CRM EAF model development, enrichment and industrial implementations

Jean-Christophe Pierret

CRM GROUP
Jean-Christophe.PIERRET@crmgroup.be

CRM developed a dynamic on/off-line model for the EAF process. As opposed to using statistically based calculations, the CRM model is based on a fundamental set of calculations based on thermodynamics and kinetics that takes dynamically into account furnace operating data. The purpose of the on-line application is to provide the operator with a better estimation of the melting state of the furnace and liquid steel temperatures to reduce the frequency of temperature measurements and increase the reliability of those taken. This in turn will enable lower tap temperatures and reduce energy consumption.
The model has been successfully used for off-line simulations of different furnaces and scenarios (e.g. various operating patterns). Its first on-line application was carried out at AM Esch-Belval (Luxembourg). Implementation at Dofasco plant (Canada) necessitate to enrich the model in order to allow large use of hot metal and installation at Lazaro-Cardenas plant (Mexico) required to allow 100% DRI feeding.