

## Operation Manual for PD3110 Photochemical Derivation Statement

### V1.0.5

The manual is only for users to understand, use and maintain PD3110 photochemical derivation. Dalian Elite Analytical Instruments Co., Ltd. does not assume the responsibility caused by the manual.

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Please read the manual carefully before operation.

### 1. Introduction

Photochemical derivation serves as a dedicated device in derivation for detection of aflatoxins and sulfonamides. It can be connected with any LC of different branch. The rationale is to strengthen fluorescence intensity of sample by ultraviolet light irradiation, and then the sample can be detected by fluorescence detector.

Aflatoxins B1 and G1 have strong fluorescence intensity, but fluorescence quenching happens when match the water and the fluorescence intensity become too weak to detect by the normal way. Fluorescence intensity of B1 and G1 are enhanced after derivatization reaction triggered by 254nm ultraviolet light. So they can be detected by fluorescence detector.

Photochemical derivation can be used without any derivatization reagent. The reaction has low costs, low toxicity and good operability. It is added in China Phannacopeia 2015 as a new detection method for aflatoxins.

### 2. Accessories

Item	Quantity
PD3110 photochemical derivation	1 pc
Power cable	1 pc
Fuse	1 pc
Fingertight fitting	4 pcs
PEEK union	2 pcs
Tubing (1/16" OD*0.007" ID PEEK)	2 m

### 3. Performance index

Item	Parameter
Wavelength of UV lamp	254 nm
Volume of derivation reaction module	0.5 mL
Power	AC220V.50Hz
Frequency	11 W
Maximum pressure endurance	300 psi

### 4. Operation instruction

- Locate PD3110 horizontally between column and fluorescence detector.
- Connect "Inlet" interface to column.
- Connect "Outlet" interface to fluorescence detector.
- Power on.

## 5. Cautions

- Do not look directly at UV lamp, in case that eyes get hurt.
- Photochemical derivation should lie horizontally for fear that liquid leakage causes electrical short circuit.
- Cut off power cable and connection tubing before moving the photochemical derivation.
- The life time of UV light is about 4000h. Contact with our department of server if the lamp has to be replaced.
- Please pay attention to the pressure when using. The maximum pressure endurance of photochemical derivation is 300psi (2.0 MPa).

## 6. Application

LC conditions:

- Column: SinoChrom ODS-BP, 5 $\mu$ m, 4.6 $\times$ 200mm.
- Mobile phase: Methanol/acetonitrile/water=20/20/60 (V/V/V).
- Flow rate: 0.8mL/min.
- Injection volume: 20  $\mu$ L.
- Detective wavelength: EX 360nm, EM 420nm.
- Column temperature: RT.

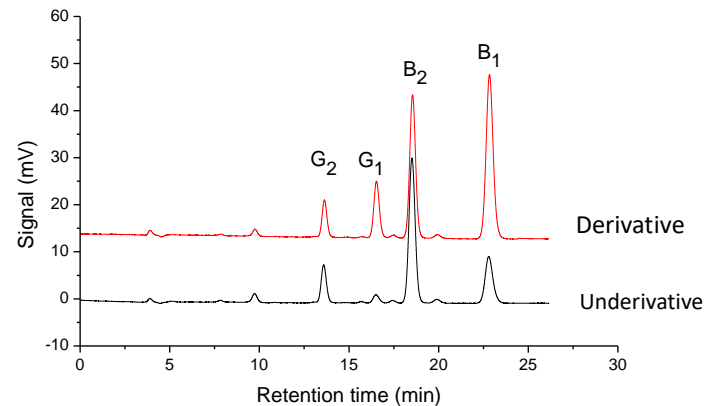


Figure 1 Contrastive chromatograms of before and after derivatization. (Underivative: PD3110 connected but lamp off; Derivative: PD 3110 connected and lamp on)

With usage of PD3110 photochemical derivation, the peak area and height of G1 increase about 7 times, and those of B1 increase about 3.5 times.

Except for special instructions, the instrument does not have explosion-proof function.

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