

ABSTRACT

The master's thesis contains: 107 pages, 35 drawings, 20 tables, 2 applications, 33 sources.

Purpose and tasks of work. Design and simulation of a computer-integrated system for modeling the high-temperature oxidation of porous cobalt. The interaction of the cobalt surface with the active molecular gases was investigated, leading to corrosion phenomena within pre-diffusion processes in extreme conditions of operation, at extremely high temperatures.

Object of research. Computer-integrated system for simulation of porous cobalt oxidation under non-isothermal conditions.

Subject of research. Development of a computer-integrated research system in solid-gas (cobalt-solid) under extremely high temperatures.

Research Methods. During the study of the processes of high-temperature oxidation of porous cobalt, an experimental study of the process was carried out, a model of the mechanism was proposed and solved, a software product was written using the JavaFx package, and a startup project was developed. A systematic approach, empirical and theoretical methods (observation, measurement, modeling, forecasting, forecasting verification) were used.

COMPUTER-INTEGRATED PROCEDURE, MODELING, IDENTIFICATION, NUMERICAL METHODS, POROUS COBALT, OXIDATION, NON-ISOTHERMAL CONDITIONS.