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OXYGEN GENERATION SYSTEM ON THE BASIS OF ELECTROLYSIS OF AN ALKALI AQUEOUS SOLUTION

Abstract

The Electron-VM Oxygen Generation System (OGS) is the main source of oxygen for the crew of the International Space Station. The oxygen produced by the system meets all the medical-technical requirements of oxygen supplied to the human breath. This system is based on the electrolysis of water from the aqueous alkali solution in the electrolyzer with a circulating electrolyte. Since the launch of the Russian segment of the ISS eight main unit, which is a Liquid Unit, were operated in the OGS. PURPOSE to generalize results of operation of system onboard, and to develop recommendations for creation of new generation of the oxygen generation systems for the autonomous manned interplanetary spaceflight. In the paper results of comprehensive analysis of the off-nominal situations arisen at operation of system onboard station and its operating considering feature. The analysis of tendencies of development of the OGS for interplanetary space - flights is lead in view of restrictions and the requirements of their installation to structure of the Integrated Life- Support System (ILSS). APPROACH is based on the combined results of the analysis and experimental testing ground and a long-term operating of the OGS on the basis the electrolysis of water from the aqueous alkali solution, as well as on the results of the analytical analyzing published work in this direction. CONCLUSION: 1.Results of long-term operation of the OGS on-board ISS are examined. 2. The basic restrictions and requirements for new generation OGS development are formulated. 3. Key technologies for its creation are certain.