

OPTIMIZATION OF THE PROCESS OF METHANOL AIR REFRIGERATION AND CONDENSATION AT THE SYNTHESIS STAGE IN THE METGANOL PRODUCTION

Korobkov M., Tselishchev O., Barvina N.

Volodymyr Dahl East Ukrainian National University

Modern chemical-engineering industries should be characterized by high efficiency and productivity. This can be achieved by the production processes optimization, for example, by optimal control of the process.

The methanol production refers to the main productions of the chemical industry. It is a heavy tonnage, nonstop production with the complicated technological scheme. The technology is characterized by the high tem-

peratures, pressure and multi relations of the processes parameters. Searching effective parameters of the influence on the methanol synthesis process and ensuring its stable operation in the optimal mode is a very important task.

The aim of this work is the optimization of the process of methanol air refrigeration and condensation at the synthesis stage in the methanol production.

To achieve this goal it is necessary to solve the following technical problems:

- analysis of refrigeration and condensation unit of methanol as a control object;
- mathematical simulation of the air refrigeration process of the methanol synthesis stage;
- construction of the refrigeration unit control system.

The object of the investigation is the refrigeration and condensation stage of the methanol production synthesis. The subject of the investigation is the refrigeration unit control system.

The investigation methods.

A mathematical model has been developed by using computer simulation method based on the heat balances of the air refrigerators. The investigation of the control system operation has been carried out by a method of the simulation modelling on the computer with the use of SCADA – Trace Mode VI system.

References:

1. General chemical technology. In 2 parts /I.P. Muhlenov, A.Y. Averbooh, E.S. Tumarkina and others. Under the editorship of I.P. Muhlenov – M.: Higher school, 1984. – 256 p.
2. Stentsel Y. I. The automation of the chemical productions technological processes: Study guide. – K.: ISDO. 1995. – 360 p.
3. Stentseel Y.I. Mathematical simulation of the technological control objects. Study guide. – K.: ISDO, 1993. – 328 p.
4. Zhuravlyova A.V., Panarin A.V., Petrov D.Y. СЖуравлева А.В., Панарин А.В., Петров Д.Ю. Construction of the integrated automated systems of an enterprise control //An enterprise control in the TRACE MODE system: Theses for the XII international conference. – M., 2006. – P. 65-70.