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锅炉过热器剩余寿命非等间隔灰色预测

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摘 要：为预测锅炉过热器剩余寿命，利用超声波技术对已运行12 a的某锅炉过热器管内壁氧化膜厚度进行无损测量，并以等间距时间序列为基础，把非等间距数列转化为等间距时间序列，进行1次累加生成处理，建立锅炉过热器剩余寿命非等间隔灰色预测模型GM(1，1)；利用锅炉过热器管内壁氧化膜厚度部分检测数据对锅炉过热器剩余寿命进行非等间隔灰色预测。研究结果表明：锅炉过热器剩余寿命非等间隔灰色预测结果精度高，该锅炉过热器剩余寿命至少还有3.7 a。

关键字：锅炉；过热器；剩余寿命；灰色预测

Non-equidistance grey forecast on residual life prediction of superheater in boiler

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Abstract: In order to forecast residual life prediction of superheater in boiler, the thickness of oxide layer in the inside surface of the pipes for bailer superheater that was working for 12 a was tested using ultrasonic technique. Based on interval sequence that is turned from a series of non-equidistance, a non-equidistance grey GM(1,1) model of residual life about superheater in boiler was established after accumulating procession. The residual life about superheater in boiler was forecasted based on non-equidistance grey forecasting theory using data of experiment from the thickness of oxide layer in the inside surface of the pipes. The results show that the precision of non-equidistance grey forecasting is high, and the residual life about superheater in boiler is no less than 3.7 a.

Key words:boiler; superheater; residual life; grey forecasting

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