firebrick lining and to warn the furnace personnel about the beginning of the firebrick lining deterioration. The technique of definition of the optimum quantity and arrangement thermocouples in lining of the furnace hearth is made. The technique of determination of thermophysical properties of refractory materials according to the temperatures diagram at blowing-in of the furnace is developed. This monitoring system is established on five blast furnaces of metallurgical plants of China [1-3].

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**An in Situ High-Temperature X-Ray Diffraction Study of Phase Transformations in Maraging 300 Steel**

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The phase transitions in the maraging 300 steel were studied using high temperature X-ray diffractometry. Maraging are ultra-high resistant steels with Ni-Co-Mo-Ti presenting a broad range of application in key areas such as nuclear and aerospace industries [1]. Prolonged high temperature exposure would lead to the formation of equilibrium austenite and ferrite phases [2]. Solution annealed maraging 300 steel was continuously heated at a 10 ºC/min rate from ambient temperature until 900 ºC and X-Ray measurements were done at 25, 400, 500, 600, 650, 700, 800 and 900 ºC. Dilatometric curve at the same heating rate and temperature range were performed and the results were compared with high temperature X-Ray diffraction. The martensite to austenite transformation and vice-versa could be detected by both techniques, although the precipitation could be detected only by dilatometry, associated to low volume of precipitates to be detected by X-Ray diffraction. The effect of austenite reversion at 600ºC was also studied after at 1, 2, 3 and 4 hour of exposure, showing that the amount of reverted austenite is proportional of time exposure at high temperature.

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