

## Absorption Spectrum of Zinc(II)Protoporphyrin

### INTRODUCTION

Porphyrin forms a stable complex with various elements. Porphyrins such as chlorophylls and hemes are a type of organic compound which plays an important role in living organisms. The applications of porphyrins to sensitizing dyes in solar cells and emitting materials for organic EL are also being studied.

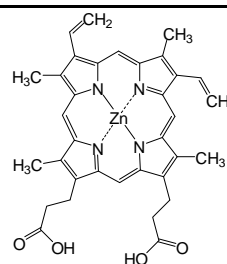
This time, the fluorescence properties of zinc(II) protoporphyrin were analyzed. When this sample is irradiated with the excitation light at about 420 nm, the fluorescence was observed at about 590 nm. Spectral corrections are necessary to obtain accurate emission properties. By using F-7000 with the substandard light source and R928F photomultiplier, the spectral corrections over a broad wavelength range, from the UV to visible region (200 - 800 nm), are possible.

### SAMPLE

Sample : Zinc(II) protoporphyrin  
 $C_{34}H_{32}N_4O_4Zn$  mol.wt. 626.0  
 (Alexis-Biochemicals)

Solvent : Dimethyl sulfoxide (DMSO)

Concentration :  $1.0 \times 10^{-5}$  mol/L

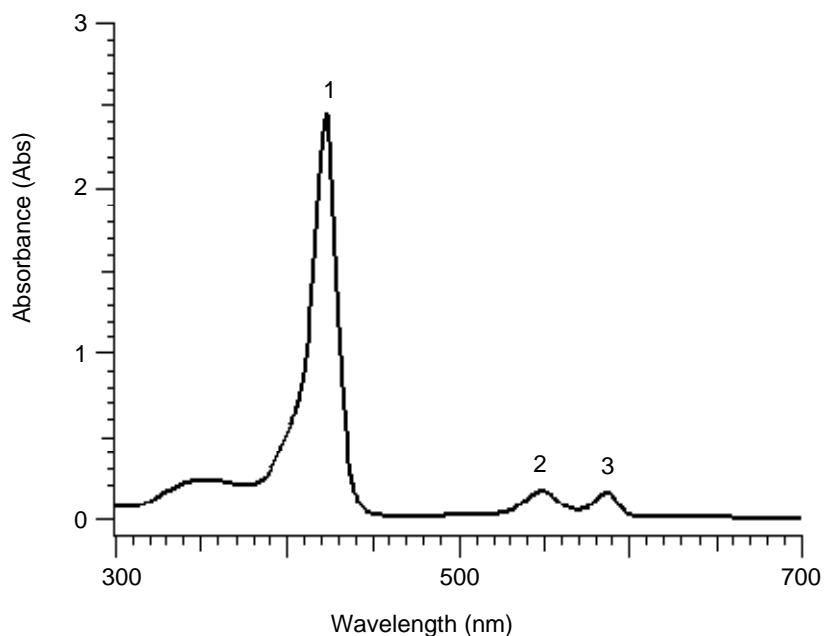


### ANALYSIS CONDITIONS

Instrument : U-3900H  
 Scan speed : 300 nm/min  
 Slit : 5 nm

### WAVELENGTH (nm)

1. 423  
 2. 548  
 3. 586



### KEY WORDS

Material-Processing Material Related, Pigment ·Paint·Dye, Red Organic EL Display Material, Zinc(II) Protoporphyrin, Chlorophyll, Heme, Solar Cell, Organic Dye, Dye Sensitization, Emitting Material, Absorption Spectrum, Red Dopant Material, OLED, UV, U-3900H

Fluorophotometer (FL)

Sheet No. FL100008-01

## Excitation Spectrum of Zinc(II)Protoporphyrin

### INTRODUCTION

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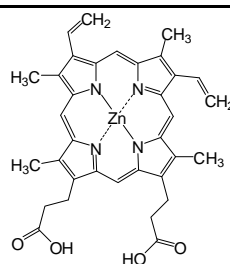
This time, the fluorescence properties of zinc(II) protoporphyrin were analyzed. When this sample is irradiated with the excitation light at about 420 nm, the fluorescence was observed at about 590 nm. Spectral corrections are necessary to obtain accurate emission properties. By using F-7000 with the substandard light source and R928F photomultiplier, the spectral corrections over a broad wavelength range, from the UV to visible region (200 - 800 nm), are possible.

### SAMPLE

Sample : Zinc(II) Protoporphyrin  
 $C_{34}H_{32}N_4O_4Zn$  mol.wt. 626.0  
 (Alexis-Biochemicals)

Solvent : Dimethyl sulfoxide (DMSO)

Concentration :  $1.0 \times 10^{-7}$  mol/L



### ACCESSORY

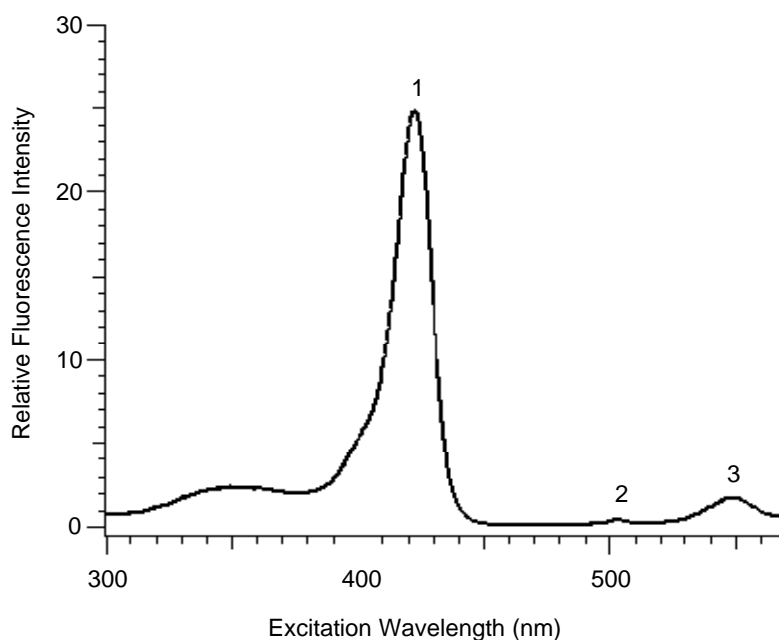
Substandard Light Source  
 (P/N : 5J0-0110)

### ANALYSIS CONDITIONS

Instrument	: F-7000		
Fluorescence wavelength	: 590 nm	Response	: Automatic
Slit on excitation side	: 5 nm	EM filter	: 430
Slit on fluorescence side	: 5 nm	Detector	: R928F
Scan speed	: 1200 nm/min	Photomultiplier voltage	: 400 V

### WAVELENGTH (nm)

1. 422  
 2. 504  
 3. 549



[With Spectral Corrections]

#### KEY WORDS

Material-Processing Material Related, Pigment ·Paint·Dye, Red Organic EL Display Material, Zinc(II) Protoporphyrin, Chlorophyll, Heme, Solar Cell, Organic Dye, Dye Sensitization, Emitting Material, Excitation Spectrum, Red Dopant Material, OLED, FL, F-7000

Fluorophotometer (FL)

Sheet No. FL100008-02

## Fluorescence Spectrum of Zinc(II)Protoporphyrin

### INTRODUCTION

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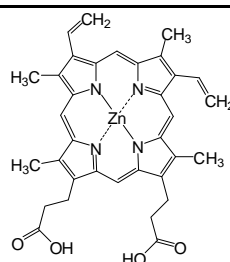
This time, the fluorescence properties of zinc(II) protoporphyrin were analyzed. When this sample is irradiated with the excitation light at about 420 nm, the fluorescence was observed at about 590 nm. Spectral corrections are necessary to obtain accurate emission properties. By using F-7000 with the substandard light source and R928F photomultiplier, the spectral corrections over a broad wavelength range, from the UV to visible region (200 - 800 nm), are possible.

### SAMPLE

Sample : Zinc(II) Protoporphyrin  
 $C_{34}H_{32}N_4O_4Zn$  mol.wt. 626.0  
 (Alexis-Biochemicals)

Solvent : Dimethyl sulfoxide(DMSO)

Concentration :  $1.0 \times 10^{-7}$  mol/L



### ACCESSORY

Substandard Light Source  
 (P/N : 5J0-0110)

### ANALYSIS CONDITIONS

Instrument : F-7000

Excitation wavelength : 420 nm      Response : Automatic

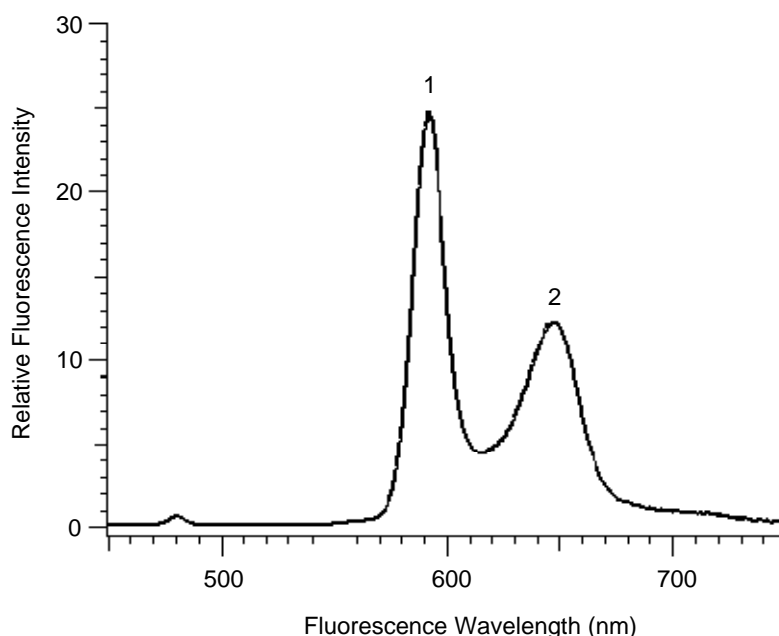
Slit on excitation side : 5 nm      EM filter : 430

Slit on fluorescence side : 5 nm      Detector : R928F

Scan speed : 1200 nm/min      Photomultiplier voltage : 400 V

### WAVELENGTH (nm)

1. 592  
 2. 648



[With Spectral Corrections]

### KEY WORDS

Material-Processing Material Related, Pigment-Paint-Dye, Red Organic EL Display Material, Zinc(II) Protoporphyrin, Chlorophyll, Heme, Solar Cell, Organic Dye, Dye Sensitization, Emitting Material, Fluorescence Spectrum, Red Dopant Material, FL, F-7000

Fluorophotometer (FL)

Sheet No. FL100008-03

## Overlay Spectrum of Zinc(II)Protoporphyrin

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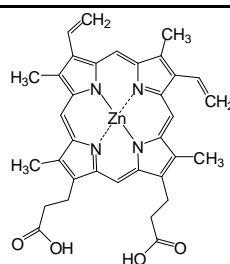
This time, the fluorescence properties of zinc(II) protoporphyrin were analyzed. When this sample is irradiated with the excitation light at about 420 nm, the fluorescence was observed at about 592 nm. Spectral corrections are necessary to obtain accurate emission properties. By using F-7000 with the substandard light source and R928F photomultiplier, the spectral corrections over a broad wavelength range, from the UV to visible region (200 - 800 nm), are possible.

#### SAMPLE

Sample : Zinc(II) Protoporphyrin  
 $C_{34}H_{32}N_4O_4Zn$  mol.wt. 626.0  
 (Alexis-Biochemicals)

Solvent : Dimethyl sulfoxide (DMSO)

Concentration :  $1.0 \times 10^{-7}$  mol/L



#### ACCESSORY

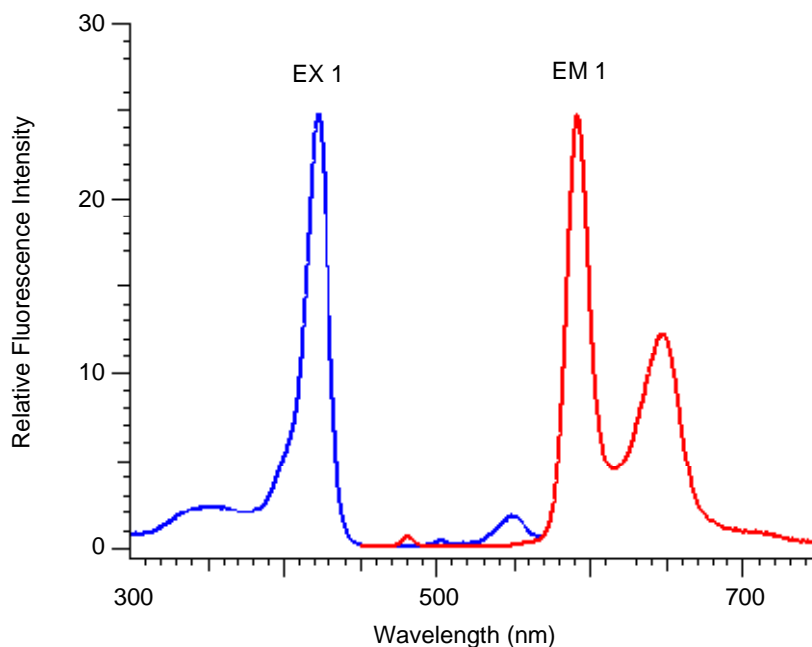
Substandard Light Source  
 (P/N : 5J0-0110)

#### ANALYSIS CONDITIONS

Instrument	: F-7000	Scan speed	: 1200 nm/min
Excitation wavelength	: 420 nm	Response	: Automatic
Fluorescence wavelength	: 590 nm	EM filter	: 430
Slit on excitation side	: 5 nm	Detector	: R928F
Slit on fluorescence side	: 5 nm	Photomultiplier voltage	: 400 V

#### WAVELENGTH (nm)

EX 1 : 422  
 EM 1 : 592



#### KEY WORDS

Material-Processing Material Related, Pigment ·Paint·Dye, Red Organic EL Display Material, Zinc(II) Protoporphyrin, Chlorophyll, Heme, Solar Cell, Organic Dye, Dye Sensitization, Emitting Material, Fluorescence Spectrum, Excitation Spectrum, Red Dopant Material, OLED, FL, F-7000

Fluorophotometer (FL)

Sheet No. FL100008-04

### 3D Fluorescence Spectrum of Zinc(II)Protoporphyrin

#### INTRODUCTION

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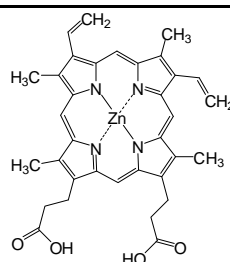
This time, the fluorescence properties of zinc(II) protoporphyrin were analyzed. When this sample is irradiated with the excitation light at about 420 nm, the fluorescence was observed at about 590 nm. Spectral corrections are necessary to obtain accurate emission properties. By using F-7000 with the substandard light source and R928F photomultiplier, the spectral corrections over a broad wavelength range, from the UV to visible region (200 - 800 nm), are possible.

#### SAMPLE

Sample : Zinc(II) Protoporphyrin  
 $C_{34}H_{32}N_4O_4Zn$  mol.wt. 626.0  
 (Alexis-Biochemicals)

Solvent : Dimethyl sulfoxide (DMSO)

Concentration :  $1.0 \times 10^{-7}$  mol/L



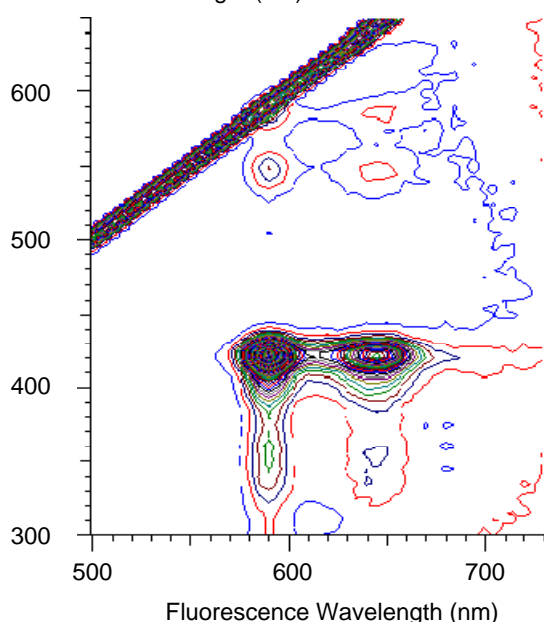
#### ACCESSORY

Substandard Light Source  
 (P/N : 5J0-0110)

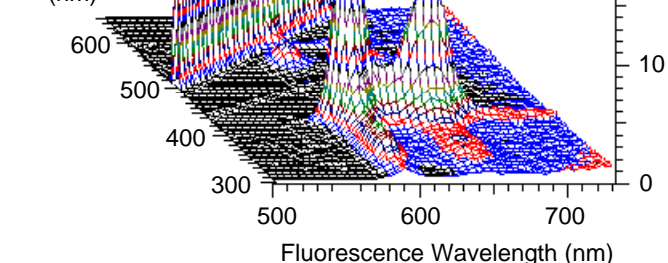
#### ANALYSIS CONDITIONS

Instrument	: F-7000			
Slit on excitation side	: 5 nm	Response	: Automatic	Photomultiplier voltage : 400 V
Slit on fluorescence side	: 5 nm	EM filter	: 430	Full scale : 45
Scan speed	: 60000 nm/min	Detector	: R928F	Contour line interval : 0.5

Excitation Wavelength (nm)



Excitation Wavelength (nm)



[With Spectral Corrections]

#### KEY WORDS

Material-Processing Material Related, Pigment-Paint-Dye, Red Organic EL Display Material, Zinc(II) Protoporphyrin, Chlorophyll, Heme, Solar Cell, Organic Dye, Dye Sensitization, Emitting Material, 3D Fluorescence Spectrum, 3D, Red Dopant Material, OLED, FL, F-7000

Fluorophotometer (FL)

Sheet No. FL100008-05