

# Case Study: Ignite™ Success Story – Activated Carbon

## From Spark to Finish

Harper's Ignite™ process enables companies in the development of advanced materials, from the lab to full commercialization, helping make their ideas a reality. Utilizing our depth and breadth of experience in thermal processing, we partner with our customer to ensure success as they scale up their operations.



Harper's support to emerging industries begins in early stages of research and development, whether at corporate R&D centers, universities, government institutions, or start-ups. Our mission is to assist these customers in turning the next generation of material innovations into profitable new markets. Learn more about these success stories of customers who are paving the path of material science innovations.

## Activated Carbon Development

EnerG2 began working with Harper in 2009 on their energy storage materials as they refined and optimized their thermal processing regime. That work culminated in a key piece of equipment to enable their production scale operations for pyrolysis of activated carbon for ultra capacitors. EnerG2, based in Seattle, WA, USA, is focused exclusively on the development and production of advanced carbons for energy storage devices.



Harper's innovative furnace design enables EnerG2's unique requirement of producing very high purity material at temperatures to 1100°C. Metallic impurities are unacceptable as they could affect charge storage ability. The high temperatures and purity specifications necessitate exacting control of gas particle interactions. After process refinement sessions in our lab, Harper engineered the multi-line rotary system with specialty construction materials inclusive of a ceramic lined process area to meet the purity conditions, and balanced the need for a gas tight operation on the nitrogen atmosphere through its proprietary sealing technology.

The rotary system is now used at EnerG2's new facility in Oregon, the world's first dedicated to the commercial-scale production of synthetic high-performance carbon electrode material. The facility was made possible by a \$21.3 million Federal stimulus grant allocated by the US Department of Energy for makers of advanced automotive batteries and energy storage technologies.

## About Harper International

Harper is a global leader in complete thermal processing solutions and technical services essential for the production of advanced materials. From concept to commercialization, from research scale to full production line operations, Harper is perpetually on the cutting edge. For decades, we have pioneered some of the world's most innovative, customized systems, with a focus on processing materials at high temperatures and in non-ambient atmospheres. For more info, visit [harperintl.com](http://harperintl.com) or email [info@harperintl.com](mailto:info@harperintl.com)

