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Fuel gas operation management practices for reheating furnace in iron and steel industry

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A B S T R A C T

How to evaluate the fuel gas operation (FGO) of various working groups (WGs) and working shifts (WSs) in reheating furnace is still ambiguous problem. In this paper, a novelty time-series FGO evaluation model was proposed. The strategy mainly included: Firstly, the fuel gas per ton steel (FGTS) was calculated in certain time interval; Secondly, the FGTS time-series data set was formulated in statistical period; Thirdly, the FGTS time-series data set was divided according to working schedule; Lastly, the FGO evaluation model was established. Case study showed that: i) The fuel gas operation evaluation results of various WGs in different WSs were accorded with normal distribution; ii) For various WGs, A WG performed best, followed by C WG and D WG. The performance of B WG was the worst due to its violent fluctuation of fuel gas operation evaluation results in three WSs; iii) For different WSs, the day WS and swing WS performed well, whereas the performance of night WS was unsatisfactory. Discussion results showed that the improvement of working skills, working responsibility and working passion, which were effective measure to achieve energy saving in terms of operation, should be enhanced through skills training and the reward and punishment system. Generally, this novelty time-series FGO evaluation method could also be applied to other industrial equipment.

A R T I C L E I N F O

Keywords:
Iron industry;
Steel Industry;
Fuel gas operation (FGO) management;
Reheating furnace;
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