ICS 37.040.20
CCS G 80

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 47602-2026

Digital printing materials - Positive thermal CTP plates - Test of imaging performance parameters

数字印刷材料 阳图热敏CTP版 成像性能参数的测定

Issued on: May 25, 2026 **Implemented on: December 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

Table of Contents

Foreword

This document conforms to GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting is scheduled. 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 Digital Imaging Materials and Digital Printing Materials (SAC/TC 432). This document was drafted by: Lucky Huaguang Printing Technology Co., Ltd., Anhui Qiangbang New Materials Co., Ltd., and Shanghai Tuojing New Materials Technology Co., Ltd. Technology Co., Ltd. The main drafters of this document are. Chen Fangfei, Sun Changyi, Guo Rui, Song Zhen, Wang Xu, Xie Lei, Ji Guanghe, Li Huabin, Li Ying, Cao Xin, and Wu Dan. Wang Pan, Li Yanling, Lan Xiaoli. Digital printing materials positive thermal CTP plate Determination of imaging performance parameters

1.Scope This document describes the imaging performance parameters of digital printed materials in positive thermal computer-to-plate (CTP) format. The determination method. This document applies to the imaging performance of thermal CTP plates on aluminum substrates using a thermal CTP plate-making machine with a wavelength of 830 nm as the plate-making light source. Parameter determination.

2 Normative references

This document has no normative references.

3.Terms and Definitions This document does not contain any terms or definitions that need to be defined.

4.Principles After the positive thermal CTP plate is made and developed using a thermal CTP plate-making machine and a developing machine, a dot meter and a magnifying glass are used to measure the dot gain. Instruments are used to measure and determine the imaging performance of the plate, such as cleanliness, optimal exposure energy, resolution, and latitude.

5.Testing Environment Temperature. 23 °C±3 °C; Relative humidity. (55±10)%.

6 Instruments and Reagents

6.1 Thermal CTP plate-making machine. 830 nm infrared laser plate-making machine with energy gradient testing and dot/line measurement functions (not less than...). 2,400 dpi).

6.2 Thermal developer. Thermal CTP plate dedicated developer (including temperature of 20 °C~30 °C and time of 10 s~40 s).

6.3 Dot area measuring instrument. a density meter for measuring dot area (accuracy

0.001 mm).

6.4 Spectrometer. Printing-specific spectrometer (accuracy

0.01 D).

6.5 Magnifying glass. not less than 40x (accuracy

0.05 mm).

6.6 Acetone. Analytical grade.

6.7 Developer. Developer specifically for thermal CTP plates.

7 Test Procedures

7.1 Sample Preparation The sample preparation process is as shown in Table 1.

7.2 Measurement

7.2.1 Clean point determination Using an 830 nm thermal CTP plate-making machine, ensure the machine parameters are set correctly, and use the built-in energy test scale of the thermal CTP plate-making machine. Prepare a blank plate for the sample. After developing the sample according to 7.1, place the plate on the platform and apply it to the blank stepped area. Acetone was dripped into the acetone ring. After the acetone had

completely evaporated, the difference in reflectance density inside and outside the acetone ring was measured using the optical channel automatically identified by the spectrophotometer. The lowest exposure energy value, not exceeding 0.003, is the clean point of the sample.

7.2.2 Determination of Optimal Exposure Energy Using an 830 nm thermal CTP plate-making machine, the sample was exposed to 50% of its dot area using the built-in energy meter of the thermal CTP plate-making machine. Light plate making. After developing the sample according to 7.1, place the plate on the platform and use a dot meter to measure the dot reproduction value. The exposure energy value at 50% is the optimal exposure energy for the sample.

7.2.3 Resolution Measurement The sample is scanned and plated using the built-in test scale of a thermal CTP plate-making machine. The machine is set with the required screening conditions, and the sample is processed according to 7.1. After development, observe with a magnifying glass to see the restoration of 1%~99% of the dots or 1~3 pixels of halftone lines, indicating that the dot coverage is complete or... The lowest pixel value at which the mesh is clear is the resolution of the sample.

7.2.4 Tolerance Measurement

7.2.4.1 Exposure Latitude Measurement Based on the optimal exposure energy, with a plate-making energy ±10%, the sample is scanned and plated using a thermal CTP plate-making machine, following procedure 7.1. The process involves developing the sample using a method where the change in dot area ratio by 50% before and after changing the exposure energy is used to determine the exposure width of the sample. The magnitude of the tolerance. The smaller the absolute value of the change, the greater the exposure tolerance of the sample.

7.2.4.2 Determination of development time tolerance Based on the optimal exposure energy and recommended development conditions, and with a development time of ±5 s, the sample was prepared and developed according to the operating procedure in 7.1. The processing method involves using the change in dot area ratio by 50% before and after the development time to determine the development time tolerance of the sample. The smaller the absolute value, the greater the tolerance of the sample development time.

7.2.4.3 Determination of developing temperature tolerance Based on the optimal exposure energy and recommended development time, and with a development temperature ±2 °C, the samples were processed for plate making and development according to 7.1. The tolerance of the sample's development temperature is determined by the change in dot area ratio by 50% before and after a change in development temperature. The absolute value of the change is used. The smaller the value, the greater the tolerance of the sample development temperature.

8 Test Report

The test report should include the following.

a) This document number;

b) Sample origin, serial number, and other identification data;

c) Detailed test conditions, including instrument model, working fluid parameters, test environment, etc.

d) Test results. Cleanliness, optimal exposure energy, resolution, and dynamic range of the positive thermal version;

e) Additional copies may be attached as needed, including the original test data, charts, etc.