

“Commercial-scale chemical production at pilot-scale size and cost.”

CUSTOMER CASE STUDY

Oil & Gas Industry Solutions



Actual installation

TECHNOLOGY

INVESTMENT & DEVELOPMENT LLC

THE SITUATION. A premier global oilfield services company was experiencing cost pressures generated by high demand for its products used for completing unconventional shale oil wells. The supply of raw material inputs used to manufacture its products was becoming more difficult to secure and quality was inconsistent. The company was selling approximately 60 tonnes of product annually representing revenue of \$90 million, but was facing a substantial decline in profitability. Unfortunately, declining profitability of the business reduced the expected returns on additional capital investment, making it difficult to justify a capacity increase. Unable to pass price increases along to customers, the company was forced to either accept lower profits or seek an alternative.

THE SOLUTION. The oilfield services company implemented TID's proprietary Process Intensification solution – The CUBE chemical processing plant using our Inverse Emulsion Polymerization module. This solution enabled the company to integrate backwards into its supply chain, which improved access to raw materials, increased product quality and reduced business interruption risk. Importantly, the company opted to lease the plant and technology from TID, resulting in zero capital expenditure outlay to adopt and commission The CUBE, although the company did pay for mobilization and installation.

TID contributed its intellectual property for Automated, Continuous, Coaxial Kinetic, TID Micro-Pore + Cool Solvent and Process Intensification to generate 14 product lines and/or chemistry variants.

The time from signed contract to chemical IP delivery was 8 months, installation at the customer's site required 2 months and one month was needed for plant start-up and commissioning.

THE RESULTS. The customer realized \$13 million in annual savings from reduced raw material input costs, net of all royalty and licensing fees. Installation costs of \$270,000 were incurred to pay for ancillary equipment, installation and commissioning of The CUBE modular chemical processing plant. It took only 12 months from signed contract to realization of first raw material savings. The first-year Return on Investment is 4715%.

BUSINESS MODEL. TID earns an annual Use & License Fee of \$990,000 for providing the Process Intensification intellectual property, plus \$13,000,000 (50% of the total raw material cost savings of \$26 million, as measured by comparing actual costs to a mutually agreeable index).

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321.559.2916

1

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About Technology Investment & Development

OUR PROCESS

Our patented Process Intensification components, including Utilities, Kinetics, Catalysts and Control are the core of The CUBE modular chemical processing plant, and the technology behind the next revolution in chemical processing.

TID's is the first to bring a commercially successful Process Intensification breakthrough to market. Our proprietary technology produces in minutes what it takes traditional manufacturers to do in hours, in a relatively small space. The cost advantage can be significant, providing customers with the strategic flexibility to use the substantial savings to pursue a cost leadership strategy and increase market share or reinvest incremental profits back into growth initiatives.

WHAT IS THE CUBE?

Using patented process intensification technology (Kinetics, Utilities, Controls and Catalysts) Technology Investment & Development's Intensification Reaction CUBE is delivered as a complete chemical process, accepting raw materials and producing desired finished product(s). Its enabling commercial advantage is a disproportionate reduction in size (or footprint) compared to its rate of production.

Using TID's Process Intensification Core Technology, chemical rates of reaction increase by a factor greater than 10. This allows for an equal reduction in scale and footprint. The CUBE's smaller size and advanced computer sensors, monitors and control, allows for similar reductions in capital and variable costs, as well as headcount. Safety is improved and liability is mitigated. It is the only example of a large commercial-scale platform modifiable to be a zero-emission chemical-manufacturing solution available today.

WHY USE THE CUBE?

Managing precision while navigating the most complicated multi-step or phase reactions is where our Intensification Reaction CUBE is in its element. State-of-the-art data acquisition and process-automation systems algorithmically combine with R&D's concept to make even the most commercially challenging products feasible.

Like you, we consider safety our first priority. The advantage of a 1/10th scale operational footprint translates into the ability to more easily control safe environments. Safe engineering principles are at the core of every CUBE. Real-time situational awareness, environmental and operational control, and automated anticipation and prevention are the solutions for almost all safe operating situations. With this unit, human contact is limited, backup and containment systems are feasible, and all but the most extreme countermeasures can be process actuated.

For environmentally conscious customers, the Intensification Reaction CUBE's micro-footprint lends itself to the option of complete environmental control and (what we believe to be) the only zero discharge-based chemicals manufacturing commercially presently available.

CONTACT US TODAY TO LEARN
IF PROCESS INTENSIFICATION
IS A POTENTIAL SOLUTION
FOR YOUR COMPANY.

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2