



Power solutions

Significantly extend your power station
outage cycle time



Pyrotek[®]

why pyrotek?

Pyrotek® is a **global engineering** company supplying aluminium, steel, glass and power plants with **performance-improving** technical products integrated processing systems and consulting services worldwide.

Privately owned since 1956, Pyrotek offers industry-leading **technical expertise** and global resources with more than 60 locations in 35 countries.

Generation Causes Costly Deterioration

In coal-fired power plants, intense boiler temperatures of up to 1500°C (2730°F) instantly flash water to steam to create the pressure required to spin turbines to power generators.

Over time—often relatively short periods of time—that heat deforms and destroys the plant's stainless steel burner tubes and nozzles, boiler tubes and other components. Those stainless steel components are compromised due to heat warping, slagging and erosion and must be replaced.

This maintenance outage cycle can take many weeks to resolve and is costly in terms of time, materials and lost revenue.

Since coal-fired steam turbines and generators began turning in the 1880s, short outage cycles and the cost of replacement components have hindered the power generation industry. Even the most innovative materials and designs could not significantly improve outage cycles and replacement costs—until now.



New Innovation for a Long-standing Problem

Pyrotek has captured the strength and durability of Ceramite® and Ceraforte® ceramic materials to transform coal-fired power plant outage cycle times, in many cases tripling the lifespan of critical and costly high-temperature components.

Ceramite and Ceraforte components and linings are formulated for wear resistance, high mechanical strength and resistance to high temperatures and thermal shock. This enhances profitability by improving combustion, reducing maintenance schedules and has the potential to reduce critical carbon-dioxide and nitrogen-oxide emissions in power plants.

Deterioration of stainless steel burners results in inefficient combustion, declining performance and shorter outage cycles. Ceramite and Ceraforte ceramics can replace traditional, low-tech burner materials such as steel, alumina tiles and basalt within efficient, high-tech power plants. The inherent stability of Ceramite and Ceraforte components keeps combustion optimised for the full outage cycle. The result can mean much longer outage cycles and more environmentally-friendly power plants.



Photo by CSIRO



Proven Performance

Extensive testing and use in Europe, South Africa and the USA have demonstrated that Ceramite and Ceraforte components last significantly longer than those made with stainless steel. For example, Ceraforte burner tips do not distort over time. This optimises combustion over a much longer performance period. Ceramite burners do not warp or deform like stainless steel and are not as susceptible to coal particle erosion. Users have reported that burners in use for up to seven years have shown no distortion and little abrasive wear, compared to stainless steel burners that typically last about two years.

The Pyrotek Ceramite Difference

- High strength at temperatures up to 1100°C (2012°F)
- Gains strength as temperature increases
- High abrasion resistance
- High chemical resistance
- Monolithic casting that will not fall out—unlike tiles
- Applications include troweling, casting, gunned or sprayed
- On-site repairs are easier
- Complex shapes and sizes are possible when casting Ceramite

Cast Options

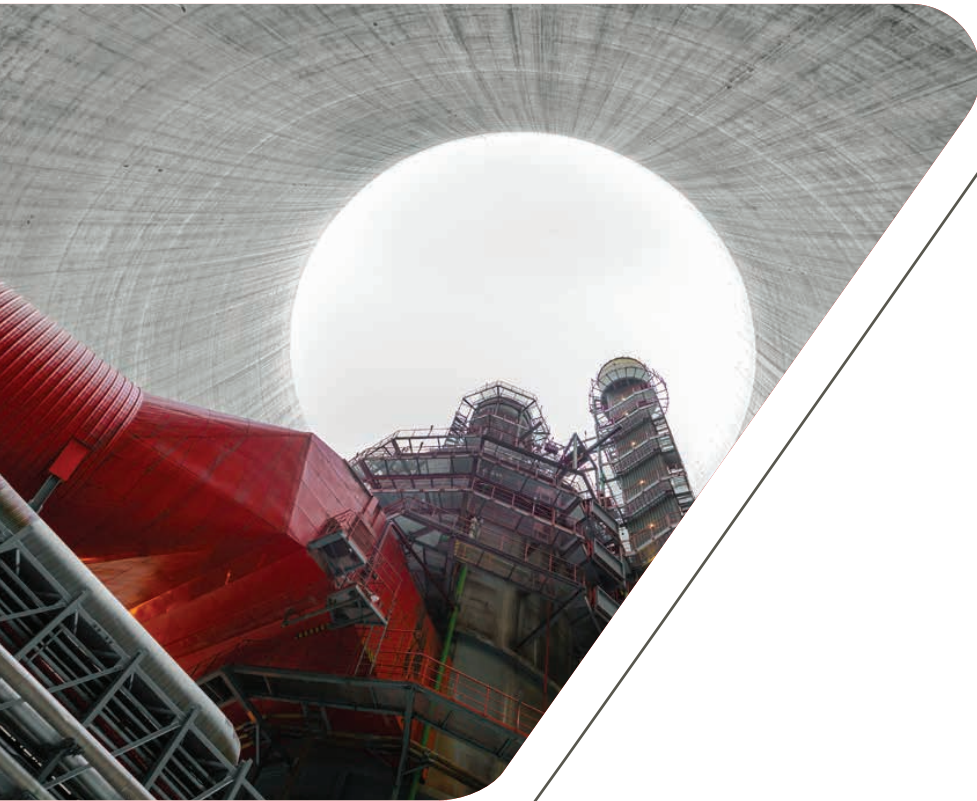
- Burner nozzles and tips
- Burner nozzle inserts
- Pipes and elbows
- Burner barrel protection sleeves
- Diffuser components
- Damper rods
- Protection plates
- Boiler tube wear protection
- Burner elbows and rope breakers
- Floor tiles
- Burner quarl protection



Ceraforte Burner Tips

- Maintains shape throughout life cycle—will not distort or deform like stainless steel
- Extremely resistant to particle erosion
- Lasts 2 to 3 times longer than fabricated steel
- Maintains burner efficiency throughout its life cycle
- Can be cast into any shape
- Excellent anti-slugging properties
- High tolerance to extreme thermal gradients





OOOOO

Pyrotek[®]