



Case History

Application: Precast Electric Furnace Delta

Operating Temperature: 2850-3000°F

Emisshield® Product Used: Emisshield® ST-2 (US Patent 6,921,431)

Problem: This customer was experiencing unusually low service life of precast, bauxite-based, ultra-low cement bonded deltas. The proximity of the delta to the steel scrap charge was such that arc flair was thermal shocking newly-installed deltas before they could sinter in service. Cracking resulting from this shock was responsible for average service lives of only 40 heats. A delta life improvement program was implemented and by upgrading the refractory to a coarse, silica-free, spinel-containing composition, average service life was improved to about 80 heats. Further service improvements were desired.

Results Using Emisshield® ST-2: Emisshield® ST-2 was applied to the hot face and to the electrode ports of precast deltas manufactured from the silica-free castable. No other change in refractory composition or processing was made. The set of coated trial deltas averaged 172 heats, more than twice the service of uncoated deltas. The Emisshield® ST-2 coating prevented the delta surface from being exposed to extreme temperatures early in the campaign. This prevented cracking due to thermal shock and allowed the delta to sinter and build strength during sustained service. Extended service life resulted.

C-17, 06/05