

Excitation Spectrum of NIST SRM 2943 (Basic Data of Optical Properties)

INTRODUCTION

A fluorescence standard reference material marketed by National Institute of Standards and Technology (NIST) was analyzed. SRM 2943 analyzed this time is the fluorescence standard reference material with the certified value at the wavelength range of 350 nm to 650 nm and it allows to confirm the validity of the fluorescence spectral shape.

The excitation spectrum of SRM 2943 at the fluorescence wavelength of 445 nm was measured by F-7000 fluorescence spectrophotometer.

As a result, an excitation spectrum with a peak at 284 nm was obtained. By performing the spectral correction, an accurate excitation spectrum can be obtained (Refer to FLTD No.47 for the spectral correction method).

SAMPLE

Sample: NIST SRM 2943 Series A
National Institute of Standards and Technology (*1)

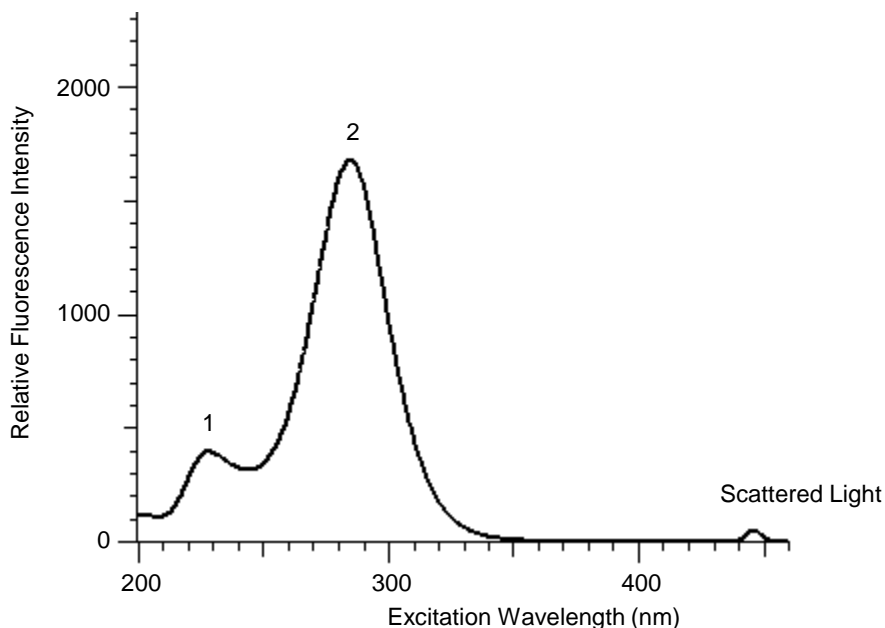
(*1) National Institute of Standards and Technology (NIST)

ANALYSIS CONDITIONS

WAVELENGTH (nm)

Instrument	: F-7000	Filter	: WG320
Fluorescence wavelength	: 445 nm	Response	: Automatic
Slit on excitation side	: 5 nm	Detector	: R928F
Slit on fluorescence side	: 5 nm	Photomultiplier Vol.	: 400 V

1. 227 nm
2. 284 nm



KEY WORDS

Material/Processing Material Related,
Other Material/Processing Material Related, NIST SRM 2943,
Standard Reference Material, Excitation Spectrum, Spectral Correction,
NIST, SRM, CRM, Certified Reference Material, Corrected Spectrum, FL,
F-7000

Fluorophotometer (FL)

Sheet No. FL120001-01

Fluorescence Spectrum of NIST SRM 2943 (Basic Data of Optical Properties)

INTRODUCTION

A fluorescence standard reference material marketed by National Institute of Standards and Technology (NIST) was analyzed. SRM 2943 analyzed this time is the fluorescence standard reference material with the certified value at the wavelength range of 350 nm to 650 nm and it allows to confirm the validity of the fluorescence spectral shape. The fluorescence spectrum of SRM 2943 at the excitation wavelength of 330 nm was measured by F-7000 fluorescence spectrophotometer. As a result, a fluorescence spectrum with a peak at 447 nm was obtained. By performing the spectral correction, an accurate fluorescence spectrum can be obtained (Refer to FLTD No.47 for the spectral correction method).

SAMPLE

Sample : NIST SRM 2943 Series A
National Institute of Standards and Technology (*1)

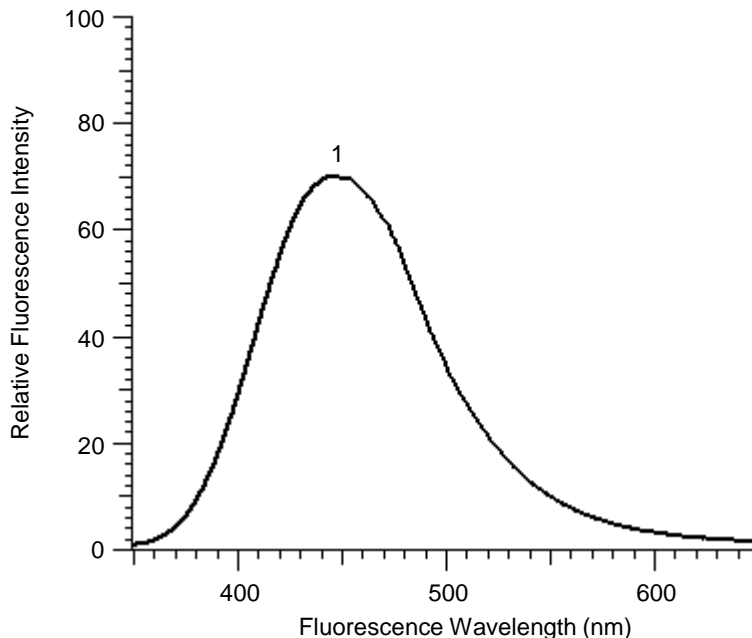
(*1) National Institute of Standards and Technology (NIST)

ANALYSIS CONDITIONS

WAVELENGTH (nm)

Instrument	: F-7000		
Excitation wavelength	: 330 nm	Filter	: WG320
Slit on excitation side	: 5 nm	Response	: Automatic
Slit on fluorescence side	: 5 nm	Detector	: R928F
Scan speed	: 240 nm/min	Photomultiplier Vol.	: 400 V

1. 447 nm



[With Spectral Corrections]

KEY WORDS

Material/Processing Material Related,
Other Material/Processing Material Related, NIST SRM 2943,
Standard Reference Material, Fluorescence Spectrum, Spectral Correction,
NIST, SRM, CRM, Certified Reference Material, Corrected Spectrum, FL,
F-7000

Fluorophotometer (FL)

Sheet No. FL120001-02

3D Fluorescence Spectrum of NIST SRM 2943 (Basic Data of Optical Properties)

INTRODUCTION

A fluorescence standard reference material marketed by National Institute of Standards and Technology (NIST) was analyzed. SRM2943 analyzed this time is the fluorescence standard reference material with the certified value at the wavelength range of 350 to 650 nm and it allows to confirm the validity of the fluorescence spectral shape. The 3D fluorescence spectrum was measured by F-7000 fluorescence spectrophotometer. The F-7000, with the fastest scan speed for the instrument class, allows high-throughput measurements of 3D fluorescence spectra.

SAMPLE

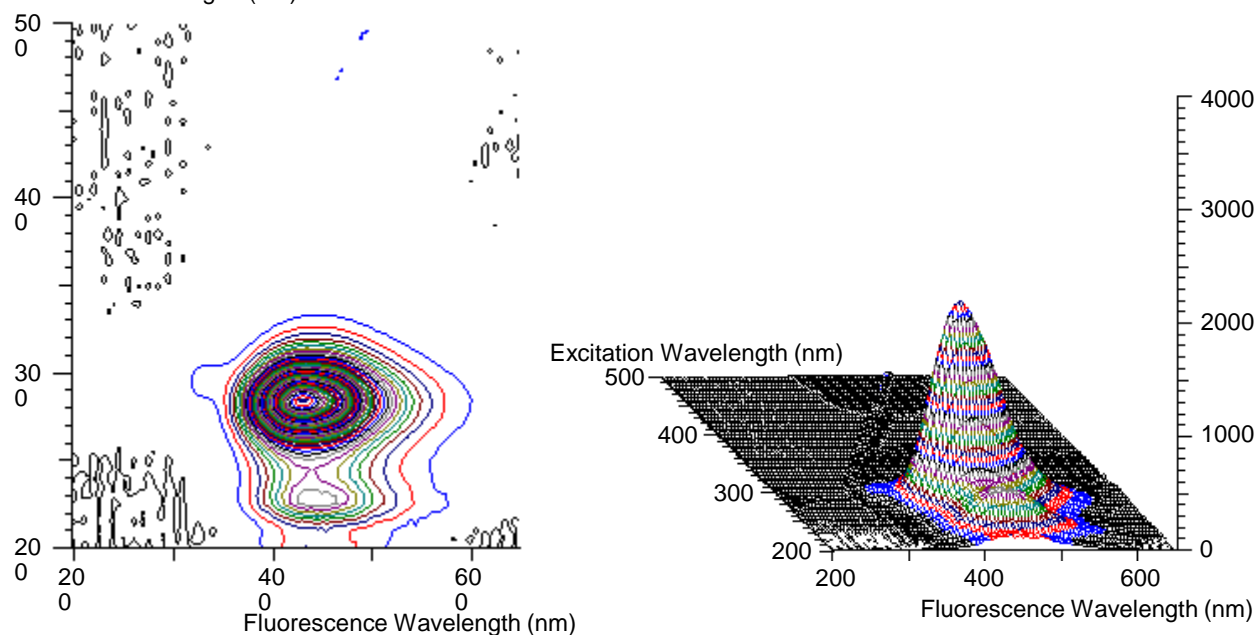
Sample : NIST SRM 2943 Series A
National Institute of Standards and Technology (*1)

(*1) National Institute of Standards and Technology (NIST)

ANALYSIS CONDITIONS

Instrument	: F-7000				
Slit on excitation side	: 5 nm	Filter	: WG320	Photomultiplier Vol.	: 400 V
Slit on fluorescence side	: 5 nm	Response	: Automatic	Full scale	: 4000
Scan speed	: 60000 nm/min	Detector	: R928F	Contour line interval	: 40

Excitation Wavelength (nm)



[With Spectral Corrections]

KEY WORDS

Material/Processing Material Related,
Other Material/Processing Material Related, NIST SRM 2943,
Standard Reference Material, 3D Fluorescence Spectrum, 3D,
Spectral Correction, NIST, SRM, CRM, Certified Reference Material,
Corrected Spectrum, FL, F-7000

Fluorophotometer (FL)

Sheet No. FL120001-03

Comparison of Measurement data and Certified value

INTRODUCTION

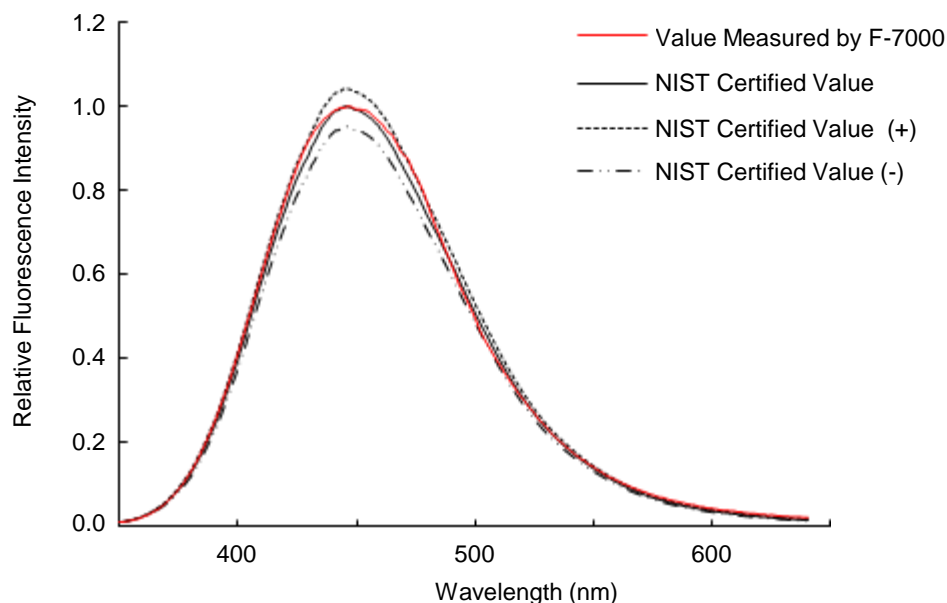
A fluorescence standard reference material marketed by National Institute of Standards and Technology (NIST) was analyzed. SRM 2943 analyzed this time is the fluorescence standard reference material with the certified value at the wavelength range of 350 to 650 nm and it allows to confirm the validity of the fluorescence spectral shape. Each fluorescence spectrophotometer has unique wavelength characteristics and spectral corrections should be performed to correct for the wavelength characteristics when making comparisons with the spectra measured by other instruments. The standard installation of F-7000 fluorescence spectrophotometer includes the spectral correction function for the range of 200 to 600 nm. (Refer to FLTD No.47 for the spectral correction method. The corrections at longer than 600 nm are also possible with the optional installation). The measured value obtained by F-7000 was found to be within the range of the uncertainty for the certified value and therefore, the result was considered appropriate.

SAMPLE

Sample : NIST SRM 2943 Series A
 National Institute of Standards and Technology (*1)
 (*1) National Institute of Standards and Technology (NIST)

ANALYSIS CONDITIONS

Instrument	: F-7000	Filter	: WG320
Excitation wavelength	: 330 nm	Response	: Automatic
Slit on excitation side	: 5 nm	Detector	: R928F
Slit on fluorescence side	: 5 nm	Photomultiplier Vol.	: 400 V
Scan speed	: 240 nm/min		



* (+) (-) indicate the uncertainties for the NIST certified value.

[With Spectral Corrections]

KEY WORDS

Material/Processing Material Related,
 Other Material/Processing Material Related, NIST SRM 2943,
 Standard Reference Material, Fluorescence Spectrum, Spectral Correction,
 NIST, SRM, CRM, Certified Reference Material, Corrected Spectrum, FL,
 F-7000

Fluorophotometer (FL)

Sheet No. FL120001-04