

Producing water on the Moon is now a reality

A collaboration between Politecnico of Milan and OH B Italia within the ISRU Project of the European Space Agency

Milan, 5th May 2021 - Water production on the surface of the Moon is now feasible thanks to a chemical-physical process that allows oxygen to be extracted from regolith (lunar sand).

The experiments were conducted by the **Politecnico of Milano** and **OH B Italia** as Prime Contractor, in the frame of the **In-Situ Resource Utilisation (ISRU)** Demonstration Mission, a program of and funded by ESA, the European Space Agency, with the strong support of ASI, the Italian Space Agency.

ISRU (In Situ Resources Utilization) project is working on a long-term programme for human colonisation of the Moon and involves in situ usage of lunar resources.

The research team, led by Professor Michèle Lavagna, used a prototype system built and installed in the laboratories of the Department of Aerospace Science and Technology at the Politecnico, thanks to the different competences available at the University and the integration capabilities of OH B Italia.

The system powered with sand simulating polar lunar soil, produced the expected amount of water, extracting oxygen from the oxides present in the minerals of lunar surface. The thin layer of dusty sand that covers the Moon contains minerals that are also found on Earth, allowing the use of chemical transformation processes known from terrestrial industrial applications.

The ability to produce water in situ and therefore oxygen and hydrogen, is a key step for future human missions to our satellite, as these are fundamental elements for sustaining the life of a crew for extended periods. This production capability also frees future lunar bases from the use of open-loop systems that require continuous refuelling from Earth, simplifying logistics and reducing the costs of transporting materials.

*"The result obtained by Politecnico of Milano and OH B Italia," says **Michèle Lavagna of Milan Politecnico** - "opens up exciting new perspectives in the field of lunar exploration and a permanent and sustainable human presence. It is a process that has innovative elements exclusively developed in Italy that places our Country in a position of international relevance in the scenario of upcoming extra-terrestrial human exploration activities."*

*"In order to travel into Space and build living bases on the Moon and Mars, we need to create technologies that are ready to support human presence on-site." stated **OH B Italia's CEO, Roberto Aceti** - "Producing oxygen in the lunar environment demonstrates how a close collaboration among science, university, research and business can lead to the development of an industrial product with the highest technological value, able to change the scenario of our future, as well as reconfirming Italy's space expertise on the world stage."*

About OH B Italia:

OH B Italia S.p.A. is part of the European Space and Technology Group OH B SE (*Orbitale Hochtechnologie Bremen*), listed on the Frankfurt Stock Exchange.

It is one of the three top space companies in Europe with 3.000 employees worldwide and total revenues for EUR 901 Mio. in 2020.

OH B Italia S.p.A. was founded in 1981, nowadays In Italy it is one of the two major satellite system integrators with more than EUR 150 Mio. backlog and EUR 104 Mio. revenues in 2020.

It is a recognized national leader in the fields of Satellite&Missions, Earth Observation, Space Situational Awareness, Electronics&Mechanisms, Scientific&Planetary Instruments, with headquarters and Clean Room facilities (730 sqm) in Milan and offices in Rome and Benevento. OH B Italia S.p.A. provides innovative solutions combined with development / integration of complex equipment and a strong focus on customer satisfaction. The company employs 210 people between staff and collaborators, with a high percentage of graduates (78,5%) whose degrees are mainly in Aerospace Engineering, Math, Physics, Electronic Engineering and IT.

OH B Italia S.p.A. is Prime Contractor for important missions of Italian Space Agency (ASI) and European Space Agency (ESA), which are the main customers together with Research Institutes, Universities and all the industrial key players in the space market, with special attention to export domain.

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