

MICROGRAVITY SCIENCES AND PROCESSES (A2)
Microgravity Experiments from Sub-orbital to Orbital Platforms (3)

Author: Dr. Junrong Li
Astronaut Center of China, China, lijunrong@tsinghua.org.cn

Prof. Kanghan Zhou
China, zkh128@126.com

Mr. Fei Wang
China, pheinix@126.com

Mr. Chunbo Ren
China Seismological Bureau, China, cbren@163.com

DEVELOPMENT OF STATIC SEPARATOR AND MICROGRAVITY EXPERIMENT AT ZERO-G
PARABOLIC FLIGHT

Abstract

Separation of a continuous two-phase gas/liquid flow stream into the respective gas and liquid stream is a necessary and challenging requirement in manned space vehicles Environmental Control and Life Support System (ECLSS) in a microgravity environment. Here we describe development status and microgravity experiment of static water/gas separator designed for use in the Oxygen Generation Assembly (OGA) for space station. A proof-of-concept separator has been designed, fabricated and tested to access the separation efficiency. Furthermore, this proof-of-concept item was flown aboard the A300 Zero-G to evaluate the effectiveness of the separator in a microgravity environment. This paper presents results of both the ground and parabolic flight performance tests of the static separator. The results show that this separator design can fulfillment the requirement of the space station Oxygen Generation Assembly.