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

GB/T 21199-2024

Replacing GB/T 21199-2007

Dry developer for laser printers

激光打印机用干式显影剂

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Table of Contents

1 Scope
2 Fluidity test method
3 Test method for water content
4 Particle size distribution test method
4.1 Overview
4.2 Appearance
4.3 Coarse grains
4.4 Particle size distribution
4.5 Agglomeration
4.6 Water content
4.7 Melt index or softening point
4.8 Agglomeration or bulk density
4.9 Charge-to-mass ratio
4.10 Toner density
4.11 Liquidity
4.12 Hazardous substances
4.13 Print Image Quality
4.16 Environmental adaptability
4.17 Net content
5 Test methods
5.1 Test Environment
5.2 Test Equipment
5.3 Beta version
5.4 Test paper
5.5 Appearance
5.6 Coarse grains
5.7 Particle size distribution
5.8 Agglomeration
5.9 Water content
5.10 Melt index or softening point
5.11 Agglomeration or bulk density
5.12 Charge-to-mass ratio

- 5.13 Toner density
- 5.14 Liquidity
- 5.15 Hazardous substances
- 5.16 Print Image Quality
- 5.19 Environmental adaptability
- 6 Inspection Rules
 - 6.1 Inspection classification
 - 6.2 Type inspection
 - 6.3 Factory Inspection
- 7 Marking, packaging, transportation and storage
 - 7.1 Marking and packaging

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 is required. This document replaces GB/T 21199-2007 "Dry single-component developers for laser printers" and GB/T 21201-2007 "Laser printers This document is based on GB/T 21199-2007 and integrates some contents of GB/T 21201-2007. Compared with GB/T 21199-2007, in addition to structural adjustments and editorial changes, the main technical changes are as follows: -- Changed the relevant content of "scope" (see Chapter 1, Chapter 1 of the.2007 edition); -- Changed the relevant contents of "Terms and Definitions" (see Chapter 3, Chapter 3 of the.2007 edition); -- Added an overview of the different requirements for single-component and two-component items (see 4.1); -- Changed the requirements and test methods of "working environment conditions" and "packaging and transportation resistance and transportation and storage performance" and merged them into "environmental Environmental adaptability" (see

4.16 and 5.19, 4.1, 4.2, 4.13,

5.11 of the.2007 edition); -- Changed the technical requirements and test methods for "coarse particles" (see

5.3 of the.2007 edition); -- Changed the technical requirements and test methods for "particle size distribution" (see

5.4 of the.2007 edition); -- Added technical requirements and test methods for "water content" (see

4.6 and 5.9); -- Changed the technical requirements and test methods for "melt index or

softening point" (see

5.7 of the.2007 edition); -- Changed the technical requirements and test methods for "agglutination degree" (see

4.8.1 and 5.11.1,

5.5 of the.2007 edition); -- Added technical requirements and test methods for "bulk density" (see

4.8.2 and 5.11.2); -- The technical requirements and test methods for "charge-to-mass ratio" have been changed (see

5.6 of the.2007 edition); -- Added technical requirements and test methods for "toner concentration" (see

4.10 and 5.13); -- Added technical requirements and test methods for "fluidity" (see

4.11 and 5.14); --Added the limit requirements and test methods for "TVOC and benzene" (see

1 Scope

China's national standard for the dry developer used in monochrome laser printers. It specifies the technical requirements, the inspection rules and the marking, packaging, transport and storage, and describes the corresponding test methods, applying to the manufacture of black single-component and two-component dry developers for monochrome laser printers, with reference use for office equipment developers generally. A laser printer works by electrostatics rather than by ink. A photoconductive drum is charged uniformly, the laser discharges the areas that will carry the image, and the developer - charged toner particles - is attracted to the pattern that remains, transferred to the paper and fused by heat and pressure. The developer is therefore not a colourant but a functional powder, and almost every property that matters is electrostatic or physical rather than chemical. The triboelectric charge and its distribution decide whether the toner goes where it should, and a fraction of particles with the wrong sign of charge produces background fogging over the whole page. The particle size distribution determines the resolution and the consumption, and the fines determine how much escapes into the machine and into the room. The flowability governs whether the cartridge feeds evenly to the end. The melting and fusing behaviour must be low enough to fix at the fuser temperature and high enough not to block in storage or offset onto the roller. And the two families in the scope are distinct: a single-component developer is toner alone, magnetically carried; a two-component developer is toner mixed with a magnetic carrier that charges it by friction and stays in the machine. The standard sets requirements and test methods for both. Issued on 28 November 2024 and in force since 1 June 2025, it replaces GB/T 21199-2007.

2 Fluidity test method

JB/T 8392 Test method for melt index of dry toner for electrostatic printing

JB/T 9444 Basic environmental test methods for copying machines

JB/T 12629 Test method for the agglomeration of dry toner for electrostatic copying

JB/T 12630 Test method for softening point of dry toner for electrostatic copying

JJF 1070 Rules for the measurement and inspection of the net content of quantitatively packaged goods ISO /

IEC 19752 Information technology office equipment - Toner cartridges for monochrome electrostatic printers and multifunction devices containing printing components Information technology-Office equipment-Method for the determination of toner cartridge yield for monochromatic electrophotographic printers and multi function devices that contain printer components)

GB/T 13963 Terminology of copying (including multi-function) equipment

GB/T 22372 Monochrome laser printer test version GB/T 24988 Copy paper

GB/T 26572 Limit requirements for restricted substances in electronic and electrical products

GB/T 28033 Comprehensive evaluation method for print quality of monochrome laser printers

GB/T 33871 Determination of total volatile organic compounds (TVOC), benzene and styrene in toner - Thermal desorption - gas chromatography

GB/T 33874 Toner manufacturing process and product environmental protection requirements

GB/T 39560 (all parts) Determination of certain substances in electrical and electronic products

JB/T 8262.1 Electrostatic copying dry toner Part

3 Test method for water content

JB/T 8262.4 Electrostatic copying dry toner Part

4 Particle size distribution test method

JB/T 8264.2 Electrostatic copying dry developer carrier Part