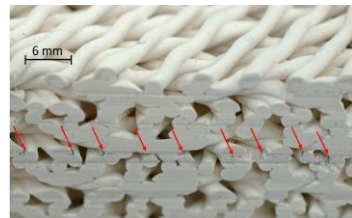
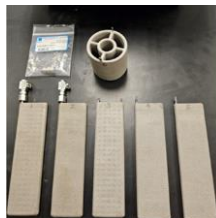


The Next Step in Space Technologies

Justine Richardson

CLDP Utilization Forum

23 January 2025



Advanced heaters: Water Titanium heat pipes and embedded wire heaters. (Woods ICES-2024-100)

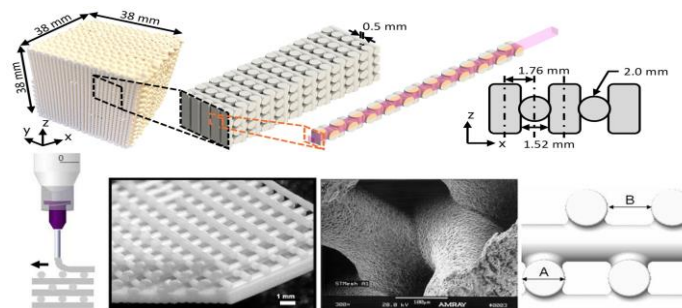


Using Piezo electric to remove water from fecal matter, for laundry, and water recycling. (Bigalow ICES-2024-287)

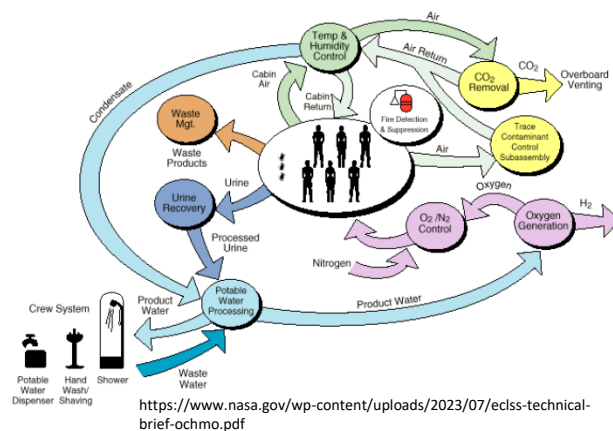
Multifunctional Devices (MultiSORB)

Advantage:

- Custom shapes
- Controllable formulation
- Improve heating

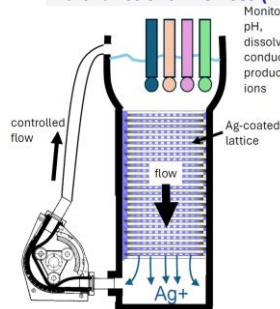


Multifunctional Sorbent Prints for CO₂ removal and storage (Agata ICES-2024-346 and Cerano ICES-2924-275)



Using machine learning techniques for conducting literature search and trade studies and knowledge capture and graphs,

Multifunctional Devices (MultiSORB) Silver Dosing



Design of Test Set-up

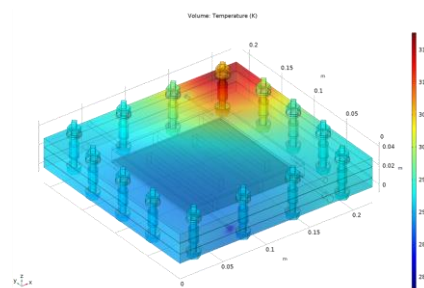
Measure Ag⁺ production in distilled water as a function of

- Flow rate
- Dissolved Oxygen
- Time

Results will be used to design a system that can be used in gravity-free space



Developing a "safe" amine for use in spacecraft for both air revitalization and water recycling (De La Cruz 2020)



Hydrogen Peroxide Generation Modeling using COMSOL and ASPEN

References to :Tra-My Justine Richardson slide

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