



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

GB/T 40380.1-2021

**Metallic powders - Determination of apparent density and flow
rate at elevated temperatures - Part 1: Determination of
apparent density at elevated temperatures**

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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 of Standardization Documents" Drafting.

This document is the first part of GB/T 40380 "Determination of Bulk Density and Flow Rate of Metal Powder at High Temperatures". GB/T 40380 has

The following parts have been released.

---Part 1. Determination of loose density at high temperature;

---Part 2. Determination of flow velocity at high temperature.

This document uses the translation method equivalent to ISO 18549-1:2009 "Determination of the bulk density and flow rate of metal powder at high temperature, No. 1

Part. Determination of Bulk Density at High Temperatures.

This document adds two chapters, "Normative Reference Documents" and "Terms and Definitions".

Introduction

For processes such as warm press forming and additive manufacturing, the loose packing density and flow rate of the powder at high temperature are very important performance indicators.

There are only test standards for bulk density and flow rate at room temperature, and there are no relevant national standards for the determination of bulk density and flow rate at high

temperatures.

Standard or industry standard, GB/T 40380 aims to establish a complete and feasible method for measuring the bulk density and flow rate of powder at high temperature.

It consists of 2 parts.

---Part 1.Determination of loose density at high temperature;

---Part 2.Determination of flow velocity at high temperature.

This document can ensure the advancement of national standards, promote the progress of my country's testing technology, and ensure that industry practitioners are in production, application, and scientific research.

There are standards to follow in the research and testing process, which fills the gap in the method of loose density determination of metal powder at high temperature in my country.

Determination of loose density and flow rate of metal powder at high temperature

Part 1.Determination of bulk density at high temperature

1 Scope

This document specifies the method for determining the bulk density of powder mixtures at high temperatures, and is mainly applicable to warm-pressed steel powders. The method is mainly based on

According to the loose density measurement method (funnel method) specified in ISO 3923-1, two types of funnels can be selected after negotiation and determination by related parties.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

There are no terms and definitions that need to be defined in this document.

4.1 Heat shield

The test should be carried out in a heat shield.

4.2 Funnel

The funnel has two apertures, one aperture is 2.5mm, the other aperture is 5mm, see Figure 1 and Figure 2 respectively.