IAF SPACE PROPULSION SYMPOSIUM (C4)
Liquid Propulsion (1) (1)

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LCH4 SUPPLY SCHEME FOR ENGINE TEST FACILITIES AND LAUNCH PADS

Abstract

In the context of launchers evolution (ariane 6 next, vega e ...) and with a goal of cost reduction, many agencies including cnes are investigating liquid Oxygen / Methane propulsion. in Europe, several lox\ Methane demonstration engines are being studied and will require qualification tests, as well as modifications to the launch pad infrastructure. a space quality liquid methane supply scheme will have to be put in place. Since the direct use of liquefied natural gas is currently not possible due to sulfur compounds which are not compatible with propulsion engines, other logistical schemes have to be implemented.a particular focus on advantages of bio methane will be presented as an alternative of lng or grade a lch4. This presentation will review the different alternatives for supplying space grade liquid methane to engine, covering production, purification and transport aspects, availability of propellant and environmental impacts. The presentation will be based on the solid experience of Air Liquide group in the field of lng. In particular, its subsidiary Air Liquide Advanced Technologies is proposing turnkey solutions for the purification and liquefaction of biogas as well as methane re-liquefaction onboard transport vessels. The group is also involved in large-scale lng logistics.