



Case History

Application: Intermittent Heat Treating Furnace

Operating Temperature: 2230°F Maximum

Emisshield® Product Used: Emisshield® ST-3 (US Patent 6,921,431)

The Furnace: This was a relatively small commercial heat treating furnace used to heat high alloy castings to a maximum temperature of 2230°F. This furnace was highly monitored and complete baseline performance data were available. At the time the coating was applied, all refractory substrates had seen extensive service. The sidewalls and hearth were mostly insulating firebrick with some refractory plastic repairs having been made. The crown was refractory ceramic fiber.

Application of Emisshield®: All broken pieces of refractory were removed and two baffle tiles were replaced. The remainder of the walls and hearth were vacuumed to remove construction dust, but no cracks or spalls were repaired. The fiber crown was vacuumed to remove broken fibers and dust. Emisshield® ST-3 was sprayed on to the walls and crown using a HVLP sprayer. The hearth was not coated.

Results after applying Emisshield®: After three months service, the furnace operator reported an average fuel savings of 15%. Burner cycling dropped from 25 to 30% active to 5-10% active. When inserting a cold load into the furnace, top temperature was recovered 30% faster, which allowed an additional 1 to 2 heats per day to be run, depending upon the length of the desired schedule hold. After coating, the temperature of the furnace shell was 30°F lower than before the coating was applied. The application of Emisshield® ST-3 to this furnace resulted in significant energy savings and improved productivity.



Before Coating

After Coating

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