ANALYSIS OF SELECTED ISSUES OF ENTROPY

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The purpose of research - analysis of entropy for equilibrium and non-equilibrium processes and the assessment of the degree of entropy generation.

Materials and methods of research. Analysis of entropy within the framework of classical thermodynamics is given in a number of works, among which we should highlight authors: R. Becker, AA Gukhman, AF Bulendra, Prigogine. However, it should be noted that issues such as LAN Combined entropy generation minimum entropy, Gibbs free energy, and others. Could not find a proper presentation.

The method of investigation is based on the main provisions of phenomenological thermodynamics.

The results of research. The evolution of an arbitrary state to an equilibrium state occurs as a result of irreversible processes. In equilibrium, these processes are terminated. Thus, the non-equilibrium state can be defined as one in which irreversible processes are forcing the system to evolve to a state of equilibrium.

Undoubtedly, the statement that the entropy production in every part of the system caused by an irreversible process - a positive value, is more stringent than the classical formulation of the second law (entropy of an isolated system can only increase or remain unchanged). Note that the second law of thermodynamics in this formulation does not require the system to be isolated. This is true for all systems independently of the boundary conditions.

The evolution of an arbitrary state to an equilibrium state occurs as a result of irreversible processes. Temperature in all parts of the system in this state, it is the same.

Entropy covers all aspects of the transformation of matter, changes of energy and chemical potential. All processes are non-equilibrium and the degree of deviation from the equilibrium state are determined by the size of the

generation of entropy. Covered individual Affairs (local entropy production; minimum entropy production and the principles of the free energy, entropy of nonequilibrium thermodynamics, the entropy of the phase systems, etc.) That are important for the analysis of modern natural phenomena. The results of studies make it possible to more accurately determine the basic characteristics of entropy.