ANALYSIS OF PROCESS DATA FOR THE PURPOSE OF THE EXPERT SUPERVISION SYSTEM OF HEAT TREATMENT PROCESSES OF TITANIUM ALLOYS

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Abstract

The paper presents the problem of the analysis of data collected in the expert system of technological line of heat treatment of titanium alloys, focused on the development of control signals

and to define guidelines on process improvement.

Heat treatment processes of titanium alloys belong to the group of special processes, ie. the results are known only after their completion. Possible discrepancies may arise in operating conditions what in the case of aircraft type of production is not acceptable.

The process is carried out under the supervision of the key parameters, without the possibility of

assessing intermediate stages of the workpiece.

Comprehensive and reliable identification and appropriate to the needs analysis of the data is possible only in the case of a fully automated system. Equipping it with features inference emphasizes (highlights, enhance) its expert character.

Example presented in the paper concerns the exploration of the relationship between parameters of heat treatment of titanium alloys grade WT22 and properties of the product described by the strength properties, hardness and toughness.

It is important to refere these results to the weight and volume of the workpiece, including the location of the properties in the volume due to the different heating and cooling history of each area.

Because of the large number of parameters, experiments were designed to obtain a response to the desired change in their values.

Keywords: Heat treatment, titanium alloys, expert system, data analysis

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