



The rapid measurement of the wavelength scan for multi samples by UH5300
 - Absorption Spectrum Measurement of BTB Solution at Different pH -

INTRODUCTION

For unknown samples or the study of analytical conditions as to the wavelength range, the wavelength scan for multi samples is sometimes performed. As the standard installation of UH5300 includes automatic 6-cell turret, the wavelength scan of the inserted cell is automatically performed. For example, when 30 samples are to be measured, the time can be shortened by about 30% compared to the measurement by a single cell and the work efficiency can be improved.

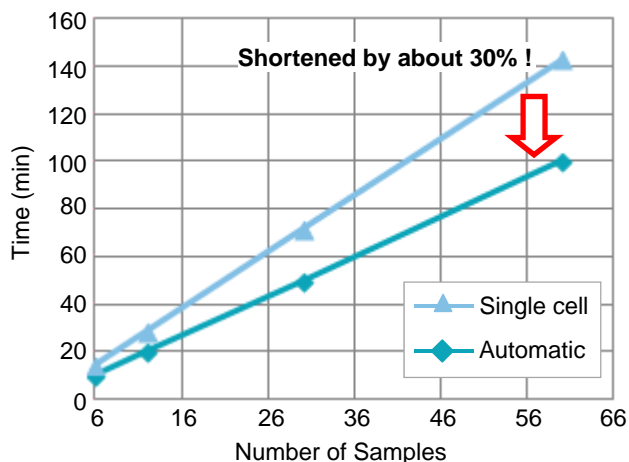
The absorbance of BTB, a pH indicator, was measured this time. The pH indicators are dyes of which colors change depending on pH and are used not only for pH measurements, but also for LC (liquid chromatograph) post-column methods (LC sheet No. 206).

ANALYTICAL CONDITIONS

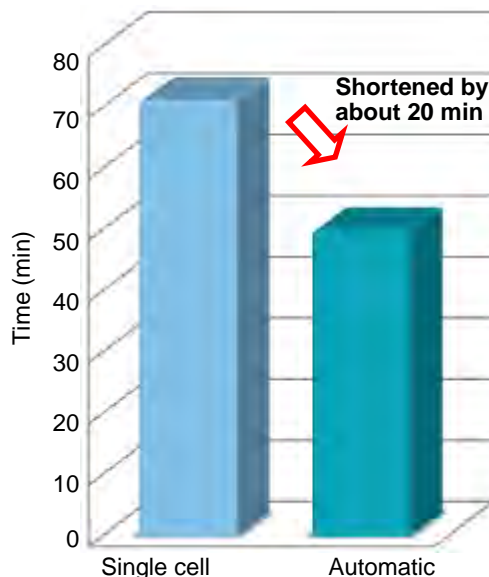
Instrument	: UH5300	Measurement wavelength range	: 300 – 800 nm
Scan speed	: 400 nm/min	6-cell mode	: Automatic
Slit	: 1 nm	Intelligent start	: ON



Appearance of 6-cell Turret



Comparison of Analysis Time (*)



Comparison for Analysis of 30 Samples by Wavelength Scan

Figure 1 Comparison of Single Cell and Automatic Analyses

Automatic: Automatic analysis by 6-cell turret

Single cell: Analysis of 1 sample at a time

(*) The time for an analyst to set the cell in the holder or turret is included.

The time to change the solution in the cell is not included.

With the automated cell switching by the automatic 6-cell turret, the analysis time is greatly shortened.

KEY WORDS

Bio/Medical Science/Food/Pharmaceutical,
 Other Bio/Medical Science/Food/Pharmaceutical Related, BTB, Indicator,
 Buffer Solution, Multi Samples, 6-cell, Absorption Spectrum,
 Bromothymol Blue, UV, UH5300

Spectrophotometer (UV)

Sheet No. UV130001-01



UH5300

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CONDITIONS

Sample : 0.1 mM Bromothymol Blue (BTB)
 Solvent : 0.0667 mol/L potassium dihydrogen phosphate (KH₂PO₄) / 0.0667 mol/L disodium hydrogen phosphate (Na₂HPO₄)
 pH measurement range : About pH 5.9 – pH 7.1

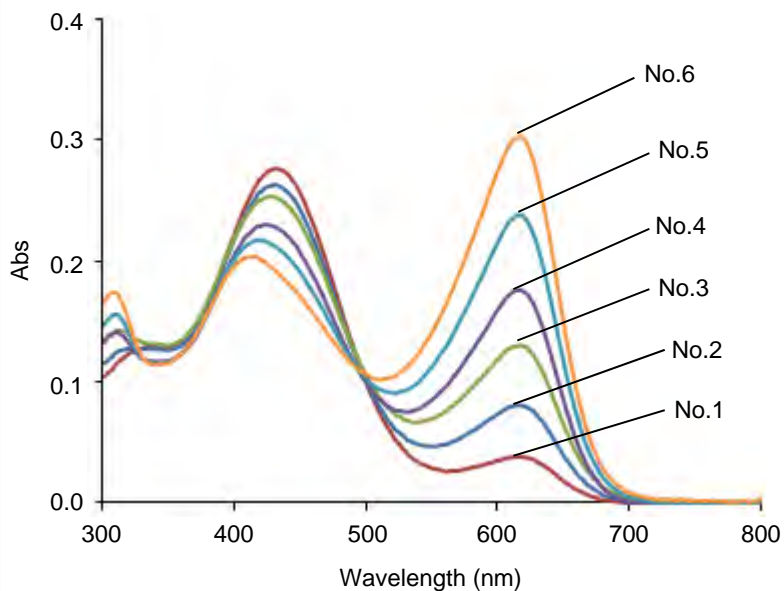


Figure 2 Absorption Spectrum of BTB

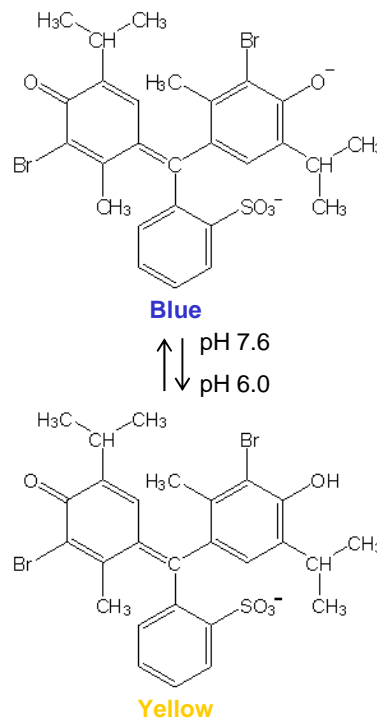


Figure 3 Structural Formula of BTB

Table 1 Maximum Absorption Wavelength at Each pH

No.	pH (*)	Max absorption wavelength (nm)	
		350 - 500	550 - 700
1	5.953	431	617
2	6.268	431	614
3	6.480	426	617
4	6.666	424	617
5	6.810	418	617
6	7.026	414	617

* A pH was measured when the reagent and solvent were mixed.

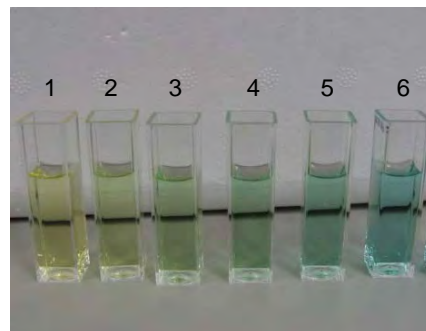


Figure 4 Appearance of Samples

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