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RESEARCH ON URINE PROCESSOR ASSEMBLY PRECIPITATION CONTROL DESIGN

**Abstract**

In order to reduce the resupply from the ground, recovering water from urine is critical for supporting larger crews aboard the space station. Urine and flush water is collected and mixed with sulfuric acid to stabilize the urine and control microbial growth. With the water evaporated as well as the remaining fluid concentrated during urine process, precipitation will occur when water recovery percent achieves a limit. By chemical analysis, the precipitates most are calcium sulphate. For improving water recovery percent and avoiding the damage of precipitates to system components, necessary designs should be added in urine process to slow down the precipitation occurring rate. Also, some specific details should be emphasized during the development of Urine Processor Assembly. This paper simply analyzes and calculates the urine precipitation process, and discusses the Urine Processor Assembly design on control precipitate control.