

## Research and Development

One of Rain CII's greatest strengths as a supplier of calcined petroleum coke (CPC) is our proactive and resourceful approach to meeting the challenges confronting the industry. The outlook for the availability of green petroleum coke (GPC) of sufficient quality to meet the aluminum industry's growing demand for CPC, remains very challenging.

Rain CII is at the forefront of addressing this challenge by developing and testing new GPC sources and much of this work is done in close collaboration with our customers. We have patented the use of shot coke to make anodes and are actively pursuing other patents which we expect to improve both product quality and efficiency. Our R&D work has now moved beyond testing GPC and CPC, and we are sponsoring R&D work to examine issues such as the impact of rising impurity levels on aluminum alloy properties.

CPC is a naturally heterogeneous material and the quality of GPC and CPC is gradually changing due to evolutions in the petroleum refining industry. It is very important for Rain CII to work closely with customers and suppliers to manage these quality changes – and we do.

No other calciner matches our commitment to the research and development that will help to offset emerging supply constraints by expanding the universe of anode-grade petroleum cokes and increasing process efficiencies.

**Rain is at the forefront of addressing  
the declining availability of anode grade coke**

## The R&D and Technical Services that we can provide to our customers and suppliers include:

- Provision of laboratory work on specific projects for customers.
- An active laboratory R&D program to develop new GPC and CPC sources for the industry and other technology-related improvements.
- Sponsorship of external R&D work to support in-house R&D activities.
- Initiation and management of industry-wide round robin programs.
- Organization of Carbon Symposiums which provide an opportunity to share knowledge on CPC- and anode-related issues.
- Publication of technical papers on issues relevant to the industry.
- Frequent participation and presentation at conferences around the world.
- Frequent customer visits with detailed quality and technical review meetings.
- Close dialogue with refinery suppliers supported by frequent visits and feedback on quality and technical issues.
- Audits of plant operations to identify potential improvement opportunities and provision of technical resources to identify and resolve quality and process inefficiencies.



**Rain CII**

Resourceful, Reliable, Responsible  
<http://www.raincii.com>

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We are investing in the aluminum industry's future. We're pioneering the use of non-traditional cokes in anode making, and we are continually enhancing the breadth and depth of our research.