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INVESTIGATION ON CO<sub>2</sub> REMOVING TECHNOLOGY FOR ENVIRONMENT CONTROL AND  
LIFE SUPPORT SYSTEM IN MANNED SPACE STATION

**Abstract**

CO<sub>2</sub> removing technology is one of the key techniques for environment control and life support system in manned space station. Four-bed zeolite method is considered to be the most suitable used in space station by comparing with several other regenerative methods for removing CO<sub>2</sub>. In this paper, a device for this method is designed, mainly including two drying beds, two adsorption beds for CO<sub>2</sub>, one cooler for air/water heat exchanging, six directional control valves, two check valves and one fan. The maximum gas purification rate for this device can reach 4kg/d and the maximum gas loss is 80g/d. The partial pressure for CO<sub>2</sub> is no more than 0.7kPa. Furthermore, the working principles of main components such drying bed, CO<sub>2</sub> sorption and desorption system, recycle pump and various sensors are introduced in detail.