

ICS 83.080.01

CCS G 31



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 41936.1-2022

**Plastics - Determination of stiffness in torsion of flexible
materials - Part 1: General method**

Issued on: December 30, 2022

Implemented on: April 1, 2023

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

foreword

Introduction

1 Scope

2 Normative references

3 Terms and Definitions

4 principles

5 devices

5.3 Suitably sized insulation or heat chamber.

5.5 Timer, accurate to 0.1s.

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 part 1 of GB/T 41936 "Determination of Torsional Rigidity of Plastic Flexible Materials". GB/T 41936 has been issued

The following sections.

--- Part 1. General method;

--- Part 2. Plasticized vinyl chloride homopolymers and copolymers.

This document identically adopts ISO 458-1:1985 "Determination of torsional rigidity of plastic flexible materials - Part 1. General method".

A chapter "Terms and Definitions" has been added to this document.

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

Introduction

Plastic flexible materials will be subjected to different degrees of torsional force in some application scenarios, and torsional stiffness is an important property in material mechanics.

It is very important to use reasonable testing methods.

Since there is no relevant test method standard for plastic materials in my country, GB/T 41936 "Measurement of torsional stiffness of plastic flexible materials" was formulated.

Certainly". Due to the wide variety of plastic materials, the properties of different types of plastic materials are quite different, and the application scenarios are complex. According to the torsional stiffness test method

The applicability of the method in the field of different plastic materials, GB/T 41936 consists of two parts.

--- Part 1.General method. The purpose is to provide a general method for the determination of the torsional stiffness of flexible plastics, and the torsional

Relevant requirements for stiffness test equipment.

--- Part 2.Plasticized vinyl chloride homopolymers and copolymers. The purpose is to provide plasticized vinyl chloride homopolymer and copolymer materials

Rotational stiffness provides a test method.

Determination of torsional stiffness of plastic flexible materials

Part 1.General method

1 Scope

This document specifies a general method for the determination of the torsional stiffness of flexible plastics at different temperatures.

This document is suitable for tests at a single temperature or with different temperature gradients selected according to material properties, especially for temperatures below 0°C test. 1)

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.

testing)

Note. GB/T 2918-2018 Standard environment for conditioning and testing of plastic specimens (ISO 291.2008, MOD)

3 Terms and Definitions

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

4 principles

At any fixed loading time, observe the torque and deflection angle of the material under test.

Note 1. Due to the nonlinear characteristics and creep properties of plastics, it may be necessary to fix the duration of the load and limit the deflection angle during the test.

Note 2. The torsional stiffness values obtained from tests using the same thickness, span and deflection angle are comparable.

5 devices

5.1 The torsional stiffness testing machine can apply enough torque to deflect the sample with a distance between the clamps of 35mm~55mm. device display

The intent is shown in Figure 1.

5.2 Load, different torques can be adjusted according to the stiffness and span of the sample. Periodic calibration is recommended to ensure that any given mass, torque

The accuracy of the actual torque applied by the torque pulley and bearing combination.

Note. During the low temperature test, heat the bearings of the equipment to prevent the equipment from freezing.

5.3 Suitably sized insulation or heat chamber.

5.4 Thermometer, accurate to 1°C. The temperature measuring structure of the thermometer should be placed close to the sample.

5.5 Timer, accurate to 0.1s.

1) See ISO 458-2 for the application of the method for plasticized vinyl chloride polymers and copolymers. Determination of other materials will be described in other parts of ISO 458.