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Author: Ms. Ilaria Locantore
Thales Alenia Space Italia, Italy, ilaria.locantore@thalesalieniaspace.com

A NEW WATER MANAGEMENT SYSTEM FOR ISS URINE AND CONDENSATE

Abstract

Looking at future space exploration missions, needs and requirements for water management technologies are more challenging: higher reliability and maintainability and lower power consumption, expendables, chemicals and wastes with respect to what currently available on the International Space Station. Based on a strong research and development heritage, a new water management system for wastewaters regeneration has been designed and tested in laboratory environment with successful results. It combines physical and chemical processes, and the produced concentrated brine is of suitable composition as feed for bio-regenerative systems including algae or bacteria biomass production, having in mind the ESA MELiSSA closed loop system. Possible coupling with an air revitalization solution would imply significant mass and volume savings in future ECLS systems.