Application of PC in the Processing of V_2O_5 Production Data

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Abstract: This paper introduces the working philosophy and functional features of self-developed CDHG software and analyses some example trend diagrams and interrelation diagrams which are derived by means of processing main production data such as SiO_2 content in Cheng Gang's V-slag, preliminary slag grain size, total vanadium of preliminary grog, conversion rate, total vanadium of secondary grog, and total vanadium of secondary residual slag etc., so as to demonstrate the practicality and science research equivalent value of this method.

Key Words: PC processing, production data, V_2O_5, Cheng Gang, V-slag

1 Background

Our plant is a specialized plant in the production of V_2O_5 and V series products. Since its first operation in 1974, the plant has accumulated and collected a great deal of production data and experiences. In the past, the V-slag produced by South Africa, New Zealand, former Soviet Union, Pan Gang Steel Company and Chengde Steel Company etc., was ever used as raw material for the production of V_2O_5.

In 1995, Cheng Gang V-slag was used as raw material for the first time. Since then the Cheng Gang V-slag as a single source has been applied for production. The V-slag from Cheng Gang has its distinguishing characteristics. Due to the fact that various conditions for industrialized productions are quietly different from that in the laboratory, in order to find out how to evaluate the industrial application efficiency of slag and how to improve the slag efficiency under industrialized applications, it is absolutely necessary to sort out the industrialized production data and analyze them.

Production data are collected from original records at different sections of process flow routine and they are characterized with fluctuation and large quantities. As usual, these data were sorted out and analysed manually to calculate average values and qualification rate, but for more complicated analysis like interrelation analysis of two kinds of data and trend analysis, only a small portion of data could be dealt with manually. It was difficult to manually cover a large quantity of data generated through a long period of production. Additionally due to the fluctuation characteristics of production data, the single data or average values, which were acquired manually in a short duration, did not reflect the real overall situation. As a result, we chose PC solution to help process numerous production data. The CHDG application software was developed accordingly. The actual application of PC in processing the production data from 1997 to 1998 shows that relatively satisfactory efficiency has been achieved.

2 Working philosophy and functional features

When the V_2O_5 production data including raw material data and final product data are loaded