Analysis of Cr(VI) in Water Sample with U-5100 (50 mm Cell)

INTRODUCTION

The RoHS directive is the European directive which restricts the use of specific hazardous substances for electronic and electric equipment, and chromium (VI) is one of the restricted substances. In the analysis for chromium (VI) in trivalent chromate plating solution, it is necessary to analyze a trace amount of chromium (VI). This time, chromium (VI) was analyzed by using U-5100 with a rectangular long path cell holder and 50 mm cell. As a result, a high relative correlation ($R2 = 0.9995$) was obtained. By using the 50 mm cell, the absorbance 5 times higher than when a 10 mm cell is used can be obtained and thus, it is effective for the analysis of samples containing trace amounts of substances such as chromium (VI).

METHOD

Analyte	: Cr(VI)
Measurement method	: Diphenylcarbazide Colorimetry
	(Simple analysis by using the water quality analysis reagent of Kyoritsu Chemical-check Lab)
Reagent	: Kyoritsu Chemical-check lab, Water Quality Test Kit No.31 Cr^{6+}

Assay range: 0.02 to 1.0 mg/L
Refer to JIS K0102 65.2 and Standard Methods for the Examination of Water and Wastewater VI-3.11 for the official method.

INSTRUMENT CONDITIONS

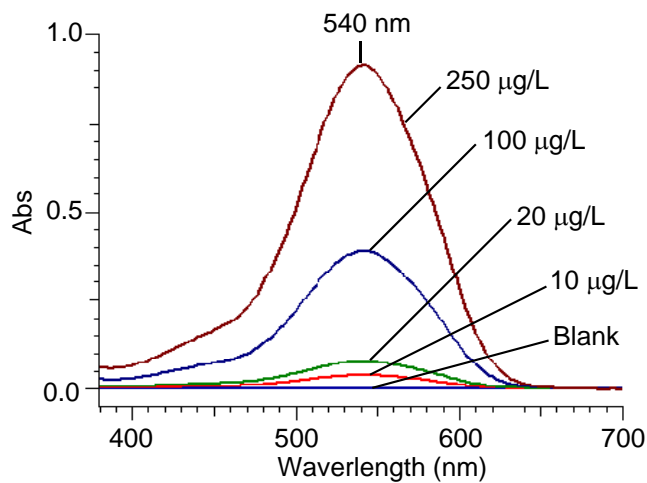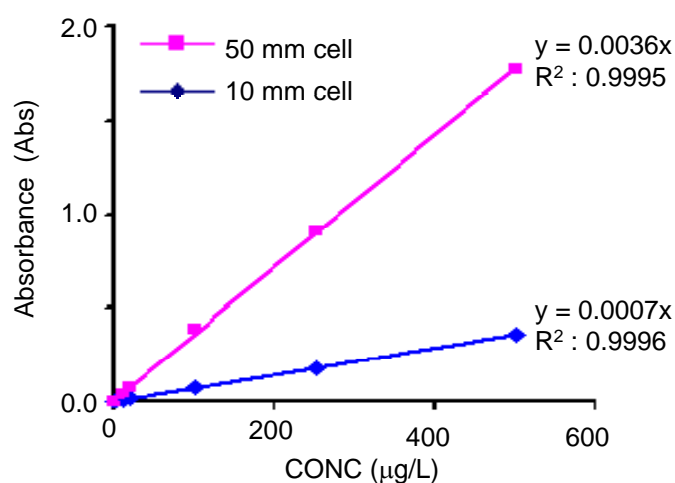|			
Instrument	: U-5100	Scan speed	: 400 nm
Wavelength	: 540 nm	Sampling interval	: 2 nm

PREPARATION

Water sample   25 mL
|← Add R-1 reagent (*1)
Stir
|← Let it stand for 5 min
Sample for measurement

Temperature : Room temperature

*1 Kyoritsu Chemical-check lab
Water Quality Test Kit No.31 Cr^{6+}

** For details such as the effects of the interfering substances and reagent, please contact Kyoritsu Chemical-check Lab.

$y = 0.0036x$
$R^2 : 0.9995$

$y = 0.0007x$
$R^2 : 0.9996$

- 50 mm cell
- 10 mm cell

Calibration Curve of Chromium (VI)

Absorption Spectrum of Chromium (VI)
(50 mm Cell)

Accessory : Rectangular Long Path Cell Holder
(P/N : 3J2-0111)

KEY WORDS

Electronics·Semiconductor Related, Other Electronics·Semiconductor Related, Environmental Chemistry, Environment, Cr(VI), Calibration Curve, Hexavalent Chromium, UV, U-5100, U-1900, U-2900, U-2910, U-3900, U-3900H, U-1800, U-2800, U-3010, U-3310

Spectrophotometer (UV)

Sheet No. UV100013-01