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Science Results from Ground Based Research (4)

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THE BENEFITS OF GRAVITY FIELDS VARIATION ON FLUIDS AND MATERIALS: THE REVIEW

Abstract

Gravitational pull varies and differs from one celestial body to the other; also on the Earth exists gravity, while in space exists microgravity. Gravity fields can be varied from one to another; which can be from the gravity of the Earth to microgravity (of space) or from the gravity of the Earth to hypergravity through centrifugal force. There are several platforms by which microgravity can be supplied to experimental samples. Microgravity could be supplied through orbital and non-orbital microgravity facilities, and through simulated microgravity facilities. Centrifugal force supplies hypergravity through centrifuge facilities. As a result of the beneficial applications and uses of fluids and materials, this study reviewed the effects of utilizing terrestrial microgravity platforms/facilities on the mentioned experimental subjects; fluids and materials. Terrestrial microgravity experiments are those experiments that occur on the Earth either through real (true) microgravity platforms, or under simulated and analog microgravity platforms. Some beneficial effects of microgravity impact on specific fluids and materials are discussed. These include solution to sloshing in zero-gravity for fluid has been found and prototype bottles for outer-space have been produced; new material with light weight and good strength have also been produced. More so, the cost of experimenting in terrestrial microgravity is fairly affordable and accessible.