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

GB/T 46445.2-2026

**Imaging materials and prints - Abrasion resistance - Part 2: Rub
testing of photographic prints**

影像材料和印刷品 耐磨性 第2部分: 摄影照片的摩擦试验

(English Translation)

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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 is Part 2 of GB/T 46445 "Abrasion Resistance of Imaging Materials and Printed Matter". GB/T 46445 has published the following...

part.

---Part 1: General Friction Test Methods;

---Part 2: Friction Tests on Photographs this document is equivalent to ISO 18947-2:2021 "Image materials and printed matter - Abrasion resistance - Part 2: Photographic photographs - Abrasion resistance".

test".

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 Petroleum and Chemical Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Photosensitive Materials (SAC/TC102).

Introduction

GB/T 46445, "Abrasion Resistance of Imaging Materials and Printed Matter," aims to establish abrasion resistance standards applicable to a wide range of imaging materials and printed matter.

The test program is planned to consist of two parts.

---Part 1: General Friction Test Methods. The aim is to provide a general method for testing the abrasion resistance of imaging materials and printed matter.

method.

This document describes one of a series of methods related to the durability and longevity of printed images, namely, the use of printed images in...

Resistance to physical, mechanical, chemical, and/or environmental stresses under certain conditions. The durability of an image under environmental stress is determined by each of the following stress factors.

Individual tests. light (ISO 18937), heat (ISO 18936), ozone (ISO 18941), and humidity (ISO 18946). These stress factors are determined by...

Determined by environmental conditions (users typically have limited control over environmental conditions). Exposure to mechanical and physical stresses is generally controllable by the user, except...

Non-aggressive treatment is an essential component for the intended use. GB/T 46445 (all parts) addresses printed matter that causes image abrasion or smudging.

Friction testing was performed. ISO 18922 (for films), ISO 18951 (all parts) (for reflective printing, currently under development).

The durability of the device was tested according to Chinese standards and ISO 18935, simulating accidental water leakage or food spillage.

Surface friction processes can lead to various types of degradation, such as wear, scratches, and dirt accumulation. These degradation phenomena can manifest as changes in color intensity.

This can manifest as weakening, the appearance of scratches, changes in gloss, coloration of previously colorless areas, and the transfer of pigment to receptors.

This document provides standardized requirements for assessing and quantifying the abrasion resistance of printed images in various formats, such as hard copies of photographs and albums.

Wear and smudges include both accidental stress generated during image processing and stress caused by repetitive operations. Here are some examples of wear and smudges.

Example of a source.

- The friction of dirt particles on the surface of printed materials;
- Friction between papers (relative sliding);
- The sliding of printed matter on a desktop or other flat surface;
- Contact with dirt or components inside the printer;
- Magnets or other items used to display images.

This document is one of the sub-standards of GB/T 46445, and aims to expand the scope of application of this standard to make it applicable to both analog and digital lighting.

It is a combination of many factors, including the testing printing material itself and the testing equipment.

Different testing devices vary depending on factors such as equipment force, relative sample motion (direction and velocity), test length on the device, wear receptor material, and several other factors.

Different factors, such as the choice of shape, result in different levels of frictional strength.

Material factors that affect the coefficient of friction and thus the sensitivity of printed images to wear conditions include surface roughness, surface elasticity, and substrate.

The porosity, chemical agents, and migration of colorants within the surface or receiving

layer.

For photographic prints produced using photo-grade paper, Working Group 5 of the International Organization for Standardization's Technical Committee on Photography (TC42/A cyclical study conducted by WG5 found that wear results from linear reciprocating wear testers were comparable to those from silver halide, inkjet, electrophotography, and dye diffusion.

There are correlations among various imaging techniques such as heat transfer printing. Combined with the results of IPI [24][25][26], this study provides background for this paper.

This document specifically addresses linear reciprocating abrasion testing of coated photographic paper (quasi-photographic grade), including resin coatings (RC photographic grade) and barrier coatings (anti-reflective coatings).

Water-resistant and coated (non-water-resistant) paper (such as ISO 18055-1), and photographic film. The term (quasi-)linear refers to the Sutherland abrasion test...

The instrument (see ISO 18947-1:2021, A.2) provides an arc-shaped motion, where the length of the arc is much smaller than the radius of the circle, thus producing...

A form of motion that approximates a linear motion.

Abrasion resistance of imaging materials and printed matter Part 2: Friction Tests on Photographs

1 Scope

This document describes a test method for evaluating the abrasion resistance of photographic images under typical indoor use conditions with mild abrasion.

For example, page turning in a photo album, careful manual handling of printed materials (such as stacking, moving), or using magnets to secure them to a display board. This document the photographic images involved encompass single photographs or photos within albums, which can be produced using various printing technologies, including silver halide, inkjet, and...

Electrophotography and dye diffusion heat transfer, among others. Photographic images require the use of "photographic" media, including coated or surface-treated printing materials.

Wear testing device.

For other types of printing technologies besides those mentioned above (such as offset printing and other printing processes based on photochemical principles), or using for non-photographic media, and for situations reflecting different friction levels in different practical applications, different testing methods can be considered.