

Study on automatic characteristic analysis and measurement method of high temperature corrosion metallographic image

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Abstract Metallographic images of high-temperature corrosion products are often difficult to accurately and quantitatively describe. An image processing and analysis technique is studied in this paper to provide new solutions for quantitative description. A new contour analysis algorithm is proposed to process the high-temperature metallographic images after gray processing and binarization to achieve the segmentation of the layers with slight differences in the images. From the metallographic images, the contour analysis algorithm can automatically obtain the contours of each layer and defect. The heights, areas, quantities and other characteristic parameters are efficiently calculated and counted according to the contour parameters using image processing techniques, which provides a basis for further improving the metallographic image detection method, researching the mechanism of high-temperature corrosion of metals, failure analysis, and preventing high-temperature corrosion accidents.

Keywords High temperature corrosion, metallography, characteristic analysis, automated image capture and measurement.

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