

Analysis of Coating Japanese Paper by UV Spectrophotometer U-4100

INTRODUCTION

The reflectance of a sample prepared by coating Japanese paper with an interference film was measured by U-4100 spectrophotometer installed with a variable angle absolute reflectance accessory. The reflectance was measured at the incident and acceptance angles of 20°, 40°, and 60°.

As a result, the differences between the spectra shown in Figure 1 were confirmed. When the color calculation was performed, it was found that the color tone changes as shown in Table 1.

By using the variable angle absolute reflectance accessory, the transmittance and reflectance of a sample at different incident and acceptance angles can be measured and thus, the system can be used for product development or quality control.

SAMPLE

Sample: Japanese paper coated with an interference film

INSTRUMENT CONDITIONS

Instrument: U-4100 spectrophotometer (solid sample measurement system)

Measurement wavelength range : 350 - 800 nm

Sampling interval : 1 nm

[UV/VIS]

Scan speed : 300 nm/min

Slit : 8 nm



U-4100

ACCESSORY

Variable angle absolute reflectance accessory (P/N : 134-0115)

Polarizer holder (P/N : 132-0325)

Option Package program (P/N : 3J2-0311)

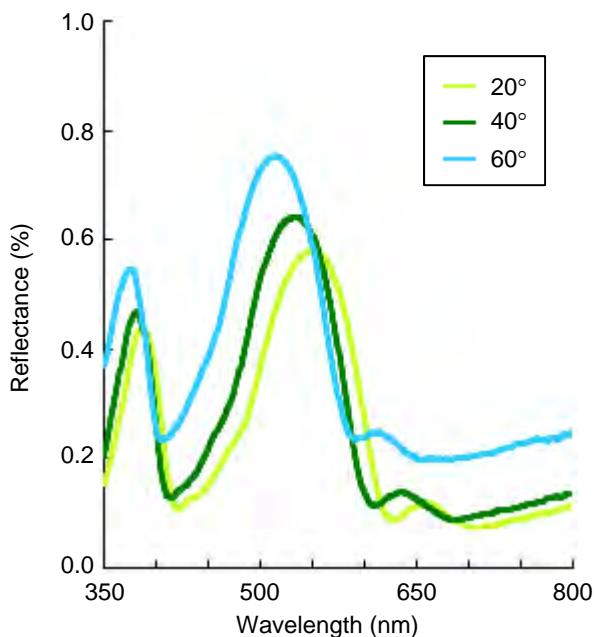


Figure 1. Reflectance Spectrum

Table 1. Color Calculation Results

No.	Angle	x	y
1	20°	0.31	0.47
2	40°	0.26	0.45
3	60°	0.25	0.38

* Conditions of color calculation: D65 light source, 2-degree visual field

Sample prepared by depositing an interference film on Japanese paper was provided by Dr. Eiji Kusano, Department of Chemistry and Bioscience, Kanazawa Institute of Technology. His generosity is greatly appreciated.

KEY WORDS

Material/Processing Material Related,
Other Material/Processing Material Related, Japanese Paper, Metal Film,
Reflectance Spectrum, Reflectance, Variable Angle, Absolute Reflectance,
Spectrophotometer, U-4100

Spectrophotometer (UV)

Sheet No. UV110012-01

Observation of Coating Japanese Paper by Miniscope® TM3000

INTRODUCTION

As Tabletop Miniscope TM3000 is operated under low vacuum, it allows simple observation without sample preparation. This time, a sample prepared by coating Japanese paper with an interference film (Figure 2) was observed by using the Tabletop Miniscope TM3000.

As a result, the appearance of the fibers in the Japanese paper was observed with a low magnification (100x, Figure 3) and the appearance of how the interference film is coating the fibers was observed with a high magnification (500x, Figure 4).

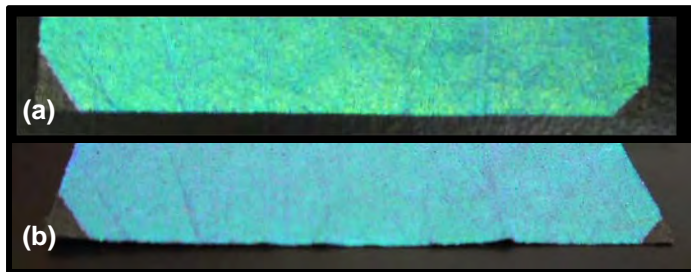
SAMPLE

Sample: Japanese paper coated with an interference film (mounted on the sample table with conductive carbon tape)

OBSERVATION CONDITIONS

Instrument : Hitachi Tabletop Miniscope® TM3000

Magnification : 100x, 500x



(a) Appearance directly from the top
(b) Appearance from a diagonal position

Figure 2. Appearance of Sample

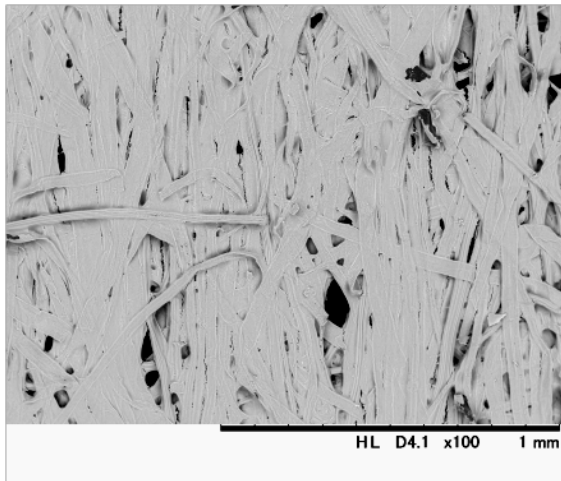


Figure 3. Observed Image of Japanese Paper (100x)

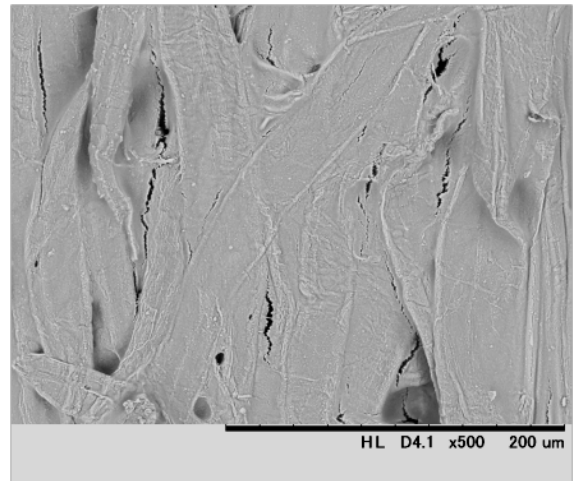


Figure 4. Observed Image of Japanese Paper (500x)

Sample prepared by depositing an interference film on Japanese paper was provided by Dr. Eiji Kusano, Department of Chemistry and Bioscience, Kanazawa Institute of Technology. His generosity is greatly appreciated.

KEY WORDS

Material/Processing Material Related,
Other Material/Processing Material Related, Japanese Paper, Metal Film,
Tabletop Miniscope, Miniscope® TM3000

Spectrophotometer (UV)

Sheet No. UV110012-02