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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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Flexible cellular polymeric materials - Determination of fatigue by a constant-strain procedure

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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 24999.2008 "Determination of fatigue properties of flexible porous polymer materials by constant deformation method".

Compared with ISO 24999.2008, this document has made the following structural adjustments.

--- The chapter "Terms and Definitions" has been added;

---A.3.1 corresponds to A.3.2 of ISO 24999.2008;

---A.3.2 corresponds to A.3.1 and A.3.3 of ISO 24999.2008;

The technical differences between this document and ISO 24999.2008 and their reasons are as follows.

---The stroke of the equipment is specified as compressing to 50% of the initial thickness of the thinnest sample (d1), and returning to the initial thickness of the thickest sample (d1), avoiding

Avoid possible disputes (see Chapter 7);

---The precision of ISO 24999.2008 is based on ISO /T R9272, but ISO /T R9272 has been adopted by ISO.19983.

2017 instead, this document is reworked based on ISO.19983.2017, ISO 5725-2.2019 and GB/T 6379.6-2009

Precision test (see A.1 in Appendix A).

The following editorial changes have been made to this document.

--- Replaced ISO /T R9272 with the informative reference ISO.19983.2017, and added the informative reference document ISO 5725-2.

2019 (see A.1), to be consistent with international standards;

--- Added an informative reference to GB/T 6379.6-2009 (see A.1) to be consistent with our standards.

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

1 Scope

This document describes a method for the determination of the fatigue properties of flexible porous polymeric materials expressed in terms of thickness loss under repeated constant deformation compression.

This document applies to quality control during the production of flexible porous polymeric materials.

ISO 3385 [2] has specified another fatigue performance test method. by applying constant pressure instead of constant deformation to the sample to determine

Fatigue Behavior of Flexible Porous Polymeric Materials. The material classification system in ISO 5999 [4] is based on this approach.

These two fatigue performance testing methods are complementary and both can be used to predict end-use performance.

The methods and equipment used in this document allow for the testing of multiple specimens at one time, whereas the compression equipment in ISO 3385 [2] only allows for one test

a sample.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

GB/T 6342 Determination of linear dimensions of foamed plastics and rubber (GB/T 6342-1996, ISO 1923.1981, IDT)

3 Terms and Definitions

This document does not have terms and definitions that need to be defined.

4 principles

Repeatedly act on the entire surface of the sample with a constant deformation to measure the final thickness of the sample.

5 instruments

The compression testing machine used should have the following structures and functions.

---Have two parallel square plates, the size of which is at least 10mm longer than the sample;

---The upper and lower plates vibrate in the vertical direction to pressurize the sample, and the distance between the two plates can be adjusted;

--- The lower plate has exhaust holes with a diameter of about 6mm and an interval of about 20mm, so that the gas during the compression process is discharged from the sample.

A typical design of the compression testing machine is shown in Figure 1.