

# Analysis of Total Phosphorus in Water Samples

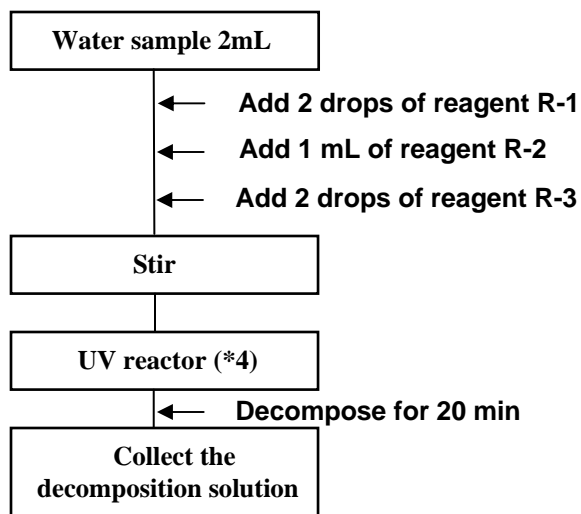
Luis Moreno, Hitachi High Technologies America, Inc.

**P**hosphorus analysis in water is critical for general water quality assessments. Additionally, phosphorus is widely regarded as the primary culprit for sea and lake water eutrophication. The Water Pollution and Control Act established the acceptable levels of phosphorus in industrial wastewater at 1 to 6 mg/L. Here we demonstrate the analysis of total phosphorus in wastewater using the Hitachi U-5100 spectrophotometer and total phosphorus reagent kit from Kyoritsu Chemical.

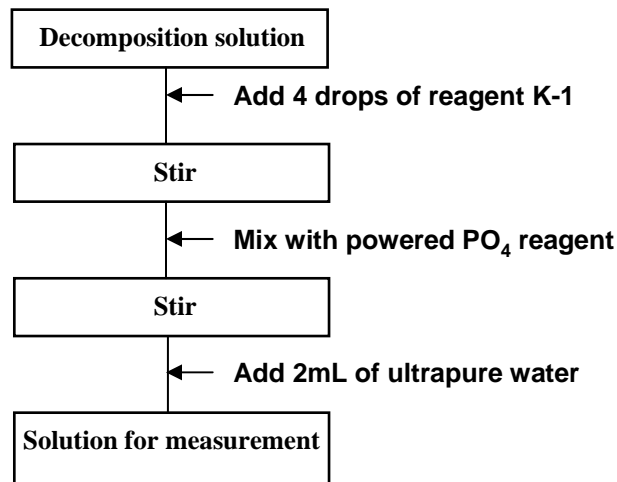
Method	
Analyte / Sample	Total Phosphorus / Wastewater
Measurement method	Acidic potassium peroxodisulfate -UV decomposition method Molybdenum blue spectrophotometric method (Simple analysis by using the UV reactor and Set for Total Phosphorus from Kyoritsu Chemical-check Lab)
Reagent	Kyoritsu Chemical-check Lab set for Total Nitrogen\Total Phosphorus Decomposition reagent·DPR reagent for total phosphorus.
Spectrophotometer	U-5100
Wavelength	700nm (slit 5nm)
Assay range	0.1 ~ 2.0 mg/L

## Experimental:

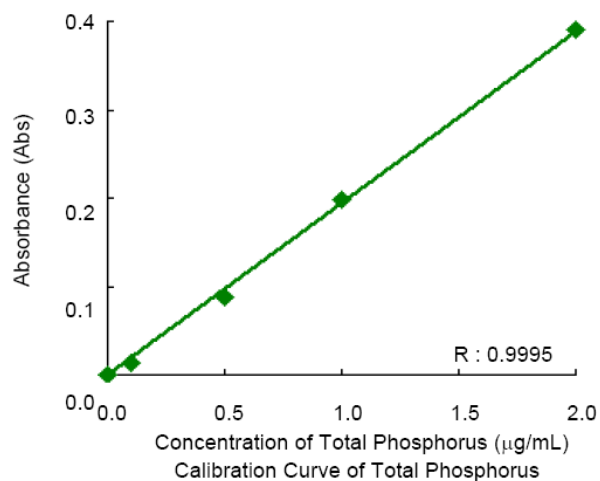
### 1. UV Decomposition Method



### 2. Molybdenum Blue Spectrophotometer Method



### 3. U-5100 Measurement



### Total Phosphorus in Wastewater

	Absorbance	Concentration (µg/mL)
Sample	0.07	0.35

## Conclusion:

A linear calibration curve (0.0 to 2.0 µg/mL) was generated with the correlation coefficient of 0.9995. Total phosphorus in the wastewater sample was determined to be 0.35 µg/mL. The Hitachi U-5100 and the total phosphorus kit offer an improved method for a traditionally complex water analysis.

**Hitachi High Technologies America, Inc.**

Life Sciences Division  
5100 Franklin Drive, Pleasanton, CA 94588  
Toll Free: (800) 548-9001  
email: [Sales-LS@hitachi-hta.com](mailto:Sales-LS@hitachi-hta.com)