation process from –78°C to –10°C, Inventys achieved four significant improvements through a single engineering decision: enhanced employee safety, substantially lower energy consumption, reduced production cost, and improved operational efficiency. Rather than treating sustainability as an additional objective, the company builds it directly into process design.

This engineering-first mindset extends throughout the organization — from DCS-automated production blocks and safety integrated at the P&ID design stage, to a workplace culture in which every employee holds the authority to halt production over a quality or safety concern. Dr. Birewar has built systems in which growth strengthens responsibility rather than compromising it.

TURNING COMPLEX CHALLENGES INTO INDUSTRY BENCHMARKS

Among the many technological breakthroughs achieved under Dr. Birewar's leadership, one project best reflects his philosophy toward innovation.

His team was challenged to manufacture a complex chiral amino acid that global manufacturers typically produced at approximately 70% yield, relying on chiral separation agents that generated substantial waste. Rather than accepting these limitations as inevitable, the Inventys team systematically resolved more than 210 technical challenges before developing a process that achieved a 98% yield without requiring any separation agent.

The breakthrough dramatically reduced waste, minimized resource consumption, and improved overall manufacturing efficiency. More importantly, it reinforced one of Dr. Birewar's defining principles: "Waste is not a by-product. It is a design failure."

The same engineering discipline later enabled the company to expand the production capacity of another facility from 300 tonnes to 2,100 tonnes annually — a seven-fold increase within the same physical footprint — completing the transformation during a shutdown of just fifteen days.

FROM SKEPTICISM TO RECOGNITION

One of the greatest leadership challenges Dr. Birewar faced in the early years of Inventys was establishing credibility with global innovators. He set out to demonstrate that an Indian company could do more than manufacture chemistry cost-effectively — it could improve processes to make them cleaner, safer, and more efficient. Every early opportunity was earned by overcoming that skepticism. A defining turning point came around 2011, when he led the transformation of the company's quality systems and culture, laying the foundation for the zero lot rejection record that continues today.

The experience strengthened his conviction in patience and systems thinking. He views reputation as a long-term asset, built through every successful batch and every completed audit. For him, lasting credibility is earned not through promises, but through data and consistent performance delivered over time.

THE PRINCIPLES THAT EARN TRUST

Dr. Birewar holds that trust is earned over decades but can be lost through a single compromised batch. This philosophy has shaped every aspect of Inventys' culture and continues to guide the company's long-term success.

Quality remains non-negotiable, reflected in the company's zero lot rejection record maintained since 2011 through disciplined systems rather than chance. He also champions radical transparency, ensuring customers and regulators receive complete visibility into performance, quality metrics, and operational decisions. Equally central is his commitment to long-term partnership over short-term gain, supported by financial discipline through a debt-free balance sheet and continuous reinvestment in innovation.

By dedicating each manufacturing facility to a single customer's product, Dr. Birewar has built relationships founded on shared commitment, accountability, and trust — aligning the company's success directly with that of its customers.

PREPARING FOR THE NEXT ERA OF GREEN MANUFACTURING

Dr. Birewar foresees four structural shifts redefining chemical manufacturing: the "China Plus One" supply chain realignment; compliance becoming a competitive advantage as regulations tighten; Scope 3 sustainability increasingly driving partner selection; and continuous manufacturing becoming the standard operating model.

To prepare, Dr. Birewar is leading an ambitious expansion at Inventys. The company is scaling from approximately 105 to more than 360 commercial reactors, anchored by a new 90-reactor facility purpose-built for customer customization and capable of commissioning automated setups within six months of P&ID finalization. Inventys is simultaneously advancing its sustainability leadership — backed by EcoVadis Gold recognition and ongoing Together for Sustainability performance gains — while working toward a targeted U.S. FDA site inspection pathway by 2029.

Inventys' new Sites 2 & 3 (ready for product specific piping / automation) — Phase 1 adds 90+ reactors across specialty chemicals, hydrogenation, halogenation, and near-GMP and GMP capacity.

The expansion is engineered for rapid, customer-ready commissioning — scaling Inventys' commercial reactor base from ~105 to 360+.

RESEARCH WITH PURPOSE, RESULTS WITH IMPACT

For Dr. Birewar, sustainability is not a branding exercise but an engineering discipline measured through resource efficiency, energy savings, waste reduction, and economic value. Every improvement must be supported by measurable outcomes, demonstrating that operational excellence and environmental responsibility reinforce one another rather than compete.

He holds that regulatory compliance should represent the starting point, not the destination, of responsible manufacturing. True leadership, in his view, comes from voluntarily setting higher standards through innovation, scientific rigor, and continuous improvement. As industries worldwide seek cleaner, more resilient manufacturing solutions, Dr. Birewar remains convinced that chemistry itself is not the problem — it is the solution. Guided by this belief, Inventys Research Company continues to develop technologies that help build healthier industries, stronger economies, and a more sustainable future, under its enduring promise:

"RESEARCH FOR GOOD."