

SPACE PROPULSION SYMPOSIUM (C4)
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ANALYTICAL STUDY RESULTS OF GREEN PROPELLANT APPLICATION POSSIBILITY IN
LANDING MODULE AND SPACE TUG ENGINES**Abstract**

Storable propellants such as UDMH, MMH, NTO etc. are commonly used in spacecraft and space tug propulsion systems today. Most of these propellants are not only toxic to human but also are strong environmental contaminants. The DU802 propulsion system developed by Yuzhnoye SDO for the Krechet autonomous space tug of the joint Russian-Ukrainian Dnepr LV is no exception. The application of such propellants has a number of significant advantages (long-term storability, auto-ignition, reasonable specific impulse values, efficient combustion chamber cooling etc.), though it complicates testing and other operations in ground conditions. This paper presents an analytical study of green propellant (hydrogen peroxide + kerosene RG-1) application possibility in DU802 propulsion system. The study includes analysis of different fuels by efficiency, storability and ecological compatibility criteria, estimation of design changes and main parameters of DU802 propulsion system operating on new propellants.