

Cast iron to carbon contact  
pressure prediction

## CARBON CAPABILITIES

Now more than ever, it is essential to optimize and maintain sound carbon processes to produce high quality anodes for electrolysis. With the continuation of new smelter development, access to high-quality, low-sulphur coke is becoming increasingly difficult to obtain and aging equipment, not originally designed for increased throughput, are causing increased stresses on the stable production of baked anodes. The industry requires the knowledge and experience to sustain the best operating practices while providing effective and cost-efficient solutions.

Hatch Light Metals has widespread experience in designing and developing all aspects of the aluminum carbon plant process, from material handling improvements, to refurbishing existing anode bake furnaces. Our global knowledge of the process, combined with awareness of the best available technology, allow us to provide the best solutions to meet our clients' needs.

Hatch engineers have expertise in a wide range of Carbon Plant processes and related products including:

- Petroleum coke calcination and coal tar pitch distillation
- Raw materials quality, handling and logistics
- Carbon materials supplier quality system assessment
- Green mill process design and operation
- Liquid pitch handling and hot oil heating system design
- Anode baking furnace process design and operation
- Bake furnace refractory design, and installation best practice
- Rodshop process design and operation
- Bath recycling system process design and operation
- Carbon plant emissions control.



Bake furnace at Aluminerie Alouette

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**CARBON CAPABILITIES** CONTINUED

Hatch's strength lies in the ability to deliver accurate and timely information in assessments of studies. Our work helps determine process bottlenecks and redundancies, equipment constraints, and mechanical interferences and offers solutions to effectively optimize and reduce capital costs.

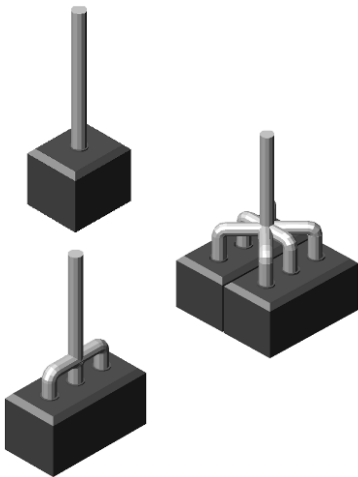
Hatch has successfully demonstrated expertise in all phases of project implementation, and has conducted a wide-range of studies. Recent and ongoing carbon plant engagements include:

- Operations analysis and de-bottlenecking studies at smelters in Canada, Europe and the Middle East
- Bake furnace refractory replacement projects in North America and Australasia, the most recent successfully completed in February 2009
- Rodshop layout optimization for proposed new smelters in Europe and Canada
- Applied modeling techniques for rodshops and bake furnace repairs (Arena).

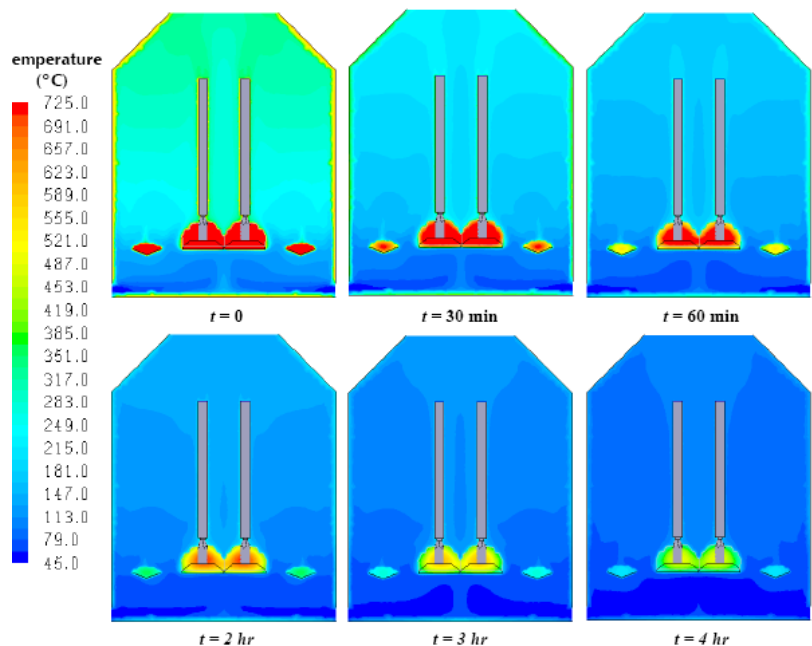
World-class modeling expertise paired with experience in the aluminum industry provides Hatch's clients with excellence in carbon plant engineering and timely and innovative solutions to improve process efficiency, and incrementally increase plant capacity.



Bake furnace flue wall interior



Various anode assemblies



Computational fluid dynamic modeling of anode cooling