

SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND
DEVELOPMENT (D3)Systems and Infrastructures to Implement Future Building Blocks in Space Exploration and Development
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CRYOGENICS: GREENING OUT WAY THROUGH DEEP SPACE EXPLORATION.

Abstract

Go green!! This phrase is applicable to the space industry as well. With NASA now embarking on its human missions project, how will they fuel the deep exploration rockets long term? One efficient practice is through the use of cryogenic fuels. These super cold fuels such as liquid hydrogen and liquid oxygen are the ideal solutions when contained in extremely cold environments. These Cryogenic fuels can be thought of as “green fuels” even in space. When hydrogen and oxygen combine as a mixture, they yield water. If there will ever be “fuel stations” in space, cryogenic fuels will deliver high efficiency. Even with their complexities, they are greener, safer, and cheaper than many other fuels options. The environmental advantages of cryogenics such as eliminating the use of fossil fuels are benefits as to why these fuels are the smartest way to go. Costs will be cheaper when we deviate from a barrel of oil. Currently cryogenic propellant storage maintains loss rate below 3