SPACE LIFE SCIENCES SYMPOSIUM (A1)
Life Support and EVA Systems (6)

Author: Dr. Qiujun Xing
China aerospace science & industry corporation, China, silviaxing@gmail.com

Prof. Chengjian Zhao
China Astronaut Research and Training Center, China, hywang1974@gmail.com
Mr. Sanzhou Wang
China, silviaxing@gmail.com
Mrs. Shanshan Yu
China, silviaxing@gmail.com

RESEARCH ON DISTILLATION EXHAUSTS PROCESSING BASED ON CATALYTIC OXIDATION TECHNOLOGY

Abstract

During space station urine recycle process with Vapor compression distillation technology, the ammonia and other volatile organic compounds discharged directly into the cabin, will do damage to the cabin environment. Catalytic oxide process is regarded as a promising technology to control emissions, especially to low concentration, larger humidity waste gas. In this paper, a kind of energy-saving, high efficient catalytic oxidation reactor was investigated. The catalyst of the precious metal as the active component was selected. Ammonia as the representative pollutants of urine distilled gas was studied in the test. Also, a lot of experiments were taken mainly around the power consumption, oxygen consumption, and purification efficiency of catalytic oxidation reactor. The results show that the purification effect is good, the structure of the reactor design is reasonable, reached the purpose of energy-saving and efficiency.