



Case History

Application: Tempering Heat Treat Furnace

Operating Temperature: 1350°F/732°C

Emisshield® Product Used: Emisshield® ST-1 (US Patent 6,921,431)

Background: The interior of this furnace was coated with Emisshield® ST-1 to determine the various benefits of the coating. The furnace was lined with new ceramic fiber modules.

Process: Two identical furnaces were loaded with 1200 lb loads. One of the furnaces was coated on the interior with Emisshield® ST-1 while the other was left uncoated. Temperature readings were taken from both furnaces and are detailed in the below chart.

Results Taken from Temperature Graph:

Time	Uncoated Furnace (Temp)	Furnace Coated with Emisshield® ST-1 (Temp)
10:30 a.m.	200°F/93°C	200°F/93°C
11:00 a.m.	900°F/482°C	1000°F/538°C
11:30 a.m.	1050°F/566°C	1150°F/621°C
12:00 p.m.	1150°F/621°C	1250°F/677°C
12:30 p.m.	1225°F/663°C	1350°F/732°C
1:00 p.m.	1300°F/704°C	1350°F/732°C
1:30 p.m.	1350°F/732°C	1350°F/732°C

As seen in the above table, it took the Emisshield® ST-1-coated furnace one hour less to reach the operating temperature of 1350°F/732°C. This is a 30% decrease in time to temperature which results in an increase in production. The Emisshield® ST-1 furnace also cooled down faster than the uncoated, reaching 600°F/316°C in only 13 minutes versus 20 minutes for the uncoated. This is a faster cool down of 35%.

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