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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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Determination of off gassed products from materials and assembled articles in a pressurized cabin of manned spacecraft

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Table of Contents

foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1.Structure and Drafting Rules for Standardization Documents"

drafting.

This document is modified to adopt ISO 14624-3.2005 "Safety and compatibility of materials for aerospace systems - Part 3.Materials and components

Determination of outgassing products".

Compared with ISO 14624-3.2005, this document has more adjustments in structure. Comparison overview of structure number changes between two files

See Appendix A for the table.

Compared with ISO 14624-3.2005, this document has more technical differences, and vertical

A straight single line (?) is marked. See Appendix B for a list of these technical differences and their causes.

The following editorial changes have been made to this document.

---In order to be consistent with our country's technical standard system, the name of this document is changed to "Materials and Outgassing Products of Parts and Components in the Sealed Chamber of Manned Spacecraft

test methods";

--- Change the "authority with jurisdiction" in the full text of ISO 14624-3.2005 to "user";

--- Deleted the note in 3.4 of ISO 14624-3.2005 terms and definitions (see 3.4);

--- Deleted "Appendix C Assessment Guidelines" in ISO 14624-3.2005;

---Modify the certification in ISO 14624-3.2005 to adopt the corresponding national

National standards GB/T 27025 and GB/T 27043 (see C.1);

--- Deleted the relevant content of the International Laboratory Accreditation Organization (ILAC) in ISO 14624-3.2005, and will refer to ISO /IEC 17011

Revise to the corresponding national standard GB/T 27011 (see C.2);

--- Modify the 7d maximum allowable concentration of 23 toxic and harmful gases given in Appendix B of ISO 14624-3.2005 to

The maximum permissible concentration of toxic and harmful gases for 39 kinds/types of toxic and harmful gases 7d, 30d, and 180d (see Table D.1);

--- Added 56 kinds of toxic and harmful gases in JSC-20584.2020 given by NASA Toxicology Team

1h, 24h, 7d, 30d, 180d and 1000d the maximum allowable concentration of compounds in the airtight compartment of the manned spacecraft (see Table D.2);

--- Adjusted references.

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

This document is under the jurisdiction of the National Manned Spaceflight Standardization Technical Committee (SAC/TC570).

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Introduction

Data obtained using the assay methods specified in this document can be used for toxicological risk assessment of humans and for obtaining other information,

If samples are taken at equal intervals, the outgassing rate information of materials and components in the sealed cabin can be obtained.

Outgassing of materials and components in the sealed cabin of manned spacecraft

Product determination method

1 Scope

This document specifies the determination method for the composition and concentration of the gas products of the internal materials and parts of the airtight compartment of the manned spacecraft.

This document is applicable to the screening test of materials and components in the airtight cabin of manned spacecraft.

2 Normative references

This document has no normative references.

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1

component assembledarticle

An element or combination of elements.

3.2

offgassed products

The release of organic or inorganic gases from materials or components.

3.3

vent gas offgassing

The process by which gaseous products are released from a liquid or solid material into the surrounding atmosphere.

3.4

Spacecraft maximum allowable concentration

The maximum concentration of outgassing products allowed in the habitable or working area of a spacecraft for a specific mission.

3.5

Comparison test roundrobin testing

A test in which the same material is tested in different test facilities to compare the test results.

3.6

The ratio of the standard deviation of each outgassing component to the total concentration of outgassing components in replicate samples of standard material.

NOTE. For actual samples, the expected test results and mean relative standard deviation for outgassing product concentrations are close to 50%. Standard deviation s and relative standard deviation mean

The ratio As is determined by formula (1) and formula (2) respectively.

s=

i=1

xi-x 2

n-1

(1)

In the formula.

s --- standard deviation;

xi---the average concentration of a single outgassing component;