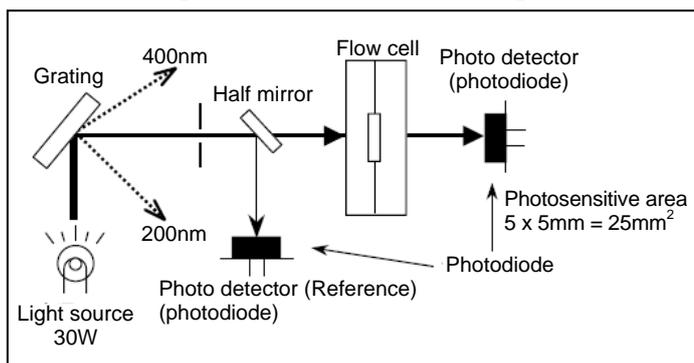
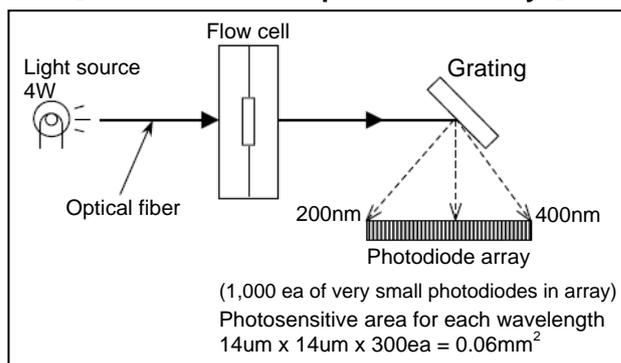


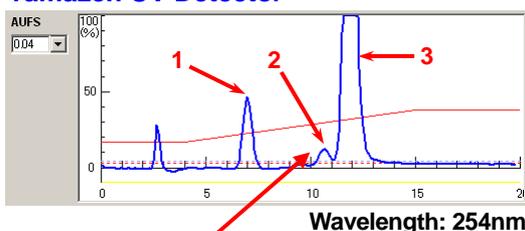
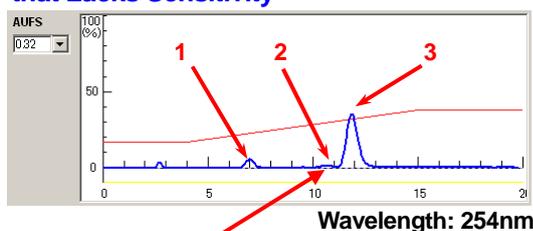
Highly Sensitive UV Detecting Capability Is What's Required for Flash Chromatography

Yamazen's single wavelength UV detector is equipped with a powerful light source and a photo detector (photodiode) with a large photosensitive area that receives strong and maximum amount of light. The amount of light Yamazen's photo detector (photodiode) receives through the UV flow cell is several dozen times stronger than the other manufacturers' multiple-wavelength UV detectors. Thus, Yamazen's UV detector can detect accurately from low UV absorbance samples at highly sensitive detector scales to high UV absorbance samples over a broad range of UV absorbance.

【 Yamazen's UV Detector 】

【 UV Detector with photodiode array 】


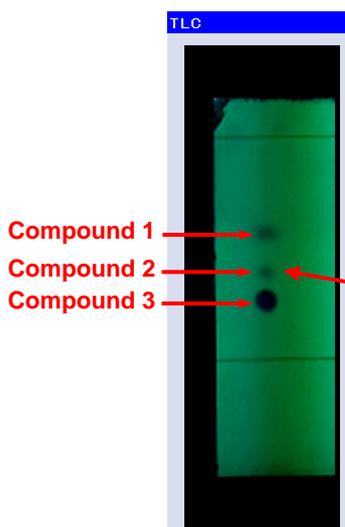
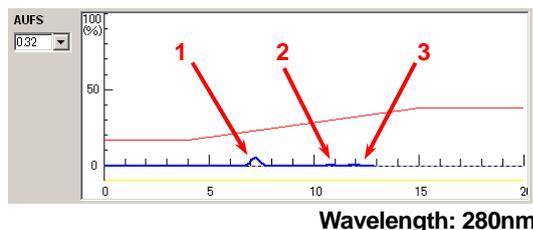
	Yamazen's Highly Sensitive UV Detector	Ordinary Multiple Wavelength UV Detector
Light source	Light source 30W	Light source 4W
Photosensitive area	25 mm²	200nm 400nm 0.06mm ² for each wavelength

Peak Detection

Highly Sensitive Peak Detection With Yamazen UV Detector

Ordinary Multiple-wavelength UV Detector that Lacks Sensitivity


It's hard to detect low UV absorbance samples.

Other wavelength was tried in an attempt to improve the peak detection, and the result was even worse.



Even low UV absorbance samples can be detected clearly and collected without any sample loss.

Sample: N methylaniline
Dimethyl phthalate
Methylparaben

Solvent used: Hexane/Ethyl Acetate

< Purifications of Samples Having Low UV Absorption Coefficient >

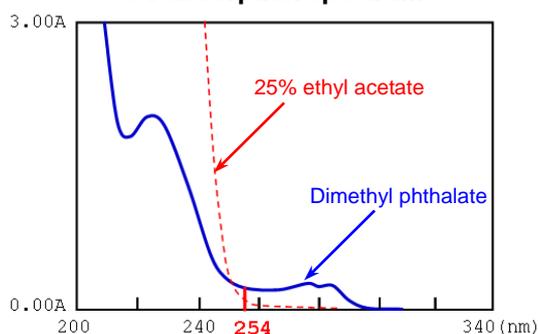
A highly sensitive UV detector is required when monitoring and purifying those samples that appear dim and pale on a TLC. View the TLC image shown below. As the UV absorption spectrum shows below, dimethyl phthalate has a low UV absorption coefficient at the UV wavelength of 254nm or higher. The sample peaks need to be monitored in the wavelength area of 250nm or higher where the organic solvents do not absorb UV light. Usually, the highest sensitivity available with the ordinary multiple-wavelength UV detector is 0.2-0.32 AUFS. And many small sample peaks may not be detected, with the end result of losing valuable samples. There are many samples that have low UV absorption coefficient quantifying from several dozen to several hundred. These kinds of samples need a highly sensitive detector to purify. On the other hand, Yamazen's UV detector is very sensitive. It can detect the samples as sensitive as it is at 0.04 AUFS. It can clearly monitor, purify and fractionate such samples that are seen very dim and pale on TLC when it is illuminated with the 254nm wavelength.

TLC image illuminated at 254nm



Solvent mixture
Hexane: Ethyl acetate = 7:3

UV absorption spectrum

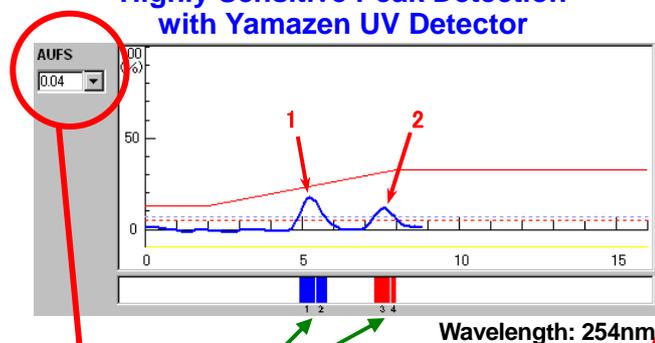


	Absorption coefficient at 254nm wavelength
Compound 1: diethyl phthalate	$\epsilon_{254} = 1120$
Compound 2: dimethyl phthalate	$\epsilon_{254} = 1060$

Run this sample.

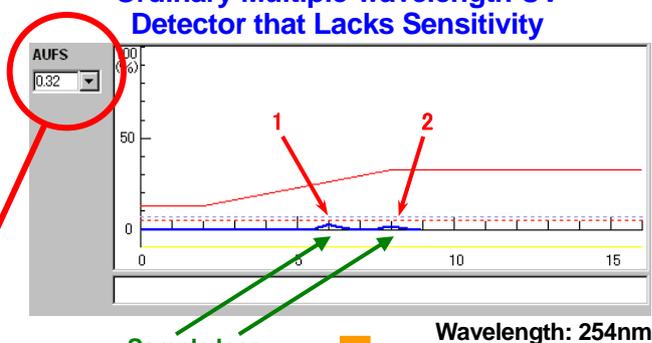
Sample amount: 2.5mg each of compound 1 and compound 2,
Column: Universal S (7g), silica gel

Highly Sensitive Peak Detection with Yamazen UV Detector



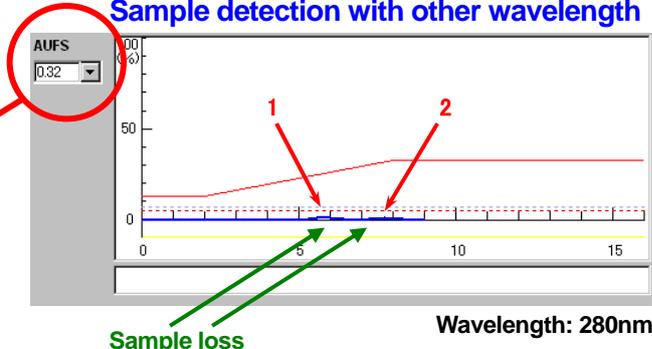
Even low UV absorbance samples can be detected clearly and collected without any sample loss.

Ordinary Multiple-wavelength UV Detector that Lacks Sensitivity



Sample loss

Sample detection with other wavelength



Sample loss

A broad detector range is required for flash chromatography. Multiple wavelength UV detector using photodiode array lacks sensitivity because it is equipped with a weaker light source and photo sensitive area of PDA is very small.

If UV wavelength other than 254nm is set to monitor the sample with the multiple-wavelength UV detector, the selected wavelength does not correlate with the sample spots on a TLC that was illuminated at 254nm. Most popular solvents such as ethyl acetate, chloroform, dichloromethane have very high UV absorbance when wavelength is 250nm or lower. Therefore, these solvents must use wavelength higher than 250nm. Then, those samples that have low UV absorbance in the wavelength zone of 250nm or higher cannot be detected, resulting in sample loss.