

EXECUTIVE SUMMARY

Management:

Patrick Thompson, CEO
Klaus Allmendinger, VP, Signal Processing
James Steppan, PhD, VP, Sensor Engineering
Joe Fitzpatrick, Principle Engineer
Victor Wang, PhD, Dir., Materials

Industries: Automotive/Transportation,
Energy, Power Generation, Industrial

Investors: CoorsTek / 9th Street Capital



Development Status: EmiSense recently raised \$6.5 million in its third round of equity funding in March 2013. The company is using the funding to continue product development and support validation testing with global OEM customers. ***The company will select strategic commercialization partners by early 2014.*** Target partners include automotive Tier-1 suppliers with specific expertise in exhaust gas sensors and emissions/control systems. Proposed structure is supply of critical components (i.e., ceramics), and/or license of technology, including issued and pending patents, trade secrets, trade marks, and ongoing research and development support.

Background: Global markets continue to demand improvements in efficiency and emissions, and clean combustion exceeds all alternatives (solar, wind, etc.) in terms of practical impact on the challenges of energy, climate change, and air quality. High-efficiency combustion is enabled by improved control systems, specifically sensors, and thus smart sensors are the critical enablers of clean combustion (incl. natural gas, clean diesel, gasoline direct injection, bio-fuels, multi-fuel adaptability, etc.) ***Specific regulatory enforcement schedules in place for 2016-2020 create measurement and control problems that can be solved effectively by EmiSense products and technologies.***

Company Profile: EmiSense was formed from the combined assets and intellectual property of CoorsTek, Inc., North America's largest supplier of technical ceramics, and Innovate! Technology, Inc., a venture-backed startup in advanced signal processing, and inventor of the widely-used Direct Digital[®] zirconia sensor technology. ***EmiSense's patented technologies offer major advantages over existing sensor systems, including improved durability, lower costs, self-calibration and self-diagnostic capabilities, and faster response times.***

Products: The company's end products address the trends towards expanded continuous emissions monitoring and closed-loop combustion controls. Patented products include sensors for NO_x, PM (Particulate Matter), Oxygen, and Hydrocarbons. The company develops all required electronics, ceramics, and manufacturing processes for complete sensor systems, and delivers complete "blueprints" to partners. ***The company has executed validation testing with both OEMs & independent laboratories.*** For example:

- In recent testing at the Southwest Research Institute (SwRI) and with Ford Motor Company, PM-Trac[®] sensors demonstrated both high correlation with reference instruments, and improved durability when compared with competing approaches such as resistive accumulators.
- NO_xTrac[®] sensors demonstrated 2-ppm resolution with a simplified single-cell zirconia element.