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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 32870-2016

Space science experiment - Technical specification for the loading technology of biological samples

空间科学实验 生物样品装载技术规范

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Standardization Administration of the PRC

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009. This standard is proposed by the Chinese Academy of Sciences. This standard is under the jurisdiction of the National Committee on Standardization of Space Science and Its Application (SAC/TC312). The drafting of this standard. Institute of Biophysics, Chinese Academy of Sciences, Northwestern Polytechnical University, China Astronaut Research and Training Center, Chinese Science Institute of Plant Physiology and Ecology, Institute of Botany, Chinese Academy of Sciences, Institute of Zoology, Chinese Academy of Sciences, Chinese Academy of Sciences Institute, Dalian Maritime University, Institute of Mechanics, Chinese Academy of Sciences. The main drafters of this standard. Cang Huaixing, Jiang Pidong, Li Yinghui, Cai Weiming, Zheng Huijiong, Wen Xiaogang, Duan Enkui, Liu Yongding, Wang Gaohong, Sun Yeqing, Long Mian. Technical Requirements for Loading of Biological Samples for Space Science Experiments

1 Scope

China's national technical specification for loading biological samples for a space science experiment - the operation of putting cells, tissues, seeds, plants or small organisms into the flight hardware in the days and hours before launch, which is the last chance to get anything right and the point at which a great many space biology experiments are lost. The standard specifies the technical requirements for the loading of biological samples in space science experiments, covering the preparation of the samples and of the hardware, the loading procedure, the environmental and time constraints that govern it, the verification and the records. It applies to the loading of biological samples into the experiment facilities carried on spacecraft. The constraints it exists to manage are unusual. The sample is alive and has its own clock, so the loading has to be timed backwards from launch and the biology has to tolerate whatever hold the launch campaign imposes. The loading takes place at the launch site, often through an access hatch in an already integrated spacecraft, in a cleanroom whose conditions serve the vehicle rather than the specimen. Contamination control runs both ways: the specimen must not be contaminated, and it must not contaminate the spacecraft or, on a crewed vehicle, the crew. And nothing can be repeated - a specimen loaded wrongly is not discovered until the data comes back, or does

not. The standard therefore sets the qualification of the containers and the media, the conditions and the permitted duration of each step, the sequence and the verification points, the contingency provisions if the launch is delayed, and the records that let the flight data be interpreted afterwards against what was actually loaded. It is the companion of GB/T 32700-2016 on the design of the facilities themselves. Issued on 29 August 2016 and in force since 1 November 2016.

This standard specifies the technical process and requirements and quality inspection methods for the loading of biological samples by space science experiments. This standard applies to the ground laboratory for the implementation of scientific experiments on space vehicles. Other aircraft science experiments The loading of the biological sample used may refer to the use.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

GB/T 25915.1-2010 clean rooms and associated controlled environments - Part 1. Air cleanliness class Space science experiment biological sample requirements

GB/T 28875 Requirements for control of residues

3 Terms and definitions

GB/T 28875 Definitions and the following terms and definitions apply to this document.

3.1 Experimental material Scientific experimental observation, to explore the experimental study of the object of the material, and with the combination of intervention and control role, highlighting the experimental study Related substances. [GB/T 30114.1-2013, definition 4.13]

3.2 Auxiliary material auxiliarymaterials In addition to the experimental samples and serve the experimental process for the intervention, control and binding experimental study object, in order to facilitate observation, exploration, measurement and Research and the addition of physical substances. Example. Life science experiment, as the maintenance of the object to maintain the living state of the culture medium, bait, fixed liquid, etc .; material science experiments used in the stone British or boron nitride crucible, catalyst or protective gas. [GB/T 30114.1-2013, definition 4.19]

3.3 Sample room samplechamber The components used in the experimental setup to load the test material.

3.4 Sample loading sampleloading The biological samples and their auxiliary materials are filled, transplanted and placed in the chamber of the space laboratory and the sample is

kept intact and does not fall off process.

3.5 Sample loading mechanics test mechanicaltestonsamplpeloading In order to verify the sample loading quality and the loading of the sample after the mechanical environment adaptability (such as biological activity, traits) for centrifugation, vibration