ESA TECHNOLOGY BROKER DEUTSCHLAND

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Category: **Materialien und Verfahren**
Reference: **TD252**

Wall#E – Integration of energy storage functionalities into fiber reinforced spacecraft structures

Description:

The idea behind Wall#E involves integrating energy storage functions into the support structures of spacecraft, which will significantly reduce the mass and volume of satellites without sacrificing performance. To this end, the project utilizes fibre-reinforced structures infiltrated with innovative solid-state battery materials. While the project's initial focus is on satellites, the underlying concept can easily be adapted to launch systems, space stations, and ground-based e-mobility applications.
Spin-off potentials do exist in various fields, such as automotive industry, mobile devices, or medical research.
Expertise behind the offer bases on the research of the working group which encompasses satellite technology, satellite operation, and exploration

Innovative Aspects:

The idea involves integrating energy storage functions into the support structures of spacecrafts, which will significantly reduce the mass and volume of satellites without sacrificing performance. To this end, the project utilized fibre-reinforced structures infiltrated with innovative solid-state battery materials.
Thus, there would be a sufficient energy density without compromising the structural integrity of the components. While this project's initial focus is on satellites, the underlying concept can easily be adapted to launch systems, space stations, and e-mobility applications.

Space Heritage:

The technology provides the opportunity to the integration of battery materials in spacecraft structures. This efficient space usage of material may lead to a volume reduction of up to 25 %.