

LE LOX MÉTHANE : L'AVENIR SERA VERT / LOX METHANE: THE FUTURE IS GREEN

Dr. Gerald HAGEMANN

*Directeur Launcher Propulsion Operation à Airbus Defence & Space
Vice President Launcher Propulsion Operation, Airbus Defense & Space*

Résumé / Abstract :

Methane is a "green fuel" option for launcher propulsion applications, as it offers "neutral-emission" potential if produced through environmental friendly process such as bio-reactors or synthetically through hydrogen and carbon dioxide.

The LOX/Methane propellant combination offers a reasonable potential for achieving affordable access to space, either via low cost expendable launcher designs or via reusable propulsion systems and vehicle stages – and as such it has recently gained worldwide interest.

Motivated to exploring this potential, Airbus Defence and Space / Airbus Safran Launchers have been and are investing in a set of liquid rocket propulsion pathfinder demonstrators to gain know-how and to progress on technology readiness level. This interest addresses various space transportation applications, e.g. propulsion for launch vehicles and suborbital vehicles, reusable stages, space exploration propulsion modules...). Main components of a LOX/Methane engine demonstrator (thrust chamber, turbopump and gas generator) have been designed and manufactured with emphasis on reusability and design-to-safety (man-rated).

The presentation will highlight the benefits associated with the LOX/Methane propellant system especially in the context of other hydrocarbon propellants such as Kerosene, outline in brief some key activities already performed in Europe and beyond, discuss aspects of vehicle staging, engine performance, component design features, as well as economical aspects related to cost and reusability.

A status of hot fire component testing will be presented and an outlook on ongoing and future in-house initiatives will be given.

Carrière en bref / Career in brief :

Vice President, Airbus Defence and Space, Space Systems, Operations.

Head of Propulsion (act.).

Head of Launcher Propulsion Operations.