

Catalytic Air Purification System

Researchers at the University of South Florida have developed an air recirculation system which removes deleterious materials from the air by volatilization.

In a closed space such as one found in a spacecraft, aircraft, or submarine, the air is recycled through a filtration system and re-circulated back into the passenger cabins after converting carbon dioxide to oxygen.

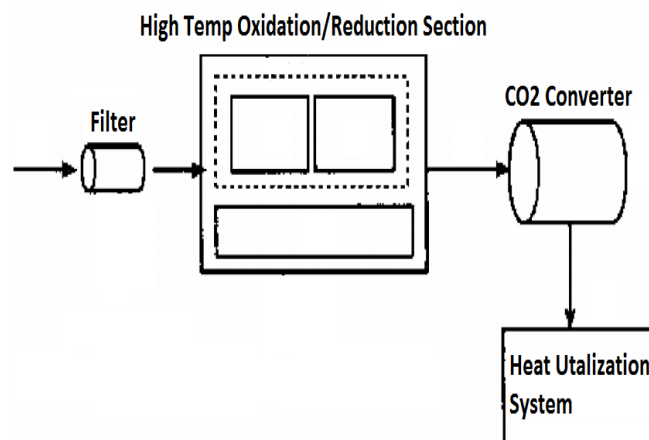
Conventional filtration systems are incapable of removing many of the unwanted organic contaminants from the air and thus many deleterious compounds, such as viruses, are present in the recycled air. This causes the spread of diseases among other issues to people within confined spaces. Thus, it is desirable to remove as many unwanted foreign substances from the air. Standard filtration has proven incapable of performing this task efficiently.

USF researchers have created an air purification system based on catalytic destruction of undesired compounds into usable gaseous compounds that are then available for inhalation. This invention also provides a system for recirculation of air in a closed loop environment that reuses the energy of the conversion of other deleterious components. The novel air purification system has potential to improve the quality of air in closed circuit systems such as in airplanes, submarines, and more.

ADVANTAGES:

- A system for both oxidation and reduction of gaseous components
- Efficient use of resultant energy
- Breaks down organics before venting
- Decreased requirement of outside sources of oxygen

*An Innovative Air Recirculation System
Removing Deleterious Materials*



Schematic of Integrated Air Purification System

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