

Studies on the treatment of urine by the biological purification-UV photocatalytic oxidation

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The water-consuming amount in a long-term astro-navigation is large. In order to reduce the burden of water supply from Earth ground, the space station needs to resolve the problems of water supply. For this reason, the recovery and regeneration of urine solution of spacemen, and its utilization possess a key importance. Many investigations on this aspect have been reported. Our research based on “biological absorption-purification-UV photocatalytic oxidation” techniques with a relevant treating equipment that for a comprehensive treatment to fresh urine of spacemen has been created.

In this equipment, the urine solution was used as the nutrient solution for the biological parts in ecological life ensurant system, after absorbing the nutrient, it was decomposed, metabolized and purified in some distance, and created a favorable condition for the follow-up oxidation treatment by UV-Photocatalytic Oxidation. After these two processes, the treated urine solution reached the GB5749-85 standard of water quality.