

GRASP

Green Advanced Space Propulsion

LET'S MAKE SPACECRAFT GREEN

Space research generates technologies which can be used to monitor the Earth and its environment. However, space missions pollute when launched. The project GRASP aims at developing Green Propellant, which can contribute to making spacecraft more environmentally friendly, whilst securing independent European access to space.

Independent access to space is a strategic objective for Europe in pursuit of scientific progress, vital in the 21st century knowledge-based society. However, environmental concerns increasingly shape behaviour, and rightly so. Tomorrow's space missions should be conducted with respect for the environment. So, let's make spacecraft greener.

Today spacecraft propulsion heavily relies on toxic and carcinogenic hydrazines as propellants. These **propellants are a threat to people and the environment**. Moreover, handling them requires costly safety measures.

In recent years, new technologies have emerged which hold the potential to improve this situation. Today **Green Propellants herald improvements** with respect to both performance and cost.

Hence the goal of the GRASP project is to select the most promising green liquid propellant candidate(s), and to push the propulsion technology to the level needed to prove that Green Propellant technology is feasible and competitive.

Whilst production of Green Propellants might contribute to making spacecraft more environmentally friendly, Europe also needs to develop a reliable independent source of propulsion components to secure strategic non-dependence and **independent access to space**.

In Europe, research and development on Green Propellants and propulsion technology is geographically fragmented. This project brings together some of the keyplayers in Europe to reduce this fragmentation, pooling joint capabilities to meet this demanding goal.

Across all sectors of our economies, **reducing emissions is an environmental challenge, but also an opportunity**. Such efforts enhance technological development and improve efficiency. Indeed, developing a Green Propellant for the benefit of our environment, which is also more effective, secure and reliable, represents a European challenge that carries immense opportunities.



CARSTEN SCHARLEMANN
IS PROJECT COORDINATOR

QUESTIONS & ANSWERS

What do you want to achieve with this project?

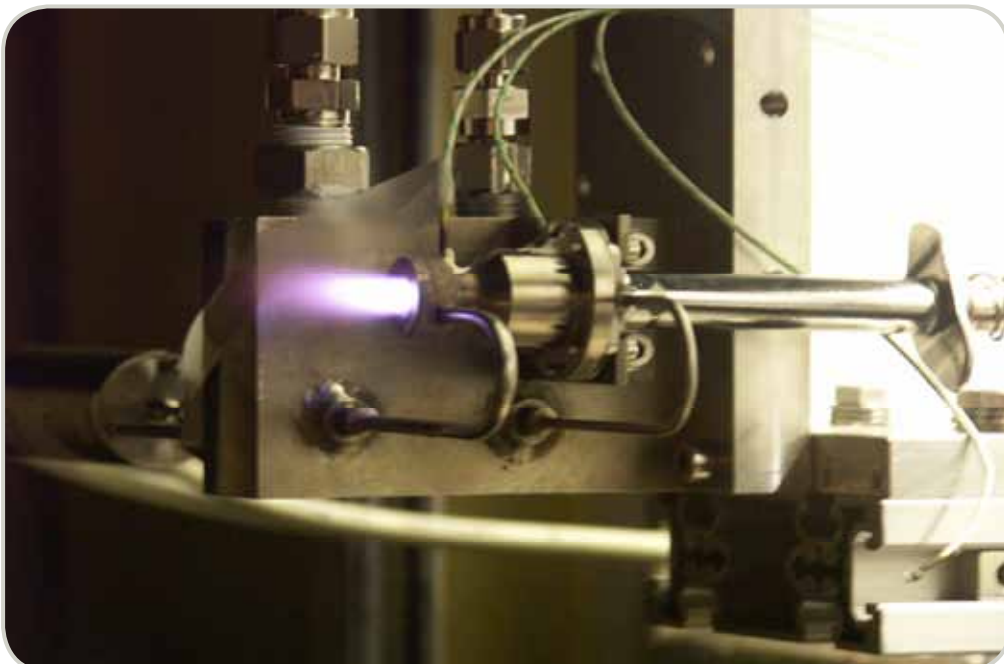
One significant cost factor of space missions is the propellant and its handling respectively. GRASP will investigate advanced propellants which potentially significantly reduce the associated costs and therefore strengthening the competitiveness of Europe's space industry.

Why is this project important for Europe?

The European space industry provides essential services to the European citizens. To ensure their ability to do so in the future, efforts are necessary to provide this important industry with the tools to respond to the ever increasing challenges of future space missions.

How does your work benefit European citizens?

GRASP has a significant potential to reduce the costs associated with propellants by replacing the toxic and carcinogenic propellants presently used. This will support the European Space Industry in providing essential services to the European citizens in the future.



Miniaturized 1N bipropellant thruster operating with Green Propellants.
Source: © GRASP

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LIST OF PARTNERS

- Austrian Research Centers GmbH - ARC, Austria
- Totalförsvarets forskningsinstitut (FOI), Sweden
- University of Southampton, United Kingdom
- Centre National de la Recherche Scientifique (CNRS), France
- DELTACAT Ltd., United Kingdom
- Università degli Studi di Napoli Federico II, Italy
- Deutsches Zentrum für Luft- und Raumfahrt (DLR), Germany
- Evonik Degussa GmbH, Germany
- SNECMA SA, France
- Céramiques Techniques et Industrielles (C.T.I.), France
- Instytut Lotnictwa, Poland

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PROJECT INFORMATION

Green Advanced Space Propulsion (GRASP)

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www.grasp-fp7.eu

