Calcining and Energy

Calcined petroleum coke (CPC) may be created using rotary kiln, hearth, or vertical shaft technology. Although different techniques may be used, the conversion from green coke to calcined coke is a high-temperature process that alters the coke in three ways:

- Drying
- Release of residual hydrocarbons
- Densification

These are each accomplished as the coke is heated from ambient temperature to a finishing temperature of about 1350°C. Although initial startup of the process utilizes an external fuel such as natural gas or fuel oil, the vast majority of heat required to sustain the process after start-up comes from the in-situ combustion of the residual hydrocarbons inherent in the coke, and only oxygen is needed to maintain that combustion.

The high temperature generated within the calcining process provides a significant opportunity for energy recycling and conservation.

Energy recycling is accomplished by first causing the complete combustion of residual hydrocarbons and any solid carbon emerging as an exhaust from the calcination process, and then capturing this thermal energy in a heat recovery steam generator (HRSG). The resulting high pressure steam is used to generate electricity or to provide thermal heating for other industrial processes. This conserves the use of additional fossil fuels.

The combination of energy recycling with calcining therefore achieves the simultaneous benefits of CPC production and energy conservation.

For more information about how Rain CII is affecting the industry, visit our News & Publications page.

Read more about our Lake Charles energy project.

Only oxygen is required to maintain combustion in the calcining kiln after the initial firing.

The combination of energy recycling with our calcining achieves the simultaneous benefits of CPC production – and direct energy conservation.