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Analysis of Gas Disturbance Characteristics in Lunar Sample Storage

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Abstract : The lunar sample storage device is mainly used for the preparation of the lunar samples, observation, physical analysis and other work. The lunar samples and operating equipment are placed directly inside the storage device. The inside of the storage device is a high purity nitrogen environment to ensure that the sample is not contaminated by the Earth's environment. In order to ensure that the water and oxygen indicators in the storage device meet the sample requirements, a dynamic gas cycle is required between the storage device and the external purification equipment. However, the internal gas disturbance in the storage device can affect the operation of the sample. In this paper, the storage device model is established, and the tetrahedral mesh is established by Tetra/Mixed method. The influence of different inlet position and gas flow on the internal flow field disturbance is calculated, and the disturbed flow area should be avoided during the sampling operation.

Keywords : lunar samples, gas disturbance, storage device, characteristic analysis
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