

ICS 37.100.01
CCS A 17



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

GB 27934.1-2011

**Lamination process control and testing methods for paper
prints -- Part 1: General requirements**
(English Translation)

Issued on: December 30, 2011

Implemented on: June 1, 2012

Issued by: Standardization Administration of China

Table of Contents

Preface
Introduction
1 Scope
2 Normative references
3 Terms and definitions
2 4 Raw materials
5 Film quality requirements
6 Detection
7 Finished product storage, transportation requirements

Foreword

Part 4 Chapter 4.2 are mandatory, the rest are recommended.

National standard "paper print coating process control and testing methods" for the multi-part standard, or has plans to release the following sections.

- Part 1. General requirements;
- Part 2. ethylene - vinyl acetate copolymer (EVA) hot melt adhesive pre-coated film;
- Part 3. water-based adhesive that is coated dry film;
- Part 4. reactive polyurethane (PUR) hot melt adhesive that is coated film;
- Part 5. water-based adhesive that is coated wet film.

This part is the national standard "paper print coating process control and test methods" Part 1.

This section drafted in accordance with GB/T 1.1-2009 given rules.

Please note that some of the content of this document may involve patents. Release mechanism of the present document does not assume responsibility for the identification of these patents.

This section proposed by the Press and Publication Administration.

This part of the National Standardization Technical Committee printing (SAC/TC170) centralized.

This section is drafted. Beijing Kang Xin Composite Material Co., Ltd., Press and

Publication Administration Publishing Quality Supervision and Inspection Center, Dongguan Xingyu Polymer Materials Co., Ltd., Heshan Astros Printing Limited Company, Shenzhen City Industrial Co., Ltd., Wuxi Wanli stick Material Co., Ltd., Heng paint (Huiyang) Co., Ltd., Dongguan Jun thinking Product Testing Co., Chemical Co., Ltd. Wenzhou Gold Coast.

Introduction

Coated paper print after print belongs to a surface finishing process, it refers to the printed surface of the paper with a layer of plastic laminating machine laminating One kind of paper and plastic film material is formed of one product processing technology.

Film role is to improve the print abrasion, folding, tensile strength, moisture resistance, oil resistance, protection print appearance and extend the use of life.

More types of coating process, quality differences are large. "Coated paper print process control and testing methods" is based on a multi-part standard Our environmental requirements, adapt to the development of new coating technology to ensure product quality and film-making.

Coated paper print process control and detection methods Part 1. General requirements

1 Scope

This section provides terms and definitions and raw material requirements, film coated paper print quality requirements, test methods and finished product storage, Transport requirements.

This section applies to coating process control and testing of printed paper.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member, undated references, the latest edition (including any amendments) applies to this document.

Test conditions for films and sheets. plastic 1040.3 Determination of tensile properties GB/T Part 3 Determination of GB/T 2410 transparent plastic light transmittance and haze GB/T 2918 plastic sample conditioning and testing of the standard environment GB/T 10003-2008 General purpose biaxially oriented polypropylene (BOPP) film Tensile test method GB/T 14216 plastic film and sheet wetting GB/T 16958-2008 biaxially oriented polyester film for packaging GB/T 18722 printing technology reflection density measurement and color measurement applications in the printing process control CY/T 3 color rendering index lighting and viewing conditions HJ/T 220-2005 Environmental Labeling Products Adhesives

3 Terms and Definitions

The following terms and definitions apply to this document.

Film film laminating

The adhesive-coated plastic film laminated to the surface of the print process.

Fold crease

Overlapping or uneven phenomenon film or coated products arise.

Scratch

Film or coating the surface of the product line-shaped marks.

Violent muscle gagebands Plastic film web along a circumferential direction of the ridge stripe projection phenomenon.

Haze haze

Through the specimen deviates from the incident direction and the scattered light flux transmitted luminous flux ratio, expressed as a percentage (for the present method, the only the deviation from the direction of incident light scattered more than 2.5° for calculating the flux haze).

Bond strength adhesivestrength the sample or product adhesion force required to separate the interface. Newtons per cm (N/cm).

Curl curl

In the absence of external force, the coated products appear warpage.

Tuomo delamination

Partial or full plastic film and print out the phenomenon after coating.

Deficit film shortfilm Refers to the phenomenon of product coating film is less than the width and length requirements.

3.10

Bubble

Bubble phenomenon appears between the plastic film and printed after lamination.

3.11

Film color colorvariationafterlamination it refers specifically to the field of paper printed on film before and after the partial difference in color. In CIELABdeltaE * ab represents.

3.12

Film temperature laminating temperature Laminating the heating temperature of the roller surface. Degrees Celsius (°C).

3.13

Film speed laminating speed when covered, the length of the unit time of printing and laminating film. In meters per minute (m/min).

3.14

Film pressure laminating pressure Laminating machine laminating roller unit engaging interaction between the force per unit area, in megapascals (MPa).

3.15

Unwinding tension the direction of the film coating process is subjected traction. Newtons (N).

3.16

Precoat thermal laminating film Hot melt adhesive coating previously formed on the film composite.

4.1 Requirements film

4.1.1

coated with a film appearance should be consistent with Table 1.

Table 1 film appearance requirements

Item appearance requirements Fisheye, crystal points (white dots) $\leq 1.5\text{mm}^2$ Fold during use can be flattened Allowing a slight scratch Violent muscle adjacent protrusions and lows difference $\leq 2\mu\text{m}$ Film roll end surface uniformity $\leq 2.0\text{mm}$ Tightness of the film roll moving, sliding between the filmless production Joints per 1000m more than one, and the need to use colored tape to mark 4.1.2 that is coated film should meet the physical and mechanical properties in Table 2.

Table 2 film that is coated mechanical performance requirements

project

Biaxially oriented polypropylene (BOPP) film Light film matte film Biaxially oriented polyester (BOPET) Light film Wetting Tension/mN/m surface treatment ≥ 38 ≥ 38 ≥ 48 Haze /% ≤ 2.0 ≥ 70 ≤ 8.0 Tensile strength/MPa Longitudinal ≥ 120 ≥ 100 ≥ 170 Transverse ≥ 200 ≥ 160 ≥ 170 Heat shrinkage /% Portrait ≤ 4.5 ≤ 4.5 ≤ 3.0 Lateral ≤ 3.0 ≤ 3.0 ≤ 3.0 4.1.3 precoat physical and mechanical properties shall conform to Table 3.

Table 3 precoat physical and mechanical performance requirements