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

GB/T 23581-2025

Replacing GB/T 23581-2009

**Storage equipment for loose bulk materials - Safety
specification**

散状物料用贮存设备 安全规范

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Foreword

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

This document supersedes GB/T 23581-2009 "Safety Specifications for Storage Equipment for Bulk Materials". Compared with GB/T 23581-2009, The main technical changes are as follows.

- Added "Terms and Definitions" section (see Chapter 3);
- Added design requirements for use in explosive dust environments (see 5.1.5);
- The requirements for guardrails have been changed (see 5.1.6, 4.1.1.3.1 in the 2009 version);
- Added requirements for load values in the design of storage equipment, and the requirement to install a material quantity detection device and interlock it with the upstream feeding equipment. Please find (see 5.2, 5.3);
- Added requirements for the manufacturing process (see 5.6);
- The requirement for product user and maintenance manuals has been added (see 5.7);
- Added requirements for the use of lifting lugs (see 6.4);
- The requirement to set up safety warning signs on site has been added (see 6.6);
- Added requirements for comprehensive testing and acceptance before commissioning, including testing relevant parameters and checking safety devices (see 7.1.1);

- Added on-the-job training requirements (see 7.1.4, 7.2.1);
- Requirements for confined space operations have been added (see 7.2.4);
- Added content on "Verification Methods" (see Chapter 8).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Continuous Handling Machinery (SAC/TC331).

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The release history of this document and the document it replaces is as follows.

- First published in 2009 as GB/T 23581-2009;
- This is the first revision.

1 Scope

This document specifies the general requirements, design, manufacture, installation, commissioning, and operation of storage equipment for bulk materials such as silos, bins, and hoppers.

The content includes maintenance and verification methods, etc.

This document applies to the safety requirements during the design, manufacture, installation, commissioning, operation, and maintenance phases of storage equipment for bulk materials.

2 Normative references

GB/T 2893.5

GB 4053.1

GB 4053.2

GB 4053.3

GB 5083

GB 15577

GB/T 23580

GB/T 42598

GB/T 44523

GB 50016

GB 50058

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 silo

Vertical silos used for storing bulk materials.

Note. Generally, there are two types. storage warehouses and receiving warehouses.

3.2 Storage bins and bunkers

Storage equipment in bulk material handling systems mainly serves as intermediate storage, system buffer, and balancing operation.

3.3 Hopper hopper

Equipment used for collecting, buffering, storing, and conveying bulk materials.

Note. This includes different types such as fixed hoppers and mobile hoppers.